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Family social support and stability of preferences regarding place of death among older people: a 3-year longitudinal study from the Japan Gerontological Evaluation Study

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Abstract

Background: it remains unclear how family relationships could affect stability of end-of-life care preferences.
Objective: to describe change patterns of preferred place of death (POD) among older people and to examine associations between family social support and stability of preferences regarding POD.
Methods: this longitudinal study of 1,200 noninstitutionalized independent Japanese older people aged over 65 years used panel data between 2016 and 2019 from the Japan Gerontological Evaluation Study (JAGES). Preference stability was defined as the congruence of preferred POD based on questionnaires between baseline and follow-up. We performed multiple logistic regression analysis and gender-stratified analysis to examine associations between social support (spouse, children living together and children living apart) and preference stability.
Results: only 40.9% of participants had stable preferences. For a spouse, both receiving and providing social support was associated with less stable preferences (OR: 0.63, 95% CI: 0.43–0.93; OR: 0.55, 95% CI: 0.38–0.80, respectively), and providing social support to children living apart was associated with more stable preferences (OR: 1.35, 95% CI: 1.03–1.76).
In gender-stratified analysis, significant associations between preference stability and providing social support to a spouse among women (OR: 0.53, 95% CI: 0.34–0.82) and providing social support to children living apart among men (OR: 1.72, 95% CI: 1.16–2.55) were observed.
Conclusions: family social support was associated with the stability of preferences, and the associations differed by support resources and gender. Incorporating family members in the process of end-of-life care discussion may be necessary for establishing stable preferences.

Keywords: social support, place of death, preferences, older people, end of life care

Key Points
• Only 40% of older people had stable preferences regarding place of death over three years.
• For women, providing social support to a spouse was associated with less stable preferences.
• For men, providing social support to children living apart was associated with more stable preferences.
• Preference stability may require periodic reassurance and family involvement in end-of-life care discussions.
Introduction

The world population is rapidly aging. The proportion of the world population aged over 65 years has risen from 6% to 9% between 1990 and 2019, and is expected to double by 2050 [1]. The rapid growth of the older population has raised concerns about care for older people, especially end-of-life (EOL) care.

Providing high-quality EOL care compatible with people’s preferences and values is vital. To respect an individual’s autonomy, experts in EOL care recommend identifying and sharing the individual’s goals and preferences for EOL care, such as treatments and place of death (POD), through discussions with health care professionals [2]. Although properly understanding their preferences is essential for fulfilling them, preferences regarding EOL care can vary over time. Therefore, preferences should be elicited through iterative discussions on the premise of such changeability [3]. Meanwhile, fulfilling preferences depends on the assumption that they are somewhat stable [4, 5]. If individuals’ preferences are too fluid and unstable, it is impossible to provide EOL care in the manner they truly wish. Thus, knowledge of the factors that can change preference stability would enable timely discussions and reassurance of preferences [6].

POD is an essential component in EOL care. Achieving individuals’ preferred POD is significant to them, their family members, and their caregivers and is considered as a quality indicator of palliative care [7]. A systematic review indicated that family is the most influential environmental factor on care preferences of older people with advanced illnesses, and family-related concerns and the degree of family support available significantly affect their care preferences [8]. Therefore, the quality of family relationships may affect the stability of preferences for POD.

Social support is a qualitative aspect of social relationships [9]. It has two primary dimensions: emotional support (e.g., valuing, loving and caring for someone) and instrumental support (e.g., financial aid); moreover, it is bidirectional, that is, it involves receiving and providing support [10]. Family social support motivates people to commit to healthier behaviours for family members [11]. Moreover, people with family social support are likely to consider and discuss EOL care in advance [12] and may have more stable preferences for their family members’ benefit. However, the associations between family social support and preference stability have not been well studied [8].

The effect of family social support on stability of EOL care preferences may vary according to gender. A systematic review demonstrated that women tended to withhold medical treatments at the end of their lives compared to men [13]. According to previous research, women with advanced cancers were more likely than men to prefer palliative care and to have do-not-resuscitate orders [14]. These findings indicate that individuals’ attitudes toward EOL care may differ by gender [15]. However, the influence of gender on these relationships remains unknown.

