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# Actual Frailty Conditions and Lifestyle Changes in Community-Dwelling Older Adults Affected by Coronavirus Disease 2019 Countermeasures in Japan: A Cross-Sectional Study

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**Abstract**

**Introduction:** Because of the countermeasures to prevent the spread of coronavirus disease 2019 (COVID-19) in Japan, it is easy to predict that the suspension of local activities and changes in lifestyle that lead to decreased activity will result in increased frailty and prefrailty rates in older adults.

**Objective:** To clarify the actual frailty conditions and lifestyle changes among community-dwelling older adults affected by COVID-19 countermeasures in Japan.

**Methods:** This cross-sectional study was conducted between May 8 and June 12, 2020. Self-reported questionnaires were distributed to 1,078 older adults aged $\geq$65 years. We used the frailty screening index to assess frailty status and developed the Questionnaire for Change of Life (QCL) to assess lifestyle changes, the amount of daily movement, leg muscle strength, meal size, worry or anxiety, and opportunities to talk to people. The differences in prevalence rates of frailty, prefrailty, and robustness between this study and the reference based on the Japanese meta-analysis were verified using the chi-square goodness of fit test. We compared each of the QCL results among the frailty, prefrailty, and robust groups using Fisher's exact test.

**Results:** Of 680 older adults (63.1%) analyzed, 60 (8.8%) had frailty and 354 (52.1%) had prefrailty. There was a significant difference between the observed and expected prevalence based on the reference ($p = 0.018$). The frailty status was significantly associated with lifestyle changes. In participants with frailty, the amount of daily movement, leg muscle strength, and meal size significantly decreased ($p < 0.001$), whereas worry or anxiety significantly increased ($p = 0.040$). In contrast, regardless of the frailty status, opportunities to talk to people decreased.

**Conclusion:** The prevalence of frailty and prefrailty might have increased due to the effects of COVID-19 countermeasures. Moreover, the lifestyle of community-dwelling older adults affected by COVID-19 countermeasures has changed. Lifestyle changes were more pronounced among older adults with frailty.

**Keywords**
frailty, COVID-19, older adult, lifestyle

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## Introduction

On April 16, the Japanese government issued a state of emergency and requested that the population avoid mass gatherings and thoroughly implement social distancing to prevent the spread of coronavirus disease 2019 (COVID-19). The number of recreational salons where

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older adults of a community can congregate, exercise, and socialize and regular visits that aim to prevent anxiety and isolation of older adults living alone or in households comprising only older adults were reduced. In Japan, these local activities fulfill a role in preventing frailty in older adults. Furthermore, according to the government's request for restraint, older adults were discouraged from going out for non-essential purposes.

Although recreational salons and regular visits were essential for preventing frailty, almost all community-dwelling older adults lost these opportunities and exercised and communicated with others less over a period of several months. Reducing these opportunities would lead older adults to suffer physical or psychological adverse effects. Therefore, it is easy to predict that the suspension of local activities and changes in lifestyle that lead to decreased activity will result in increased frailty rates or worsened frailty in older adults. There are concerns regarding "corona-frailty" related to changes implemented as COVID-19 countermeasures that requested for restraint and social distancing (Shinohara et al., 2020). There is an urgent need to clarify the actual conditions and measures for older adults secondarily affected by COVID-19 so that policy makers can consider strategies to prevent frailty during a pandemic. However, there are few social or epidemiological survey reports on actual frailty conditions among older adults secondarily affected by COVID-19. Changes in lifestyle and physical or psychological conditions affected by COVID-19 countermeasures may continue in the future; thus, by understanding the actual conditions, we can assess the impact of COVID-19 countermeasures.

We hypothesized that the frailty rate had increased because of the reduction in local activities aimed at preventing frailty and changes in lifestyle and physical or psychological conditions. This report aimed to clarify the actual frailty conditions and lifestyle changes among community-dwelling older adults affected by COVID-19 countermeasures as a baseline study for our future cohort study.

## Methods

### Study Design and Participants

This cross-sectional study was conducted between May 8 and June 12, 2020, in Takasaki City, Gunma Prefecture, Japan. Gunma Prefecture where participants lived requested older adults to refrain from going out until June 12, 2020. The self-reported questionnaires and the instructions for this study were distributed to 1,078 community-dwelling older adults aged $\geq$65 years who live in local housing and who were helped on a regular basis by local volunteer. The participants were not excluded due to the presence of specific types of comorbidities and/or disorders or the presence of cognitive impairment or dementia, to enable a broad investigation of the actual condition of older adults. The questionnaires contained written informed consent and were returned by post.

