

Article

Socioeconomic Factors Associated with Anticipated Social Connectedness Under Dementia: Evidence from Japan

Yoshihiko Kadoya ^{1,*} , Yu Kuramoto ¹ and Koji Kasanuki ²¹ School of Economics, Hiroshima University, Higashihiroshima 739-8525, Japan; d253956@hiroshima-u.ac.jp² Department of Neuropsychiatry, St. Marianna University School of Medicine, Kawasaki 216-8511, Japan

* Correspondence: ykadoya@hiroshima-u.ac.jp

Abstract

Dementia is associated not only with clinical and caregiving challenges but also with concerns about future social connectedness, social participation, and resilience. This study examines anticipated social connectedness under dementia, defined as respondents' self-assessed confidence that they could remain connected to society if they were to develop dementia in the future, and its association with demographic, socioeconomic, and psychological characteristics in Japan. Using data from the 2026 wave of the Survey on Life and Money conducted among Rakuten Securities account holders, we analyze 20,352 respondents aged 18 to 86. Ordered probit models are used as the main specification, with a binary specification employed as a robustness check. The results show that unemployment is negatively associated with anticipated social connectedness under dementia, whereas household income is positively associated with it across several specifications. Family-related variables, including marital status and number of children, also show positive associations in some models, although their relevance differs across gender and age groups. The associations for household financial assets and myopic views of the future are less stable. These findings suggest that anticipated social resilience under dementia may be socially patterned and related to broader socioeconomic circumstances. However, because the analysis is based on cross-sectional survey data from securities account holders and the dependent variable captures self-assessed confidence rather than realized social connectedness among people living with dementia, the results should be interpreted as associations rather than causal effects and should not be generalized mechanically to the broader population.

Keywords: dementia; anticipated social connectedness; social risk; socioeconomic status; household preparedness; aging; Japan



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1. Introduction

Dementia is one of the most pressing global health and socioeconomic challenges in aging societies. As cognitive decline progresses, it can impair memory, communication, judgment, and the capacity to manage everyday life, thereby affecting not only health status but also social participation and economic functioning [1,2]. A growing body of research has documented the substantial economic burden of dementia on individuals, households, and society, including increased healthcare and long-term care use, higher out-of-pocket expenditures, and greater caregiving demands [3–6]. In Japan, the societal costs of dementia were estimated at 14.5 trillion Japanese yen (JPY), approximately 112.7 billion U.S. dollars (USD), in 2014, and are projected to reach JPY 24.3 trillion by 2060 [7]. However,

the consequences of dementia are not confined to clinical deterioration or financial costs. Dementia may also weaken individuals' ability to remain socially connected, maintain meaningful relationships, and continue participating in community and economic life.

The social dimension of dementia deserves particular attention because social connectedness is closely related to well-being, access to support, and the capacity to cope with adverse life events. When cognitive decline affects communication, memory, and confidence in social interaction, individuals may gradually withdraw from social relationships and community activities. This process may be reinforced by stigma, negative stereotypes, and fear of being treated differently, all of which can reduce willingness to engage with others even before severe impairment occurs [8–10]. The erosion of social ties may, in turn, be associated with broader disadvantages, including reduced access to informal support, increased reliance on caregivers and formal services, and diminished opportunities for continued participation in social and economic life. In this sense, concerns about social connectedness under dementia are likely to have implications that extend beyond psychological well-being to broader issues of social resilience and social cost.

At the same time, the ability or confidence to remain socially connected under dementia is unlikely to be distributed evenly across the population. Existing studies suggest that dementia-related experiences and outcomes are shaped by demographic characteristics, socioeconomic status, and broader social conditions. Education, income, and wealth may influence access to information, coping resources, and support networks, while family and employment circumstances may be relevant to opportunities for interpersonal interaction and access to support [11–14]. Prior research has also shown that attitudes toward dementia vary across individuals and are associated with knowledge, exposure, and psychological orientation [9,15]. In addition, legal and institutional arrangements may provide formal means of planning for cognitive decline, although their practical relevance is likely to depend on awareness, accessibility, and the ability to plan ahead [16–18]. This consideration is important because such arrangements may shape not only formal decision-making capacity but also individuals' self-perceptions of their ability to cope with dementia and remain socially connected in older age. Taken together, these studies suggest that perceived preparedness for life under dementia, including the perceived ability to remain socially connected, may reflect broader social and economic inequalities.

