Research Square

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Living arrangements shape the determinants of life-sustaining treatment preferences among Korean older adults

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Abstract

Background

Preferences regarding life-sustaining treatment (LST) are an important component of advance care planning. This study examined whether determinants of LST preferences differ according to living arrangement among Korean older adults.

Methods

Data from 6,682 adults aged ≥ 65 years participating in the 2023 National Survey of Older Koreans were analyzed. Participants with dementia, depression, or cognitive impairment were excluded. The sample was stratified into couples only (n = 3,787), with offspring (n = 756), and alone (n = 2,139). Multivariable logistic regression analyses were performed to identify factors associated with LST acceptance.

Results

More than 92% of participants in all groups declined LST. However, factors associated with LST acceptance differed according to living arrangement. Among couples, younger age, urban residence, limited activities of daily living, smartphone non-use, and the absence of heart disease were associated with greater acceptance. Among those living with offspring, current smoking and infrequent alcohol consumption were associated with greater acceptance. Among those living alone, stroke was associated with increased acceptance of LST, whereas religious affiliation, heart disease, and pain-related disease were associated with lower acceptance.

Conclusions

Although most Korean older adults declined LST regardless of living arrangement, determinants of LST preferences differed according to household structure. These findings suggest that advance care planning may benefit from approaches tailored to the social and health contexts associated with different living arrangements.

Trial registration:

Not applicable. This study is a secondary analysis of data from the Korean Longitudinal Study of Aging (KLoSA) and did not involve a clinical trial or healthcare intervention.

Introduction

Population ageing has increased the importance of advance care planning (ACP) and end-of-life decision-making worldwide [1]. In Korea, the implementation of the “Act on Decisions on Life-Sustaining Treatment for Patients in Hospice and Palliative Care or at the End of Life” in February 2018 marked a watershed moment in how older adults perceive and plan for a “good death” [1]. This legislation established a legal framework for advance directives and physician orders for life-sustaining treatment (LST), fundamentally shifting the paradigm toward to patient-centered end-of-life decision-making [2]. As discussions regarding LST become increasingly common, understanding factors that influence individuals’ preferences has become an important public health and clinical priority.

Preferences regarding LST are shaped not only by medical conditions but also by social circumstances. Among older adults, living arrangement represents an important social determinant that reflects the availability of social support, caregiving resources, and family interactions [3]. Older adults living with a spouse may have immediate access to a caregiver and perceive greater support during serious illness, whereas those living alone may experience concerns regarding future care needs and decision-making support [4]. These differences influence attitudes toward life-prolonging treatments and end-of-life care.

Social Support Theory provides a useful framework for understanding these relationships [5]. The theory proposes that the availability and quality of social relationships influence health behaviors and healthcare decision-making through emotional, instrumental, informational, and appraisal support [6]. Living arrangements determine the availability of emotional and instrumental support and shape the social context in which end-of-life decisions are made. Older adults living with a spouse typically have access to an immediate caregiver, whereas those living alone often confront greater social isolation and limited caregiving resources [7]. In addition, social isolation and loneliness have been associated with adverse health outcomes and increased vulnerability among older adults, potentially influencing attitudes toward end-of-life care and treatment decisions [8].

Previous studies have identified several determinants of LST preferences, including age, religion, health status, functional capacity, and psychosocial factors [9–11]. In Korea, increasing attention has been directed toward advance care planning and LST decision-making following implementation of the 2018 Act [2, 12]. However, most studies have examined predictors of LST preferences in the overall population, with limited consideration of whether these associations differ according to living arrangement. Given the growing diversity of household structures among older adults, understanding such differences may help identify population groups requiring tailored approaches to advance care planning [13].

Using data from the 2023 National Survey of Older Koreans, this study examined factors associated with LST preferences among older adults living with a spouse, with offspring, or alone. By identifying household-specific determinants, this study aimed to provide evidence for more individualized advance care planning and end-of-life discussions according to the social and caregiving contexts of older adults.