This study was conducted in accordance with the tenets of the Declaration of Helsinki. This study was approved by the Research Ethics Committee of the Takasaki University of Health and Welfare (Approval No. 2009).

### Measurements

Frailty and prefrailty were assessed using the Frailty Screening Index (FSI) (Yamada & Arai, 2015), which comprised five items answered with simple yes/no responses and did not require an actual measurement of grip strength or walking speed. The FSI questioned the participants about their weight loss in the past 6 months and decreased walking speed. However, recent changes affected by the COVID-19 countermeasures were not clarified. The recent changes are important to assess and allow us to examine the impact of current and future risks to frailty; therefore, the Questionnaire for Change of Life (QCL) was prepared to evaluate the impact of COVID-19 countermeasures on changes in lifestyle and physical or psychological conditions. The QCL contained five items related to frailty: amount of daily movement, "How about the amount of movement in your life?"; leg muscle strength, "How strong are your legs?"; meal size, "How's your food intake?"; worry or anxiety, "How's your worry and anxiety?"; and opportunities to talk to people, "How about an opportunity to communicate with people?". Frailty has three dimensions: Physical frailty is related to the amount of daily movement (Okura et al., 2018), leg muscle strength (Fried et al., 2001), and meal size (O'Connell et al., 2020); cognitive frailty is related to the amount of daily movement (Shimada et al., 2016), including worry or anxiety (Makizako et al., 2015); and social frailty is related to opportunities to talk to people (Kojima et al., 2020). To maintain the implementation of social distancing as a preventive measure against infection, we used an easy questionnaire and only selected five items that older adults could answer without the support of others at home. The participants were asked about their subjective changes in the previous month to evaluate changes in their lifestyle due to the measures implemented to prevent the spread of COVID-19. Each item was scored in the following scale: decreased or weaker = 1, slightly decreased or weaker = 2, unchanged = 3, slightly increased or stronger = 4, increased or stronger = 5 on all items except for those about worry or anxiety, which were scored as:

increased = 1, slightly increased = 2, unchanged = 3, slightly decreased = 4, decreased = 5.

### Statistical Analysis

We defined frailty, pre-frailty, and robust as FSI scores of ≥3, 1–2, and 0, respectively (Yamada & Arai, 2015). The reference prevalence rates of frailty, prefrailty, and robust status, based on a meta-analysis in Japan, were 7.5%, 48.1%, and 44.4%, respectively (Kojima et al., 2017). The differences between the prevalence rate in this study and the reference prevalence rate were verified using the chi-square goodness of fit test to determine whether the frailty rates had increased. The analysis was performed for not only the total participants but also each sex. Cronbach's α was calculated as a measure of the QCL internal consistency. We compared each of the QCL results among the frailty, prefrailty, and robust groups by Fisher's exact tests. All statistical analyses were performed using R version 4.0.0, with p-values $< 0.05$ indicating statistical significance.

## Results

A total of 702 older adults returned the questionnaires with written consent, corresponding to a response rate of 65.1%. We analyzed 680 older adults who answered all questions (63.1%). There were 511 (75.1%) women and 169 (24.9%) men. The mean age was 78.1 years (SD 6.3) (77.8 years [SD 6.2] in women and 78.2 years [SD 6.3] in men). There were no significant differences with respect to sex when the t-test was performed ($p = 0.425$). Sixty participants (8.8%) were frail, 354 (52.1%) were prefrail, and 266 (39.1%) were robust based on FSI scores. There was a significant difference between the observed and expected rates based on the reference (chi-square value = 8.077, $df = 2$, $p = 0.018$). The prevalence of frailty and prefrailty in this study was high, and the prevalence of robustness was low. Among women, 45 participants (8.8%) were frail, 269 (52.6%) were prefrail, and 197 (38.6%) were robust. There was a significant difference between the observed and expected rates (chi-square value = 7.290, $df = 2$, $p = 0.026$). In men, 15 participants (8.9%) were frail, 85 (50.3%) were prefrail, and 69 (40.8%) were robust. There was no significant difference between the observed and expected rates (chi-square value = 1.081, $df = 2$, $p = 0.582$).