This study aimed to describe change patterns of preferred POD over time among Japanese older people, to examine the associations between family social support and preference stability, and to investigate gender differences in the associations. A clear understanding of preference stability and the link between family social support and stability may enable more older people to fulfil EOL care preferences.

Method

Data sources

We used data from the Japan Gerontological Evaluation Study (JAGES) [16]. The JAGES is an ongoing prospective cohort study of the social determinants of health among noninstitutionalized adults aged over 65 years who are independent in activities of daily living. Surveys have been conducted to inquire about health habits, psychological factors and a broad range of social determinants almost every three years since 2003. We used data from the 2016 and 2019 waves. The self-reported survey questionnaires in both waves comprised the core questions and one of the eight modules randomly distributed to the participants [16]. Each module had unique questions, and one module featured a question about the preferred POD.

Participants

The questionnaires were mailed to 34,566 individuals in 2016 (at baseline) and 45,971 individuals in 2019 (at follow-up). The response rates were 64.4% (n = 22,258) and 54.0% (n = 24,806), respectively. Participants were informed that selecting an acceptance checkbox on the questionnaire and returning it would signify consent to participate. This study included 1,268 participants who answered questionnaires in both waves. Sixty-eight participants were excluded because of missing information on family social support at baseline. The final sample included 1,200 participants.

Outcome variable

The preferred POD was assessed using the following question: ‘Where would you like to spend the last days of your life?’ Responses were ‘home,’ ‘hospital,’ ‘hospice,’ ‘nursing home,’ ‘assisted living facility’ and ‘unknown.’ ‘Nursing home’ and ‘assisted living facility’ were combined into ‘institution’ in our analysis. Missing values were classified into the ‘unknown’ category. Stability of POD preferences was defined as the congruence between responses (except for unknown) at baseline and follow-up. The other combinations were categorized as unstable.

Explanatory variables

Social support was assessed using four items [10]: ‘Do you have someone who listens to your concerns and complaints?’ (Receiving emotional support), ‘Do you listen to someone’s concerns or complaints?’ (Providing emotional support), ‘Do
you have someone who looks after you when you are sick and confined to a bed for a few days?’ (Receiving instrumental support), and ‘Do you look after someone when he/she is sick and confined to a bed for a few days?’ (Providing instrumental support). Each item had seven possible response categories: spouse, children living together, children living apart, relatives, neighbours, friends and others. Participants were allowed multiple selections. As per this study’s scope, we limited social support resources to three family relationships: spouse, children living together and children living apart. Participants who answered ‘yes’ to the items of receiving emotional and/or instrumental support were defined as those who received social support. Likewise, providing emotional and/or instrumental support was unified into providing social support. Not receiving social support or providing social support were treated as reference categories.

Covariates
We included sociodemographic and health-related factors as possible confounders based on previous research [17, 18]. We decreased the number of categories for some categorical variables to avoid few observations per category.

Sociodemographic factors
Sociodemographic factors included age, educational attainment, marital status, living arrangements, equivalized household income and population density. Age was classified into four groups: 65–69, 70–74, 75–79 and ≥80 years. Educational attainment (years of education) was categorised into three groups: ≤9 years, 10–12 years and ≥13 years. Marital status was divided into married and single. Living arrangements were classified as living alone and living with others. Equivalized household income was calculated by dividing the normalised household gross income by the square root of the number of household members and was categorised into three groups: <$20,000, $20,000–39,999 and ≥$40,000 per year (1 dollar = 100 yen) [19]. Population density per km² of the inhabitable area was categorised into three groups: <1,000, 1,000–4,000 and >4,000 persons per km² [20].