Methods

Data source and population

This study analyzed data from the 2023 National Survey of Older Koreans, a nationally representative survey conducted by the Korea Institute for Health and Social Affairs (KIHASA) using a stratified multistage probability sampling design. The original survey included 10,078 participants. After excluding proxy respondents and participants with missing or uncertain responses regarding LST preferences, 8,972 participants remained eligible for screening. Participants with physician-diagnosed dementia or depression were excluded. Cognitive impairment was defined as a cognitive function score more than 1.5 standard deviations below the population mean. After applying all exclusion criteria, 6,682 participants (66.3% of the original sample) were included in the final analysis (Fig. 1).

Living arrangements and outcome

The study population was stratified into three groups: couples only (n = 3,787), living with offspring (children or grandchildren; n = 756), and living alone (n = 2,139). The primary outcome was preference for life-sustaining treatment (LST), assessed using a survey item regarding attitudes toward LST at the end of life. Responses were dichotomized as “accept” (strongly or somewhat favor) and “decline” (strongly or somewhat oppose).

Measurements

The independent variables were categorized into four domains: demographic characteristics, socioeconomic status, health-related factors, and digital literacy and health behaviors. Demographic characteristics included age (continuous), sex, educational attainment (middle school or lower vs. higher), religious affiliation (professing a religion vs. not professing a religion), and residential area (urban vs. rural). Socioeconomic status was assessed using annual household income categorized into quintiles and current economic activity status (currently working vs. not working).

Health-related factors included perceived health status, sleep quality, frailty, functional dependency, depressive symptoms, and comorbidities. Perceived health status was categorized as “good” (very healthy or rather healthy) or “not good” (average, rather unhealthy, or very unhealthy). Sleep quality was categorized as “good” (very much so or yes) or “not good” (neutral, no, or not at all) based on responses regarding sleep during the previous three months.

The frailty status was assessed using a five-item scoring system adapted from the FRAIL scale [14], consisting of fatigue, resistance, ambulation, illness, and weight loss. Fatigue was defined as feeling tired “always” or “most of the time” during the previous month. Resistance was defined as inability to climb 10 stairs without assistance, and ambulation as inability to walk 300 meters independently. Illness was defined as the presence of five or more chronic conditions, including hypertension, diabetes, lung disease, cancer, and heart disease. Weight loss was defined as an unintentional loss of at least 5 kg

during the previous six months. Participants were classified as robust (score 0), pre-frail (score 1–2), or frail (score ≥ 3). For the present analysis, pre-frail and frail participants were combined into a single “frail” category.

Functional dependency was assessed using the Activities of Daily Living (ADL) scale and categorized as limited (dependent in one or more ADL items) or non-limited. Depressive symptoms were assessed using the 15-item Geriatric Depression Scale–Short Form (GDS-S) [15]. Each item was scored as 0 or 1, with a total score ranging from 0 to 15. In this study, a cutoff score of 8 or higher was used to define the presence of depressive symptoms. [15]

Comorbidities were identified based on physician-diagnosed chronic diseases and included stroke, heart disease, pain-related diseases (e.g., osteoarthritis, rheumatoid arthritis, and sciatica), lung disease, cancer, and urological diseases. Digital literacy and health behaviors included smartphone use, current smoking status, alcohol consumption (monthly or more), and regular physical exercise. Smartphone use referred to active use rather than simple ownership. All variables included in the final analyses are presented in Table 1.