Cronbach's α for the QCL was 0.538. In participants had frailty, the amount of daily movement, leg muscle strength, and meal size significantly decreased ($p < 0.001$), and worry or anxiety significantly increased ($p = 0.040$) (Table 1). In contrast, regardless of the frailty status, the opportunities to talk to people decreased. The percentage of people who had less opportunity to talk to people (decreased or slightly decreased) was 64.1%. In women, the association between the frailty status and the QCL was comparable to the overall results (Table 2). In contrast, in men with frailty, leg muscle strength and meal size significantly decreased ($p < 0.001$), and the other three items had no significant association with the frailty status (Table 3).

## Discussion

In this study, the prevalence rates of frailty and prefrailty were 8.8% and 52.1%, respectively. Because the frailty status of community-dwelling older adults who participated in this study before the implementation of COVID-19 countermeasures was unknown, we used the frailty prevalence rate from a meta-analysis in Japan as a reference (Kojima et al., 2017). Based on the reference rate, the prevalence of frailty and prefrailty in this study was high, and the prevalence of robustness was low in all participants and women. Kojima et al. (2017) showed that more women were frail than men in most age groups, except for those aged 70-74 years in a Japanese meta-analysis. A meta-analysis of many countries across the world indicated that the prevalence of frailty and prefrailty was also higher in women (O'Caoimh et al., 2021). In this study, there was no significant difference in age (77.8 years vs. 78.2) years with respect to sex. The current study showed that the frequency of frailty and prefrailty in women (8.8% and 52.6%, respectively) were slightly higher than that in men (8.9% and 50.3%, respectively). In the period of the COVID-19 pandemic, similar to previous studies, the number of women with frailty was higher than that of men with frailty. There was no significant difference between the observed and expected rates in men, but the prevalence of frailty and prefrailty was higher and that of robustness was less. These increases in the prevalence rates of frailty and prefrailty might be affected by COVID-19 countermeasures and corona-frailty (Shinohara et al., 2020). Frailty develops as a consequence of age-related decline in multiple physiological systems and frail individuals are vulnerable to sudden health status changes triggered by minor stressor events (Clegg, 2013). Self-restraint life for social distancing and lifestyle changes were stressors for community-dwelling older adults. COVID-19 countermeasures might not only affect the increase in frailty but also worsen health conditions among frail older adults.

Each item of the QCL was analyzed because its internal consistency was poor ($\alpha = 0.538$). The amount of daily movement and leg muscle strength in the QCL decreased significantly with frailty in all participants. Physical activity decreased during the lockdown due to the COVID-19 pandemic as reported in a study that used a semi-structured phone interview for community-dwelling older adults in Spain (Pérez, 2021). In the