Despite this growing literature, an important gap remains. Much of the existing research focuses on observed outcomes, such as cognitive decline, healthcare use, caregiving burden, or general public attitudes toward dementia. Comparatively less attention has been paid to how individuals view their own future ability to stay connected to society if they were to develop dementia. This subjective and forward-looking dimension is important because it reflects how individuals anticipate future social challenges and evaluate their own resilience in the face of possible cognitive decline. Moreover, the determinants of such perceptions have not been sufficiently examined within a unified framework that jointly considers demographic, socioeconomic, and psychological characteristics. As a result, the literature still provides limited evidence on how social position and individual outlook are associated with anticipated social connectedness under dementia.

This study addresses that gap by examining anticipated social connectedness under dementia and its association with demographic, socioeconomic, and psychological characteristics in Japan. Specifically, it focuses on individuals' self-assessed confidence that they could remain connected to society even if they were to develop dementia in the future. By doing so, the study shifts attention from realized outcomes to perceived future resilience. This perspective complements the existing literature by highlighting how people anticipate the social consequences of dementia and how those expectations are associated with their social and economic circumstances. Rather than making causal claims, the analysis aims

to identify patterns of association that may help clarify which groups feel more or less socially resilient in the face of possible cognitive decline. The findings may also have practical implications for dementia-inclusive policy and planning. Identifying socioeconomic groups with lower anticipated social connectedness may help policymakers, community organizations, and professionals involved in legal, financial, and advance care planning design support systems that address not only medical and caregiving needs but also the social conditions under which individuals expect to face cognitive decline. In this respect, the study contributes to the literature on dementia, inequality, and social vulnerability, while also offering evidence that may be informative for discussions on social inclusion, social resilience, and socioeconomic vulnerability in aging societies.

2. Literature Review

A growing body of research has examined the social meanings and public perceptions of dementia. In addition to its clinical consequences, dementia is often associated with stigma, negative stereotypes, fear, and social distance, which may shape how people with dementia are perceived and treated in society [8,10]. Such stigma and social distance may also influence how individuals imagine their own future ability to cope with dementia and remain socially connected in older age. Studies on dementia-related attitudes further suggest that perceptions differ across individuals and are associated with knowledge, exposure, and psychosocial characteristics [9,15]. This literature indicates that dementia is not only a medical condition but also a socially interpreted condition, and that these interpretations may influence expectations about life under dementia.

Related research has highlighted the importance of social connectedness, social participation, and support in the context of dementia and cognitive ageing. Social relationships may matter both before and after the onset of cognitive decline, as they are associated with access to support, opportunities for participation, and the maintenance of everyday functioning. Prior studies suggest that social relationships and opportunities for interaction are important in the context of dementia and cognitive ageing, while social isolation may be associated with greater vulnerability [13,19]. In parallel, the caregiving literature emphasizes that family availability and support structures are important for how care is organized and experienced, although caregiving may also entail substantial emotional and financial burdens [20–22]. Taken together, these studies suggest that the perceived ability to remain socially connected under dementia is likely to be shaped by both interpersonal and structural resources.

A further strand of the literature points to the role of socioeconomic and structural inequalities in dementia-related outcomes. Education, income, wealth, and broader social conditions have been associated with dementia risk, cognitive impairment, and dementia-free life expectancy [11–13]. These studies suggest that dementia should not be understood solely as an individual biomedical condition, because the resources available to individuals are embedded in wider social and economic structures. Socioeconomic position may also be relevant to how people anticipate and evaluate their future ability to cope with dementia, including their confidence in maintaining social ties, accessing support, and preserving participation in society. In this respect, anticipated social connectedness under dementia may reflect broader inequalities in social resilience.

Building on these strands of research, we conceptualize anticipated social connectedness under dementia as a forward-looking subjective assessment that may be shaped by three related domains: demographic and family circumstances, socioeconomic resources, and psychological orientation toward the future. This framing differs from studies of realized social participation among people already living with dementia, because it focuses on how individuals evaluate their own capacity to remain socially connected under a hypothet-

ical future condition. It also differs from general studies of dementia attitudes, because the outcome concerns respondents' expectations about themselves rather than their views of people with dementia in general. By examining these domains jointly, this study provides evidence on how anticipated social connectedness under dementia is socially patterned.