Table 1
Characteristics according to the living arrangements

	Couples only (n = 3,787)	**With offspring (n = 756)**	**Alone (n = 2,139)**	**P-value**
Demographics				
Age, years	72.6 ± 5.9	73.9 ± 7.3	75.2 ± 7.1	< 0.001
Female sex	1,813 (47.9)	503 (66.5)	1,645 (76.9)	< 0.001
Middle school or lower	2,154 (56.9)	460 (60.9)	1,614 (75.5)	< 0.001
Professing a religion	1,515 (40.1)	317 (42.2)	919 (43.1)	0.070
Rural residency	1,026 (27.1)	167 (22.1)	660 (30.9)	< 0.001
Socioeconomic				
Bottom two income quintiles	1,161 (30.7)	130 (17.2)	1,401 (65.5)	< 0.001
Current economic activity	2,137 (56.4)	459 (60.7)	1,289 (60.3)	0.005
Digital literacy				
Smartphone use	2,862 (75.6)	509 (67.3)	1,209 (56.2)	< 0.001
Health status				
Perceived as not good	1,835 (48.5)	396 (52.4)	1,366 (63.9)	< 0.001
Not good sleep quality	1,575 (41.6)	342 (45.2)	1,153 (53.9)	< 0.001
Be frail	958 (25.3)	248 (32.8)	834 (39.0)	< 0.001
Limited ADL	137 (3.6)	53 (7.0)	133 (6.2)	< 0.001
Depressive (GDS score ≥ 8)	177 (4.7)	57 (7.5)	157 (7.3)	< 0.001
Comorbidities				
Stroke	98 (2.6)	26 (3.4)	77 (3.6)	0.069
Heart disease	349 (9.2)	77 (10.2)	228 (10.7)	0.185
Pain disease	702 (18.5)	164 (21.7)	644 (30.1)	< 0.001
Lung disease	109 (2.9)	18 (2.4)	66 (3.1)	0.609
Cancer	68 (1.8)	12 (1.6)	43 (2.0)	0.722
Urological disease	344 (9.1)	54 (7.1)	150 (7.0)	0.011

Values are presented as mean ± SD or n (%). ADL, activities of daily living; GDS, Geriatric Depression Scale.

	Couples only (n = 3,787)	With offspring (n = 756)	Alone (n = 2,139)	P-value
Demographics				
Health behaviors				
Current smoking	369 (9.7)	61 (8.1)	126 (5.9)	< 0.001
Monthly drinking or more	1,196 (31.6)	198 (26.2)	440 (20.16)	< 0.001
Regular exercise	2,252 (59.5)	397 (52.5)	1,124 (52.6)	< 0.001
Life-sustaining treatment				
Decline	3,567 (94.2)	709 (93.8)	1.986 (92.9)	0.123
Accept	220 (5.8)	47 (6.2)	153 (7.2)	

Values are presented as mean ± SD or n (%). ADL, activities of daily living; GDS, Geriatric Depression Scale.

Statistical analysis

Analyses were performed using STATA/MP version 17.0 (StataCorp, College Station, TX, USA). The characteristics of the study population were compared across the three living arrangement groups using a chi-square test for the categorical variables and one-way ANOVA for the continuous variables. Candidate variables were selected a priori based on previous literature and clinical relevance. Bidirectional stepwise selection (entry $p < 0.05$, removal $p < 0.10$) was then applied to derive the most parsimonious multivariable logistic regression model for identifying predictors of LST preferences in the total sample and within each living arrangement group. The multicollinearity was evaluated using variance inflation factors (VIF), with VIF < 5 considered acceptable. The results of the logistic regression are presented as the odds ratios (ORs) with the 95% confidence intervals (CIs). In all analyses, p-values < 0.05 were considered significant.

Results

Characteristics according to living arrangements

Significant differences were observed across all demographic and socioeconomic variables except religious affiliation (Table 1). Participants living alone were older (75.2 ± 7.1 years), more likely to be female (76.9%), and had lower educational attainment (75.5% with middle school education or lower) than those in the other groups. Socioeconomic vulnerability was most pronounced among those living alone, with 65.5% belonging to the lowest two income quintiles.

Health-related characteristics also differed according to living arrangement. Participants living alone reported poorer perceived health (63.9%), higher frailty prevalence (39.0%), and a greater prevalence of pain-related diseases (30.1%). The proportion of participants declining LST exceeded 92% in all groups, and no significant difference in LST preference was observed according to living arrangement (p = 0.123).

Predictors of LST preferences in the total sample

Table 2 presents the results of the multivariable logistic regression analysis for the total sample. Female sex (OR 1.42, 95% CI 1.15–1.75), urban residence (OR 1.49, 95% CI 1.16–1.91), and limited ADL (OR 1.71, 95% CI 1.12–2.59) were independently associated with greater acceptance of LST. In contrast, religious affiliation (OR 0.73, 95% CI 0.59–0.90), heart disease (OR 0.59, 95% CI 0.39–0.89), and pain-related disease (OR 0.61, 95% CI 0.46–0.81) were associated with lower acceptance of LST.