**Table 1.** Results of the Questionnaire for Changes of Lifestyle Among the Frailty, Prefrailty, and Robust Groups.

| | Overall n = 680 | Frailty n = 60 | Prefrailty n = 354 | Robust n = 266 | *p*-value |
|---|---|---|---|---|---|
| (1) Amount of daily movement, n(%) | | | | | |
| Decreased | 105 (15.4) | 21 (35.0) | 59 (16.7) | 25 (9.4) | <.001 |
| Slightly decreased | 200 (29.4) | 17 (28.3) | 108 (30.5) | 75 (28.2) | |
| Unchanged | 338 (49.7) | 20 (33.3) | 172 (48.6) | 146 (54.9) | |
| Slightly increased | 25 ( 3.7) | 2 (3.3) | 9 (2.5) | 14 (5.3) | |
| Increased | 12 (1.8) | 0 (0.0) | 6 (1.7) | 6 (2.3) | |
| (2) Leg muscle strength, n(%) | | | | | |
| Weaker | 68 (10.0) | 24 (40.0) | 41 (11.6) | 3 (1.1) | <.001 |
| Slightly weaker | 236 (34.7) | 28 (46.7) | 163 (46.0) | 45 (16.9) | |
| Unchanged | 366 (53.8) | 8 (13.3) | 145 (41.0) | 213 (80.1) | |
| Slightly stronger | 8 (1.2) | 0 (0.0) | 4 (1.1) | 4 (1.5) | |
| Stronger | 2 (0.3) | 0 (0.0) | 1 (0.3) | 1 (0.4) | |
| (3) Meal size, n(%) | | | | | |
| Decreased | 20 (2.9) | 10 (16.7) | 9 (2.5) | 1 (0.4) | <.001 |
| Slightly decreased | 87 (12.8) | 13 (21.7) | 62 (17.5) | 12 (4.5) | |
| Unchanged | 533 (78.4) | 35 (58.3) | 260 (73.4) | 238 (89.5) | |
| Slightly increased | 34 (5.0) | 1 (1.7) | 18 (5.1) | 15 (5.6) | |
| Increased | 6 (0.9) | 1 (1.7) | 5 (1.4) | 0 (0.0) | |
| (4) Worry or anxiety, n(%) | | | | | |
| Increased | 52 (7.6) | 8 (13.3) | 31 (8.8) | 13 (4.9) | .040 |
| Slightly increased | 253 (37.2) | 26 (43.3) | 129 (36.4) | 98 (36.8) | |
| Unchanged | 350 (51.5) | 23 (38.3) | 117 (50.0) | 150 (56.4) | |
| Slightly decreased | 23 (3.4) | 3 (5.0) | 15 (4.2) | 5 (1.9) | |
| Decreased | 2 (0.3) | 0 ( 0.0) | 2 (0.6) | 0 (0.0) | |
| (5) Opportunities to talk to people, n(%) | | | | | |
| Decreased | 214 (31.5) | 22 (36.7) | 110 (31.1) | 82 (30.8) | .703 |
| Slightly decreased | 222 (32.6) | 17 (28.3) | 120 (33.9) | 85 (32.0) | |
| Unchanged | 232 (34.1) | 21 (35.0) | 119 (33.6) | 92 (34.6) | |
| Slightly increased | 8 (1.2) | 0 ( 0.0) | 2 (0.6) | 6 ( 2.3) | |
| Increased | 4 (0.6) | 0 (0.0) | 3 (0.8) | 1 (0.4) | |

Netherlands, a decline in self-reported physical activity due to the COVID-19 pandemic was reported by nearly 50% of older adults (Visser, 2020). Among community-dwelling older adults in Japan, the total time spent in physical activity in April 2020 (during the COVID-19 pandemic) decreased by approximately 30% compared with that in January 2020 (before the COVID-19 epidemic) as reported in a study that used a questionnaire for physical activity (Yamada, 2020). The results of the current study were in line with those of these studies. This demonstrates that the COVID-19 pandemic induced physical activity behavioral changes in many older adults worldwide. In the item for worry or anxiety of the QCL, the greatest increase or slight increase in men was robust; the opposite phenomenon was observed in women. This might indicate that even if older men were robust, they were more prone to worry or anxiety than women were. Chen (2021) reported that older adults with pre-frailty or frailty expressed negative emotional reactions including anxiety and worry, toward COVID-19. Moreover, the presence of anxiety was independently associated with the impact of the COVID-19 pandemic on the quality of life of community-dwelling older adults (Saraiva, 2021). It is worth noting that frail women were particularly vulnerable to the effects on their quality of life during the COVID-19 pandemic. For most participants, opportunities to talk to people decreased, which worsened the pre-existing loneliness and social isolation in older adults (D'cruz & Banerjee, 2020) and indicated an increased risk of social frailty regardless of the frailty status during COVID-19.

The current study showed changes in lifestyle in community-dwelling older adults during the COVID-19 pandemic. Exercise, adequate nutrition, and socialization were recommended to prevent frailty progression (Boreskie et al., 2020). The amount of daily movement was decreased in older adults with frailty. However, it is difficult to increase physical activity by conventional approaches in pandemics. New models of movement, such as telehealth exercise programs (Middleton et al., 2020) and mobile technology, to help maintain mobility

**Table 2.** Results of the Questionnaire for Changes of Lifestyle Among the Frailty, Prefrailty, and Robust Groups in Women.