Health-related factors
Health-related factors included depressive symptoms, self-rated health, self-reported medical conditions and instrumental activities of daily living (IADL). Depressive symptoms were assessed using the Japanese short version of the Geriatric Depression Scale (GDS) (score range: 0–15; higher scores indicated worse depressive symptoms) [21]. Depressive symptoms were dichotomized into two groups: no depression (GDS < 5) and depression (GDS ≥ 5) [22].

Self-rated health was assessed with a standard one-item rating: ‘How would you rate your health at present?’ Response categories (excellent, good, fair and poor) were dichotomized into good (excellent/good) and poor (fair/poor) [23]. Self-reported medical conditions were categorised into two groups: presence or absence [23]. IADL was measured using the five-item Tokyo Metropolitan Institute of Gerontology Index of Competence [24], which examines five activities that people may perform in daily life: (i) using public transportation, (ii) shopping for daily necessities, (iii) preparing meals, (iv) paying bills and (v) handling their own banking. Individuals with a total score of five were considered independent, and those with a total score of less than five were dependent [25].

Statistical analysis
We performed descriptive statistics for the changes in preferences regarding POD. We conducted multiple logistic regression analysis to estimate the odds ratios (ORs) of preference stability regarding POD for social support and the 95% confidence intervals (CIs). In Model 1, we estimated the ORs for each social support variable. In Model 2, all social support variables were considered simultaneously. Additionally, after testing for interactions between gender and each social support using Model 1, we performed a gender-stratified analysis to examine these associations using Models 1 and 2. Furthermore, in gender-stratified analysis, we examined the associations between emotional or instrumental support and preference stability using Model 1.

Missing values and multiple imputation
Missing values across all variables ranged from 0 to 12.4% (equivalized household income). A total of 21.0% (252 of 1,200 participants) were incomplete, which can lead to biased or inefficient estimates. To address this issue, we performed multiple imputation by chained equations to impute incomplete variables, including the outcome variable, and created 40 imputed datasets. The estimates and standard errors were obtained for each imputed dataset separately using logistic regression analysis and combined with Rubin’s rules [26]. In a sensitivity analysis, we examined whether similar results were obtained by categorising the missing values on the preferred POD as ‘unknown’ responses (Model 1).

All analyses were performed using Stata/SE 16.0 (StataCorp, College Station, TX, USA). All P-values were two-sided, and the statistical significance level was set at a P-value < 0.05.

Results
Table 1 presents the participants’ characteristics. The mean (standard deviation) age was 72.9 (5.4) years, and 52.5% were women. Of the participants, 429 (40.9%) had stable preferences.

Table 2 shows a comparison of the preferences regarding POD between baseline and 3-year follow-up stratified by gender. Hospital for women and home for men were the most consistent choices (59.4% and 59.2%, respectively). The preference for institution was the least stable over the
Table 1. Baseline characteristics of study participants

| Variables                        | Categories | n (%)     |
|----------------------------------|------------|-----------|
| Age (years)                      | 65–69      | 391 (32.6%) |
|                                  | 70–74      | 363 (30.2%) |
|                                  | 75–79      | 282 (23.5%) |
|                                  | ≥80        | 164 (13.7%) |
| Gender                           | Women      | 630 (52.5%) |
| Education (years)                | ≤9         | 324 (27.0%) |
|                                  | 10–12      | 500 (41.7%) |
|                                  | ≥13        | 375 (31.3%) |
| Marital status                   | Single     | 293 (24.7%) |
|                                  | Married    | 893 (75.3%) |
| Living arrangements              | Living alone | 151 (13.3%) |
|                                  | Living with others | 988 (86.7%) |
| Household income ($ per year)    | <20,000    | 484 (46.1%) |
|                                  | 20,000–39,900 | 439 (41.8%) |
|                                  | ≥40,000    | 128 (12.2%) |
| Population density (persons per km²) | <1,000    | 219 (18.2%) |
|                                  | ≥1,000–4,000 | 382 (31.8%) |
|                                  | >4,000     | 599 (49.9%) |
| Geriatric Depression Scale       | No depression | 934 (80.2%) |
|                                  | Depression | 231 (19.8%) |
| Instrumental activities of daily living | Dependent | 78 (6.7%) |
|                                  | Independent | 1,090 (93.3%) |
| Self-rated health                | Poor       | 108 (9.2%)  |
|                                  | Good       | 1,061 (90.8%) |
| Self-reported medical conditions  | Absent     | 248 (21.7%) |
|                                  | Present    | 894 (78.3%) |
| Receiving social support         | Spouse     | Yes 865 (72.1%) |
|                                  | Children living together | Yes 397 (33.1%) |
|                                  | Children living apart | Yes 543 (45.3%) |
| Providing social support         | Spouse     | Yes 868 (72.3%) |
|                                  | Children living together | Yes 379 (31.6%) |
|                                  | Children living apart | Yes 511 (42.6%) |
| Preferred place of death         | Home       | 390 (36.0%) |
|                                  | Hospital   | 248 (22.9%) |
|                                  | Hospice    | 128 (11.8%) |
|                                  | Institution | 72 (6.6%) |
|                                  | Unknown    | 245 (22.6%) |