Table 2
Predictors of life-sustaining treatment preferences in the total sample

Female sex (vs. male sex)	**Odds ratio**	**95% confidence interval**	**P-value**
	1.42	**1.15–1.75**	**0.001**
Professing a religion (vs. not professing)	0.73	0.59–0.90	0.004
Urban area (vs. rural area)	1.49	1.16–1.91	0.002
Limited ADL (vs. non-limited)	1.71	1.12–2.59	0.012
Having heart disease (vs. not having)	0.59	0.39–0.89	0.013
Having a painful disease (vs. not having)	0.61	0.46–0.81	0.001
ADL, activities of daily living.			

Stratified analysis by living arrangements

Associations between participant characteristics and LST preferences differed according to living arrangement (Table 3). The magnitude and direction of significant associations are presented in Fig. 2. Among participants living only with a spouse, younger age (OR 1.04 per one-year decrease), urban residence (OR 1.95), and limited ADL (OR 2.56) were associated with greater acceptance of LST, whereas smartphone use (OR 0.67) and heart disease (OR 0.59) were associated with lower acceptance. Among participants living with offspring, current smoking was associated with greater acceptance of LST (OR 3.45), whereas frequent alcohol consumption was associated with lower acceptance (OR 0.29). Among participants living alone, stroke was associated with greater acceptance of LST (OR 2.14, 95% CI 1.07–4.28), whereas religious affiliation (OR 0.64), heart disease (OR 0.39), and pain-related disease (OR 0.61) were associated with lower acceptance.

Table 3
Stratified analysis of life-sustaining treatment preferences according to the living arrangements

	Odd ratio (95% confidence interval)		
	Couples only	**With offspring**	**Alone**
Younger (per 1-y decrease)	1.04 (1.01–1.07)**		
Professing a religion			0.64 (0.45–0.91)*
Urban area	1.95 (1.33–2.85)**		
Smartphone use	0.67 (0.47–0.96)*		
Limited ADL	2.56 (1.42–4.61)**		
Stroke			2.14 (1.07–4.28)*
Heart disease	0.59 (0.39–0.91)*		0.39 (0.18–0.84)*
Pain disease			0.61 (0.41–0.91)*
Current smoking		3.45 (1.37–8.69)**	
Frequent drinking		0.29 (0.11–0.73)**	
ADL, activities of daily living.			
*P < 0.05; **P < 0.01. Only significant predictors from stepwise regression are shown.			

Discussion

This study analyzed data from the 2023 National Survey of Older Koreans to examine factors associated with life-sustaining treatment (LST) preferences according to living arrangement. Although the overall rate of LST refusal was consistently high across all groups [13], the factors associated with LST preferences differed according to whether older adults lived alone, with a spouse, or with offspring. These findings highlight the importance of considering household structure when discussing end-of-life care preferences and advance care planning (ACP).

The findings are consistent with Social Support Theory, which emphasizes the role of social relationships and support systems in health-related decision-making [6,7]. Living arrangements reflect the availability of emotional and instrumental support and influence how older adults evaluate serious illness, functional decline, and future care needs. Among participants living only with a spouse, limited activities of daily living (ADL) showed the strongest association with LST acceptance. The presence of a cohabiting spouse provides immediate caregiving support, which can influence perceptions regarding the feasibility of life-prolonging treatment [5,17]. In contrast, among those living alone, stroke was associated with significantly greater acceptance of LST. Stroke is a major cause of disability and dependency among older adults, and concerns regarding future loss of independence are particularly

relevant in the absence of a cohabiting caregiver [18,19]. Together, these findings suggest that the availability of social support shapes how health conditions influence end-of-life preferences.

In the total sample, limited ADL was independently associated with greater acceptance of LST. This association was most pronounced among older adults living only with a spouse. Functional dependency often increases the need for caregiving, and the presence of an available caregiver can influence attitudes toward life-prolonging treatment [5,17]. Notably, the association between ADL limitation and LST acceptance was not observed among participants living alone or with offspring. This finding suggests that identical health conditions can be interpreted differently depending on household structure and available caregiving resources. These results support the incorporation of social context into discussions regarding end-of-life decision-making.