| | Overall n = 511 | Frailty n = 45 | Prefrailty n = 269 | Robust n = 197 | *p*-value |
|---|---|---|---|---|---|
| (1) Amount of daily movement, n(%) | | | | | |
| Decreased | 77 (15.1) | 15 (33.3) | 43 (16.0) | 19 (9.6) | <.01 |
| Slightly decreased | 153 (29.9) | 14 (31.1) | 83 (30.9) | 56 (28.4) | |
| Unchanged | 256 (50.1) | 14 (31.1) | 134 (49.8) | 108 (54.8) | |
| Slightly increased | 17 (3.3) | 2 (4.4) | 6 (2.2) | 9 (4.6) | |
| Increased | 8 (1.6) | 0 (0.0) | 3 (1.1) | 5 (2.5) | |
| (2) Leg muscle strength, n(%) | | | | | |
| Weaker | 46 (9.0) | 17 (37.8) | 26 (9.7) | 3 (1.5) | <.001 |
| Slightly weaker | 184 (36.0) | 22 (48.9) | 128 (47.6) | 34 (17.3) | |
| Unchanged | 274 (53.6) | 6 (13.3) | 112 (41.6) | 156 (79.2) | |
| Slightly stronger | 5 (1.0) | 0 (0.0) | 2 (0.7) | 3 (1.5) | |
| Stronger | 2 (0.4) | 0 (0.0) | 1 (0.4) | 1 (0.5) | |
| (3) Meal size, n(%) | | | | | |
| Decreased | 11 (2.2) | 4 (8.9) | 6 (2.2) | 1 (0.5) | <.001 |
| Slightly decreased | 69 (13.5) | 12 (26.7) | 49 (18.2) | 8 (4.1) | |
| Unchanged | 396 (77.5) | 27 (60.0) | 193 (71.7) | 176 (89.3) | |
| Slightly increased | 29 (5.7) | 1 (2.2) | 16 (5.9) | 12 (6.1) | |
| Increased | 6 (1.2) | 1 (2.2) | 5 (1.9) | 0 (0.0) | |
| (4) Worry or anxiety, n(%) | | | | | |
| Increased | 43 (8.4) | 7 (15.6) | 29 (10.8) | 7 (3.6) | .011 |
| Slightly increased | 192 (37.6) | 21 (46.7) | 97 (36.1) | 74 (37.6) | |
| Unchanged | 259 (50.7) | 15 (33.3) | 133 (49.4) | 111 (56.3) | |
| Slightly decreased | 16 (3.1) | 2 (4.4) | 9 (3.3) | 5 (2.5) | |
| Decreased | 1 (0.2) | 0 (0.0) | 1 (0.4) | 0 (0.0) | |
| (5) Opportunities to talk to people, n(%) | | | | | |
| Decreased | 167 (32.7) | 16 (35.6) | 87 (32.3) | 64 (32.5) | .924 |
| Slightly decreased | 176 (34.4) | 12 (26.7) | 95 (35.3) | 69 (35.0) | |
| Unchanged | 161 (31.5) | 17 (37.8) | 84 (31.2) | 60 (30.5) | |
| Slightly increased | 5 (1.0) | 0 (0.0) | 2 (0.7) | 3 (1.5) | |
| Increased | 2 (0.4) | 0 (0.0) | 1 (0.4) | 1 (0.5) | |

(Banskota et al., 2020), are being developed. Moreover, meal size was decreased in older adults with frailty, and opportunities to talk to people were decreased regardless of the frailty status. Solutions to lack of nutrition and communication should be prioritized. Reduced communication can eventually develop into isolation, such as social frailty. Although isolation is essential and effective in preventing infection, secondary problems may develop due to isolation (Armitage & Nellums, 2020). Yang et al. (2020) proposed the need for adequate mental support for depressive symptoms during the isolation period. Solutions to the lack of communication and isolation should be prioritized. In order to prevent to increase frailty rates or worsen frailty, the community-dwelling older adults should be supported so as not to change their lifestyles in the pandemic.

## Limitations

This study had several limitations. First, the participants were not completely controlled in this study or in the referenced meta-analysis. To clarify that frailty was affected by COVID-19 countermeasures, the prevalence within the same cohort population should be compared using data from a cohort study and not using data from a cross-sectional study. Second, the reliability and validity of the FSI and QCL have not been sufficiently analyzed. We should indicate the criterion-related validity between the FSI and the Japanese version of the Cardiovascular Health Study criteria (Satake & Arai, 2020) as a standard to measure frailty. Third, changes in lifestyle and physical or psychological conditions were investigated using self-reported and subjective questionnaires. The survey period was in the middle of the COVID-19 pandemic when social distancing was strictly followed. It was unavoidable to exclude the assessment requiring actual measurements and many covariates because we enabled many older adults to respond by themselves at home. Frailty status should be assessed taking other factors into account.