3 years among women and men. Only 216 (39.8%) women and 213 (42.2%) men had stable preferences.

Table 3 provides the results of the multiple logistic regression analysis for the associations between social support and preference stability regarding POD. In Model 1, for a spouse, both receiving and providing social support was significantly associated with less stable preferences (OR: 0.67; 95% CI: 0.46–0.96; OR: 0.58; 95% CI: 0.41–0.84). Providing social support to children living apart was significantly associated with more stable preferences (OR: 1.53; 95% CI: 1.02–1.73). In Model 2, adjusted for social support variables simultaneously with all covariates except marital status, we obtained comparable results to those in Model 1 (OR: 0.63; 95% CI: 0.43–0.93 for receiving social support from a spouse, OR: 0.55; 95% CI: 0.38–0.80 for providing social support to a spouse, and OR: 1.35; 95% CI: 1.03–1.76 for providing social support to children living apart). We observed no significant interactions of each social support variable by gender (Table 3).

Table 4 presents the results of the gender-stratified analysis of the associations between family social support and preference stability. Women who provided social support to a spouse were 47–50% less likely to have stable preferences (Model 1, OR: 0.53; 95% CI: 0.34–0.82; Model 2, OR: 0.50; 95% CI: 0.32–0.79), whereas men who provided social support to children living apart were 72–73% more likely to have stable preferences (Model 1, OR: 1.72; 95% CI: 1.16–2.55; Model 2, OR: 1.73; 95% CI: 1.17–2.58). Regarding the two types of social support, providing instrumental support to a spouse was significantly associated with less stable preferences among women (OR: 0.59; 95% CI: 0.39–0.89), while providing emotional and instrumental support was significantly associated with more stable preferences among men (OR: 1.57; 95% CI: 1.04–2.36; OR: 2.06; 95% CI: 1.30–3.28, Table 5).

In our sensitivity analysis, the overall results were similar to those of the initial analyses. Exceptionally, borderline significant associations between providing social support to children living apart and preference stability were observed. Additionally, women receiving social support from a spouse were less likely to have stable preferences (Appendix Table 1 available in Age and Ageing online).

Discussion

This study showed that approximately 40% of the participants maintained their preferences during the 3-year follow-up period. Women with stable preferences tended to favour hospital as a POD, whereas men tended to favour home. After adjusting for confounders, for women, providing social support (emotional support) to a spouse was related to less stable preferences, whereas for men, providing social support (emotional and instrumental support) to children living apart was related to more stable preferences.