Among participants living alone, stroke was associated with greater acceptance of LST, whereas heart disease and pain-related disease were associated with lower acceptance. Stroke frequently results in sudden disability and loss of independence, making concerns regarding future care particularly salient among individuals without immediate household support [18,19]. In contrast, chronic illnesses such as heart disease and persistent pain often involve prolonged symptom burden and repeated healthcare experiences. Previous studies have shown that individuals living with chronic illness frequently place greater emphasis on quality of life when considering end-of-life treatment decisions [20,21]. The present findings suggest that older adults living alone evaluate acute disabling conditions and chronic disease burden differently when forming preferences regarding LST.

A distinctive finding emerged among participants living with offspring. Current smoking was associated with greater acceptance of LST, whereas frequent alcohol consumption was associated with lower acceptance. Unlike the other living arrangement groups, clinical conditions were not retained as significant predictors in the final model. These findings suggest that health behaviors may reflect differences in personal values and attitudes toward health and medical care [22,23]. In addition, living with adult children often involves shared decision-making and ongoing family interactions that can influence end-of-life preferences [24]. Because only 47 participants in this group accepted LST, these findings should be interpreted cautiously and require confirmation in future studies.

Urban residence was associated with greater acceptance of LST in the total sample and among participants living only with a spouse. Previous studies have reported differences in healthcare access, utilization patterns, and exposure to medical technologies between urban and rural populations [25,26]. Greater familiarity with healthcare services and treatment options may contribute to differences in attitudes toward life-prolonging interventions. Among participants living only with a spouse, smartphone use was associated with lower acceptance of LST. Smartphone use is closely related to digital literacy and access to health information. Individuals with greater access to health information may have a better understanding of end-of-life care options and the potential burdens of prolonged medical treatment [27]. This finding highlights the potential role of digital health literacy in informed end-of-life decision-making.

This study has several limitations. First, the cross-sectional design precludes causal inference. Second, participants with dementia, depression, or cognitive impairment were excluded, limiting generalizability to cognitively intact older adults. Third, LST preferences were assessed using a single survey item and cannot fully capture the complexity of real-world end-of-life decisions. Finally, the use of stepwise variable selection and the relatively small number of LST acceptance events in the offspring group could have affected model stability. Therefore, findings from the offspring subgroup should be interpreted with caution.

Conclusion

The determinants of LST preferences among Korean older adults differed according to living arrangement. Although more than 92% of participants declined LST regardless of household structure, the factors associated with these preferences varied across groups. Functional dependency was most strongly associated with LST acceptance among older adults living with a spouse, stroke was associated with greater acceptance among those living alone, and health behaviors were associated with preferences among those living with offspring. These findings have important implications for ACP. Household structure represents a readily identifiable social factor that provides important context for end-of-life discussions. Incorporating information regarding living arrangement into ACP conversations could support more individualized communication and facilitate care planning that reflects both health status and social circumstances.

Abbreviations

ACP
Advance care planning
ADL
Activities of daily living
LST
Life-sustaining treatment

Declarations

Ethics approval and consent to participate: All participants provided written informed consent, and the study was conducted in accordance with the principles of the Declaration of Helsinki. The study protocol was approved by the Institutional Review Board of Gachon University Gil Medical Center (IRB No. GBRIRB2026-128).

Consent for publication: Not applicable.

Availability of data and materials: The datasets analyzed during the current study are publicly available through the National Survey of Older Koreans. Microdata and analytic guidelines can be freely

downloaded in accordance with the data access policies of the Korea Institute for Health and Social Affairs.

Competing interests: The authors declare no competing interests.

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Author's contributions:

ICH: Conceptualization, Methodology, Investigation, Data curation, Data interpretation, Writing – original draft.

SHK: Conceptualization, Methodology, Supervision, Data interpretation, Writing – review & editing, Correspondence.

YJL: Conceptualization, Methodology, Data interpretation, Writing – original draft, Writing – review & editing, Correspondence.