3. Data and Methods

3.1. Data

This study utilized data from the 2026 wave of the Survey on Life and Money, conducted by Rakuten Securities in Japan and Kadoya Lab at Hiroshima University between January and February 2026. Rakuten Securities, one of the leading online securities companies in Japan, has administered the survey annually to its account holders since 2022. The 2026 wave was conducted online and targeted individuals aged 18 to 90 who had accessed their Rakuten Securities account at least once in the past year. Because the survey was conducted among online securities account holders, the sample was not designed to be nationally representative of the Japanese population. Respondents may differ from the general population in financial literacy, digital access, investment experience, socioeconomic status, interest in future financial planning, and willingness to respond to online surveys. These features should be considered when interpreting the external validity of the findings.

The survey collected information on respondents' demographic, socioeconomic, and psychological characteristics. It also included questions related to perceptions of dementia, which are central to the present analysis. After excluding observations with missing values or incomplete information, the final dataset included 20,352 respondents.

3.2. Variables

The dependent variable is anticipated social connectedness under dementia. It captures respondents' self-assessed confidence that they could remain connected to society if they were to develop dementia in the future. Respondents were asked whether they agreed with the statement: "Even if I develop dementia in the future, I am confident I can remain connected to society." Responses were recorded on a five-point scale ranging from 1 ("completely disagree") to 5 ("completely agree"). Because this item asks respondents to evaluate a hypothetical future condition, it should be interpreted as an anticipated or expected assessment of social connectedness, not as realized social connectedness or observed social participation among people currently living with dementia.

Regarding measurement validity, the item has face validity for the focal construct because it directly asks about confidence in remaining connected to society under a future dementia scenario. However, social connectedness is a multidimensional construct that may include network size, frequency of interaction, perceived support, community participation, and relationship quality. Therefore, this single item should be understood as a proxy for anticipated social connectedness under dementia rather than as a validated multidimensional scale. This limitation is discussed further in Section 6.

The explanatory variables include demographic, socioeconomic, and psychological characteristics. Demographic variables are gender, age, age squared, marital status, and number of children. Socioeconomic variables are educational attainment, employment status, household income, and household financial assets. To reduce skewness, household income and household financial assets are entered in logarithmic form. As a psychological characteristic, we include a dummy variable for myopic views of the future, coded as 1 if the respondent agreed or completely agreed with the statement "Since the future is uncertain, it is a waste to think about it," and 0 otherwise. We include this variable because the dependent variable is explicitly forward-looking, and an individual's orientation toward the future may be relevant to how they evaluate their ability to cope with a possible future

dementia condition. At the same time, the survey did not include a broader psychological battery, such as validated measures of resilience, self-efficacy, optimism, anxiety, perceived control, mental health, or dementia-related fear. The myopic-view variable should therefore be interpreted as a limited indicator of future orientation, not as a comprehensive measure of psychological characteristics. Table 1 presents the definitions of all variables used in the analysis.

Table 1. Definition of variables.

Variables	Definition
Dependent Variables	
Anticipated social connectedness under dementia	An ordinal variable: 1 means “completely disagree” and 5 means “completely agree” in response to the statement: “Even if I develop dementia in the future, I am confident I can remain connected to society.” This item captures anticipated rather than realized social connectedness.
Independent Variables	
Gender	A binary variable set to 1 if the respondent’s gender is male, and 0 otherwise
Age	A continuous variable representing the age of the respondents
Age Squared	Square of respondent age
Marital Status	A binary variable set to 1 if the respondent is married, and 0 otherwise
Children	A continuous variable of the number of children
Education	A binary indicator is assigned a value of 1 if the respondent has at least a university degree, and 0 otherwise
Unemployed	A binary variable set to 1 if the respondent is unemployed, and 0 otherwise
Household Income	A continuous variable indicating the respondent’s estimated annual income in Japanese yen for 2025
Log of income	A natural logarithm of the estimated annual household income in Japanese yen
Household Asset	A continuous variable indicating the respondent’s household financial asset balance in Japanese yen for 2025
Log of asset	A natural logarithm of the household financial asset balance in Japanese yen
Myopic	A binary variable assigned a value of 1 if the respondent agrees with the statement “Since the future is uncertain, it is a waste to think about it.” and 0 if otherwise.