Inconsistent with our findings, a previous systematic review [27] reported that ~80% of study participants did not change their home death preferences. This may be because, first, our study participants were healthier—90% of them reported good self-rated health—than the participants in the systematic review. Meanwhile, the systematic review included relatively vulnerable patients, such as terminally ill patients. Another systematic review [5] suggested that seriously ill patients had more stable EOL care preferences than older people without serious illnesses. They may consider and answer questions about preferred POD more carefully because the questions may be more relevant to them. Second, this study’s follow-up period was longer than that of previous studies. Generally, preferences are more likely to change during a longer follow-up period. Only few studies [28] had a follow-up period of more than 2 years because of participants’ poor health status. Third, preference instability may stem from the unique characteristics of older Japanese people. A study [29] involving this population...
Table 2. A comparison of preferences regarding POD between baseline and 3-year follow-up by gender

|                | Women Follow-up |                      |                            | Men Follow-up |                      |                            |
|----------------|-----------------|----------------------|-----------------------------|---------------|----------------------|-----------------------------|
|                | Baseline        | Home                 | Hospital                    | Institution   | Hospice              | Unknown                     |
|                | Home            | 78 (53.1%)           | 19 (12.9%)                  | 4 (2.7%)      | 11 (7.5%)           | 35 (23.8%)                  |
|                | Hospital        | 8 (6.1%)             | 82 (62.1%)                 | 7 (5.3%)      | 11 (8.3%)           | 24 (18.2%)                  |
|                | Institution     | 5 (6.4%)             | 20 (25.6%)                 | 25 (32.1%)    | 9 (11.5%)           | 19 (24.4%)                  |
|                | Hospice         | 3 (5.5%)             | 11 (20.0%)                 | 1 (1.8%)      | 31 (56.4%)          | 9 (16.4%)                   |
|                | Unknown         | 20 (15.3%)           | 24 (18.3%)                 | 6 (4.6%)      | 15 (11.5%)          | 66 (50.4%)                  |
| Column total   | 114             | 156                  | 43                          | 77            | 153                  | 543                         |

|                | Baseline        | Home                 | Hospital                    | Institution   | Hospice              | Unknown                     |
|                | Home            | 141 (61.6%)          | 37 (16.2%)                 | 1 (0.4%)      | 6 (2.6%)            | 44 (19.2%)                  |
|                | Hospital        | 23 (21.3%)           | 58 (53.7%)                 | 2 (1.9%)      | 2 (1.9%)            | 23 (21.3%)                  |
|                | Institution     | 4 (8.5%)             | 23 (48.9%)                 | 6 (12.8%)     | 4 (8.5%)            | 10 (21.3%)                  |
|                | Hospice         | 1 (5.9%)             | 3 (17.6%)                  | 0 (0.0%)      | 8 (47.1%)           | 5 (29.4%)                   |
|                | Unknown         | 16 (15.4%)           | 22 (21.2%)                 | 5 (4.8%)      | 6 (5.8%)            | 55 (52.9%)                  |
| Column total   | 185             | 143                  | 14                          | 26            | 137                  | 505                         |

Table 3. Results for multiple logistic regression models of the association between social support and stability of preferences regarding POD

| Social support | Model 1<sup>a</sup> Odds ratio (95% CI) | Model 2<sup>b</sup> Odds ratio (95% CI) | Gender<sup>c</sup> Social support<sup>d</sup> Odds ratio (95% CI) |
|----------------|-----------------------------------------|-----------------------------------------|---------------------------------------------------------------|
| No social support | Reference                             | Reference                             | Reference                                                      |
| Spouse<sup>e</sup>                      | 0.67<sup>**</sup> (0.46–0.96)           | 0.63<sup>**</sup> (0.43–0.93)           | 1.37<sup>**</sup> (0.71–2.65)                                  |
| Children living together                 | 0.85 (0.63–1.15)                        | 0.87 (0.64–1.17)                       | 1.08 (0.61–1.92)                                             |
| Children living apart                    | 1.05 (0.81–1.37)                        | 1.03 (0.79–1.34)                       | 1.15 (0.69–1.90)                                             |
| Providing social support                 | Reference                              | Reference                              | Reference                                                     |
| Spouse<sup>e</sup>                      | 0.58<sup>**</sup> (0.41–0.84)           | 0.55<sup>**</sup> (0.38–0.80)           | 1.65 (0.87–3.14)                                             |
| Children living together                 | 0.92 (0.68–1.25)                        | 0.92 (0.68–1.25)                       | 1.43 (0.81–2.53)                                             |
| Children living apart                    | 1.33<sup>**</sup> (1.02–1.73)           | 1.35<sup>**</sup> (1.03–1.76)           | 1.44 (0.87–2.38)                                             |