YSC: Data interpretation, Writing – review & editing.

HYA: Formal analysis, Data interpretation, Validation, Writing – review & editing.

All authors read and approved the final manuscript.

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Figures

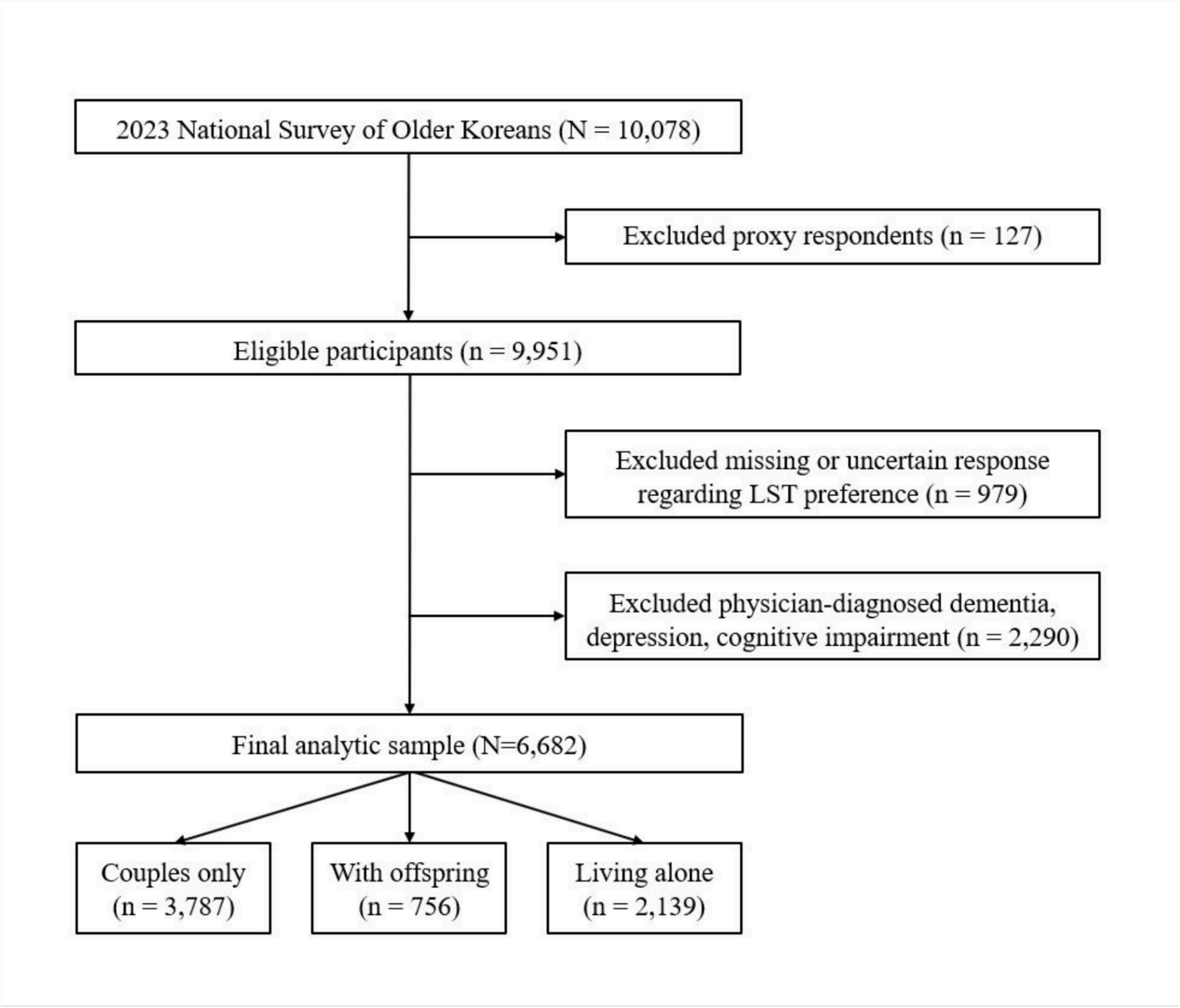


Figure 1

Flow diagram showing participant selection and stratification according to living arrangement in the 2023 National Survey of Older Koreans