3.3. Descriptive Statistics

Table 2 reports the descriptive statistics of the variables used in the analysis. The mean value of anticipated social connectedness under dementia was 2.40 (standard deviation [SD] = 0.93), suggesting that, on average, respondents were slightly below the midpoint of the five-point scale. Among the respondents, 75.1% were male, the mean age was 52.0 years, and 63.5% had at least a university degree. In addition, 64.3% were married, the mean number of children was 1.12, and 13.6% were unemployed. Mean annual household income was JPY 7,396,153, and the mean household financial assets were JPY 29,000,000. The proportion of respondents classified as myopic was 0.14.

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
Dependent Variables				
Anticipated social connectedness under dementia	2.397357	0.926347	1	5
Independent Variables				
Gender	0.751081	0.432397	0	1
Age	52.02103	11.45006	18	86
Age squared	2837.285	1188.707	324	7396
Marital Status	0.643131	0.479088	0	1
Number of children	1.118121	1.129431	0	12
University Degree	0.635171	0.481394	0	1
Unemployed	0.136449	0.343273	0	1
Household Income	7,396,153	4,433,423	1,000,000	2.00×10^7
Log of Household Income	15.6172	0.67638	13.81551	16.81124
Household Asset	2.90×10^7	3.03×10^7	2,500,000	1.00×10^8
Log of Household Asset	16.57859	1.166286	14.7318	18.42068
Myopic	0.144802	0.351909	0	1
Observations	20,352			

3.4. Empirical Strategy

This study employed ordered probit regression models to examine the associations between anticipated social connectedness under dementia and respondents' demographic, socioeconomic, and psychological characteristics. The models were estimated using Stata 18. Because the dependent variable is measured on an ordinal five-point scale, the ordered probit model is appropriate for the main analysis.

To examine how the explanatory variables are associated with anticipated social connectedness under dementia, we estimated the following specifications:

$$Y_i = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Age}_i + \beta_3 \text{Age Squared}_i + \beta_4 \text{Marital Status}_i + \beta_5 \text{Children}_i + \beta_6 \text{Education}_i \quad (1)$$

$$Y_i = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Age}_i + \beta_3 \text{Age Squared}_i + \beta_4 \text{Marital Status}_i + \beta_5 \text{Children}_i + \beta_6 \text{Education}_i + \beta_7 \text{Unemployed}_i \quad (2)$$

$$Y_i = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Age}_i + \beta_3 \text{Age Squared}_i + \beta_4 \text{Marital Status}_i + \beta_5 \text{Children}_i + \beta_6 \text{Education}_i + \beta_7 \text{Unemployed}_i + \beta_8 \text{Log of income}_i + \beta_9 \text{Log of asset}_i \quad (3)$$

$$Y_i = \beta_0 + \beta_1 \text{Gender}_i + \beta_2 \text{Age}_i + \beta_3 \text{Age Squared}_i + \beta_4 \text{Marital Status}_i + \beta_5 \text{Children}_i + \beta_6 \text{Education}_i + \beta_7 \text{Unemployed}_i + \beta_8 \text{Log of income}_i + \beta_9 \text{Log of asset}_i + \beta_{10} \text{Myopic}_i \quad (4)$$

where Y_i represents the degree of anticipated social connectedness under dementia for respondent i . The explanatory variables include demographic characteristics, socioeconomic factors, and psychological traits. The coefficients indicate the direction of association between each explanatory variable and the latent tendency to report a higher level of anticipated social connectedness under dementia.

As a robustness check, we also estimated a binary specification of the dependent variable. The result was used as a supplementary check on the main findings from the ordered probit models. In addition, multicollinearity was assessed using pairwise correlations and

variance inflation factor (VIF) tests. The correlation coefficients were below conventional thresholds ($|r| < 0.6$), and the VIF value was below the conventional threshold of 10, suggesting that multicollinearity is unlikely to materially affect the results.

4. Results

4.1. Main Results

Table 3 reports the ordered probit estimates for anticipated social connectedness under dementia. Overall, several demographic, socioeconomic, and psychological characteristics were associated with respondents' confidence that they could remain connected to society if they were to develop dementia in the future.

Table 3. Ordered Probit Estimates for the Full Sample.