95% CI: 95% confidence interval. *P < 0.05. **P < 0.01. <sup>a</sup>We examined associations between each social support variable and stability of preferences regarding POD after adjusting for covariates (age, gender, education, marital status, living arrangements, household income, population density, GDS, IADL, medical conditions and self-rated health). <sup>b</sup>Social support variables (spouse, children living together and children living apart) were simultaneously entered into the models with all covariates except marital status (age, gender, education, living arrangements, household income, population density, GDS, IADL, medical conditions and self-rated health). <sup>c</sup>Gender * Social support represents an interaction term between gender and social support. The statistical significance of the interaction term was examined using Model 1. <sup>d</sup>The marital status variable was not included in the models due to multicollinearity.

demonstrated that their wishes for EOL care frequently varied during short periods of interviews. They tend to entrust EOL decision-making to others, such as medical care providers [30], which may deprive them of opportunities to consider EOL issues earnestly and destabilise their preferences.

We found gender differences in the associations between social support and preference stability. Several previous studies [6, 17] reported that social support helped to stabilise EOL care preferences; however, gender was not considered.

In this study, women preferred hospital as POD, and when they provided social support to a spouse, their preferences were more likely to change. This may arise from concerns about being a burden on the family [31]. A national survey [32] reported that more than 70% of the general public recognised not being a burden on the family—a wish that might arise from their caregiving experience—as the most important factor in choosing their POD. According to a national survey [33], women accounted for 65% of adults aged over 65 years who had cared for family members. Additionally, women caregivers reported greater caregiver burden [34], higher depressive symptoms [35] and poorer physical health [36–38] compared with men. Their unstable preferences might imply that they are conflicted between their true desires for EOL care and concerns about being a burden on their family [39].

Consistent with previous research, men were more likely than women to prefer home as POD [40, 41]. Men also had more stable preferences when providing social support to children living apart. This could be because men expect their children to provide EOL care as a reward for their social support [8]. Furthermore, providing social support
may make them feel valued and enhance their willingness to live [42, 43], which can lead to their preference for living at home until death. Additionally, a close parent–child relationship may motivate discussions about EOL care preferences [12] and solidify their preferences. We did not obtain significant results for children living together due to the lack of male participants who lived with their sons or daughters (22.2% and 16.7%, respectively, data not shown). Further research is required on this topic.

Our study suggests important implications for healthcare practices. Our findings support that healthy older people require periodic re-evaluation of their preferences for EOL care due to their fluctuating preferences [4, 44]. Our study also demonstrates how family social support is associated with preference stability. Healthcare professionals often regard family members as a threat to patient autonomy and discuss preferences with patients in isolation [45]. However, it may be preferable to consider the family context and facilitate family members’ participation in EOL care discussions regardless of the individual’s decision-making capacity. Healthcare professionals are likely to play an essential role in addressing family concerns or resolving conflicts between an individual’s and family’s preferences in the triadic relationship of an individual, family and healthcare professionals [46, 47]. This may allow individuals to have more stable preferences and realise them.

The strengths of our study include the relatively large sample size and longer follow-up period compared with prior studies. Additionally, gender differences in the associations between social support and preference stability were investigated. Nonetheless, our study has certain limitations. First, we included physically independent older people. We