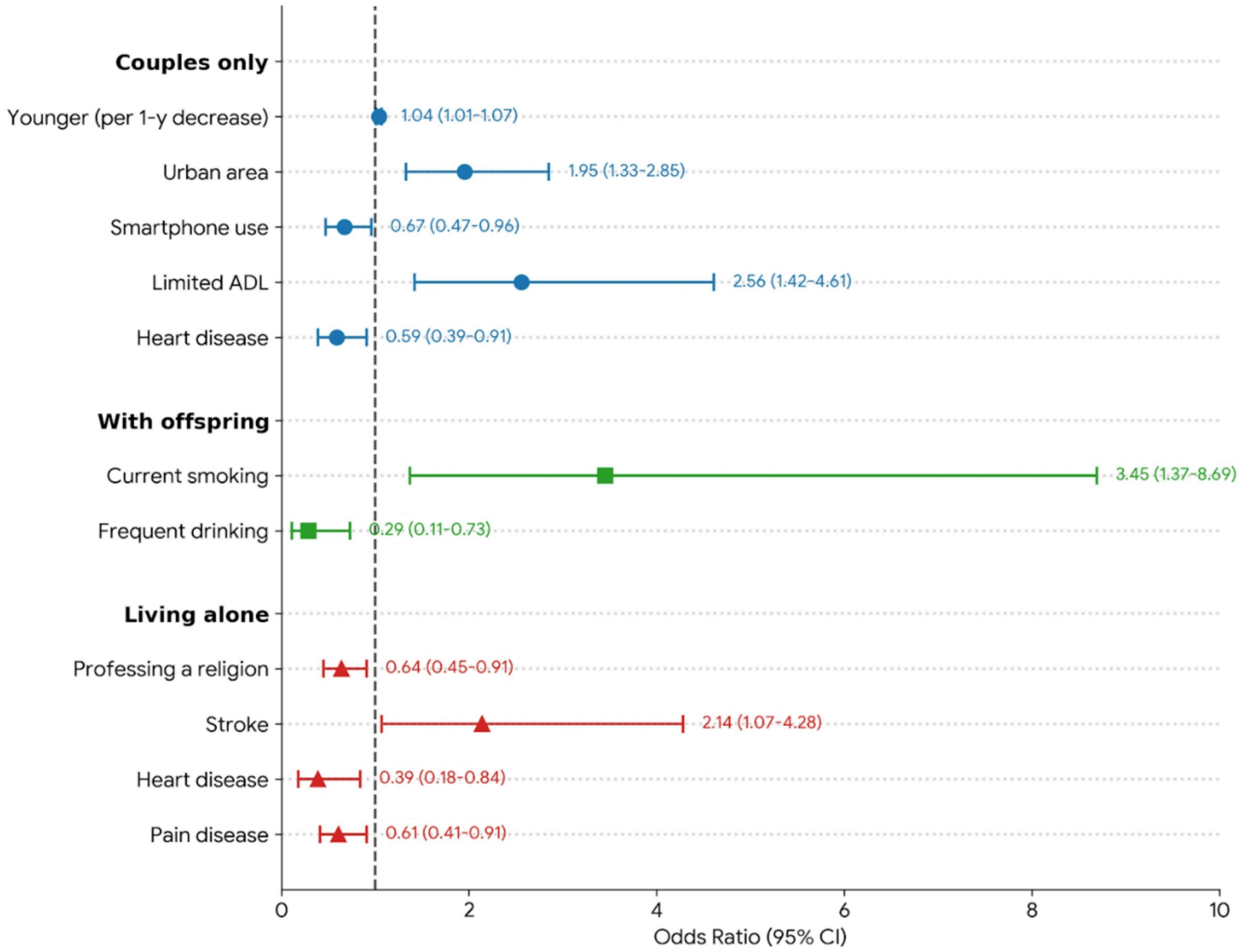


Figure 2

Predictors of life-sustaining treatment acceptance according to living arrangement.