This report is a baseline study for our future cohort study (Shinohara et al., 2020a). We will conduct research

**Table 3.** Results of the Questionnaire for Changes of Lifestyle Among the Frailty, Prefrailty, and Robust Groups in Men.

| | Overall n = 169 | Frailty n = 15 | Prefrailty n = 85 | Robust n = 69 | *p*-value |
|---|---|---|---|---|---|
| (1) Amount of daily movement, n(%) | | | | | |
| Decreased | 28 (16.6) | 6 (40.0) | 16 (18.8) | 6 (8.7) | .187 |
| Slightly decreased | 47 (27.8) | 3 (20.0) | 25 (29.4) | 19 (27.5) | |
| Unchanged | 82 (48.5) | 6 (40.0) | 38 (44.7) | 38 (55.1) | |
| Slightly increased | 8 (4.7) | 0 (0.0) | 3 (3.5) | 5 (7.2) | |
| Increased | 4 (2.4) | 0 (0.0) | 3 (3.5) | 1 (1.4) | |
| (2) Leg muscle strength, n(%) | | | | | |
| Weaker | 22 (13.0) | 7 (46.7) | 15 (17.6) | 0 (0.0) | <.001 |
| Slightly weaker | 52 (30.8) | 6 (40.0) | 35 (41.2) | 11 (15.9) | |
| Unchanged | 92 (54.4) | 2 (13.3) | 33 (38.8) | 57 (82.6) | |
| Slightly stronger | 3 (1.8) | 0 (0.0) | 2 (2.4) | 1 (1.4) | |
| Stronger | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| (3) Meal size, n(%) | | | | | |
| Decreased | 9 (5.3) | 6 (40.0) | 3 (3.5) | 0 (0.0) | <.001 |
| Slightly decreased | 18 (10.7) | 1 (6.7) | 13 (15.3) | 4 (5.8) | |
| Unchanged | 137 (81.1) | 8 (53.3) | 67 (78.8) | 62 (89.9) | |
| Slightly increased | 5 (3.0) | 0 (0.0) | 2 (2.4) | 3 (4.3) | |
| Increased | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| (4) Worry or anxiety, n(%) | | | | | |
| Increased | 9 (5.3) | 1 (6.7) | 2 (2.4) | 6 (8.7) | .164 |
| Slightly increased | 61 (36.1) | 5 (33.3) | 32 (37.6) | 24 (34.8) | |
| Unchanged | 91 (53.8) | 8 (53.3) | 44 (51.8) | 39 (56.5) | |
| Slightly decreased | 7 (4.1) | 1 (6.7) | 6 (7.1) | 0 (0.0) | |
| Decreased | 1 (0.6) | 0 (0.0) | 1 (1.2) | 0 (0.0) | |
| (5) Opportunities to talk to people, n(%) | | | | | |
| Decreased | 47 (27.8) | 6 (40.0) | 23 (27.1) | 18 (26.1) | .377 |
| Slightly decreased | 46 (27.2) | 5 (33.3) | 25 (29.4) | 16 (23.2) | |
| Unchanged | 71 (42.0) | 4 (26.7) | 35 (41.2) | 32 (46.4) | |
| Slightly increased | 3 (1.8) | 0 (0.0) | 0 (0.0) | 3 (4.3) | |
| Increased | 2 (1.2) | 0 (0.0) | 2 (2.4) | 0 (0.0) | |

to assess frailty and lifestyle changes to determine the impact of the COVID-19 countermeasures on community-dwelling older adults.

## Conclusions

In the community-dwelling older adults affected by COVID-19 countermeasures, prevalence rates of frailty and prefrailty were 8.8% and 52.1%, respectively. The prevalence of frailty and prefrailty was high, and the prevalence of robustness was low compared to the reference rate in Japan. The amount of daily movement, leg muscle strength, and meal size in the QCL decreased, while worry or anxiety increased with frailty. Lifestyle changes were more pronounced among older adults with frailty. In contrast, regardless of the frailty status, the opportunities to talk to people decreased. There were differences in changes in the amount of daily movement and worry or anxiety, with respect to sex. In men, the greatest change in worry or anxiety was robust.

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