Table 4. Results for gender-stratified multiple logistic regression models of the association between social support and stability of preferences regarding POD

| Social support       | Women Model 1 | Women Model 2 | Men Model 1 | Men Model 2 |
|----------------------|---------------|---------------|-------------|-------------|
| Social support       | Odds ratio (95% CI) | Odds ratio (95% CI) | Odds ratio (95% CI) | Odds ratio (95% CI) |
| Receiving social support | Reference     | Reference     | Reference   | Reference   |
| No social support    | 0.69 (0.45–1.07) | 0.68 (0.43–1.09) | Reference   | Reference   |
| Spouse               | 0.53 (0.25–1.12) | 0.49 (0.23–1.05) | Reference   | Reference   |
| Children living together | 0.95 (0.61–1.48) | 0.96 (0.63–1.49) | Reference   | Reference   |
| Children living apart | 0.78 (0.50–1.22) | 0.78 (0.50–1.22) | Reference   | Reference   |
| Providing social support | Reference   | Reference     | Reference   | Reference   |
| No social support    | 0.81 (0.50–1.35) | 0.84 (0.55–1.29) | Reference   | Reference   |
| Spouse               | 0.57 (0.30–1.23) | 0.57 (0.28–1.16) | Reference   | Reference   |
| Children living together | 1.20 (0.82–1.67) | 1.20 (0.82–1.67) | Reference   | Reference   |
| Children living apart | 1.10 (0.77–1.49) | 1.10 (0.77–1.49) | Reference   | Reference   |

95% CI: 95% confidence interval. **P < 0.01. *We examined associations between each social support variable and stability of preferences regarding POD after adjusting for covariates (age, education, marital status, living arrangements, household income, population density, GDS, IADL, medical conditions and self-rated health). **Social support variables (spouse, children living together and children living apart) were simultaneously entered into the models with all covariates except marital status (age, education, living arrangements, household income, population density, GDS, IADL, medical conditions and self-rated health). *The marital status variable was not included in the models due to multicollinearity.

Table 5. Results for gender-stratified multiple logistic regression models of the association between emotional or instrumental social support and stability of preferences regarding POD

| Social support       | Women | Men |
|----------------------|-------|-----|
| Receiving emotional support | Odds ratio (95% CI) | Odds ratio (95% CI) |
| No social support    | Reference | Reference |
| Spouse               | 0.70 (0.50–1.13) | 0.71 (0.47–1.09) |
| Children living together | 0.93 (0.61–1.44) | 0.95 (0.61–1.47) |
| Children living apart | 0.91 (0.63–1.30) | 1.05 (0.73–1.51) |
| Providing emotional support | Odds ratio (95% CI) | Odds ratio (95% CI) |
| No social support    | Reference | Reference |
| Spouse               | 0.72 (0.50–1.09) | 0.71 (0.47–1.09) |
| Children living together | 0.81 (0.52–1.25) | 0.84 (0.56–1.32) |
| Children living apart | 1.10 (0.82–1.72) | 1.72 (1.16–2.55) |

95% CI: 95% confidence interval. We examined associations between each social support variable and stability of preferences regarding POD after adjusting for covariates (age, gender, education, marital status, living arrangements, household income, population density, GDS, IADL, medical conditions and self-rated health). *P < 0.05. **P < 0.01. *The marital status variable was not included in the models due to multicollinearity.
could have obtained different results from near-death participants. However, identification of an individual’s preference through repeated discussions is recommended for people of any age or stage of health [48]. Understanding how preferences in healthier people fluctuate over time is beneficial. Second, we targeted only Japanese people, which may limit the generalizability of our findings [49]. Third, we examined the link between social support and preference stability by limiting the social support resources to family. As community engagement in EOL care is gaining interest [50], future studies should investigate how other social support resources influence preference stability. Lastly, we selected preferred POD as an EOL care preference because the 2019 wave did not contain other questionnaire items regarding EOL care preferences. Further research on other EOL preferences is required.

Conclusion

Only 40% of noninstitutionalized independent older people had stable preferences regarding POD over 3 years. Women providing social support to their spouses were less likely to have stable preferences, while men providing social support to children living apart were more likely to have stable preferences. To our knowledge, this is the first study to focus on the associations between family social support and preference stability and gender differences in their associations. Incorporating family members in discussions regarding individual’s preferences about EOL care, including POD, may contribute to more stable preferences and their realisation.

Supplementary Data: Supplementary data mentioned in the text are available to subscribers in Age and Ageing online.

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Family social support and stability of preferences regarding place

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