Anticipated Social Connectedness Under Dementia				
VARIABLES	(1)	(2)	(3)	(4)
Gender	−0.0246 (0.0181)	−0.0185 (0.0182)	−0.0235 (0.0182)	−0.0238 (0.0182)
Age	−0.0445 *** (0.00490)	−0.0516 *** (0.00502)	−0.0532 *** (0.00506)	−0.0532 *** (0.00506)
Age Squared	0.000532 *** (4.64×10^{-5})	0.000621 *** (4.85×10^{-5})	0.000645 *** (4.89×10^{-5})	0.000645 *** (4.89×10^{-5})
Marital Status	0.0825 *** (0.0194)	0.0701 *** (0.0195)	0.0398 * (0.0204)	0.0395 * (0.0204)
Children	0.0233 *** (0.00865)	0.0211 ** (0.00868)	0.0167 * (0.00874)	0.0168 * (0.00874)
Education	−0.0203 (0.0161)	−0.0181 (0.0161)	−0.0268 (0.0166)	−0.0273 * (0.0166)
Unemployed		−0.162 *** (0.0249)	−0.117 *** (0.0266)	−0.116 *** (0.0266)
Log of income			0.0747 *** (0.0147)	0.0744 *** (0.0147)
Log of asset			−0.0153 ** (0.00763)	−0.0158 ** (0.00763)
Myopic				−0.0313 (0.0227)
/cut1	−1.578 *** (0.127)	−1.723 *** (0.129)	−0.854 *** (0.236)	−0.875 *** (0.236)
/cut2	−0.802 *** (0.127)	−0.946 *** (0.129)	−0.0760 (0.236)	−0.0965 (0.236)
/cut3	0.688 *** (0.128)	0.545 *** (0.130)	1.416 *** (0.236)	1.395 *** (0.236)
/cut4	1.539 *** (0.129)	1.397 *** (0.131)	2.269 *** (0.237)	2.248 *** (0.237)
Observations	20,352	20,352	20,352	20,352

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Age was negatively associated with anticipated social connectedness under dementia, while the coefficient on Age squared was positive and statistically significant across the main specifications. This pattern suggests a nonlinear association between age and the dependent variable. Marital status was positively associated with anticipated social connectedness in the overall sample, although the strength of this association varied across subsamples. The number of children was also positively associated with the dependent variable in the full sample.

Among the socioeconomic variables, unemployment showed a consistently negative association with anticipated social connectedness under dementia. Household income

was positively associated with the dependent variable in the specifications in which it was included, whereas household financial assets showed a negative association in some specifications. This contrast may indicate that income and accumulated financial assets capture different aspects of respondents' socioeconomic circumstances, although the interpretation of the asset coefficient requires caution because the association was not fully stable across subsamples and specifications. Educational attainment was generally not statistically significant in the main models.

The psychological variable, myopic views of the future, was negatively associated with anticipated social connectedness under dementia in some specifications, although the result was not consistently observed across all models. In the fully adjusted model (Model 4), age was negatively associated with anticipated social connectedness under dementia (coefficient = -0.0532 , $p < 0.01$), while age squared was positively associated with it (coefficient = 0.000645 , $p < 0.01$). Unemployment showed a negative association (coefficient = -0.116 , $p < 0.01$), whereas log household income showed a positive association (coefficient = 0.0744 , $p < 0.01$). Marital status (coefficient = 0.0395 , $p < 0.10$) and number of children (coefficient = 0.0168 , $p < 0.10$) were also positively associated with the dependent variable, although their statistical significance was weaker. By contrast, log household financial assets showed a small negative association (coefficient = -0.0158 , $p < 0.05$), and myopic views of the future were not statistically significant in the fully adjusted model. Taken together, the findings suggest that anticipated social connectedness under dementia is associated not only with demographic characteristics, but also with individuals' socioeconomic position, while the evidence for psychological orientation is more limited and specification-dependent.

4.2. Results by Gender

Table 4 reports the gender-specific ordered probit estimates. The gender-specific estimates reveal both common patterns and some differences between male and female respondents. For both men and women, age showed a negative association and age squared showed a positive association in the baseline specifications, again suggesting a nonlinear relationship. Unemployment was negatively associated with anticipated social connectedness under dementia for both groups, although the estimated coefficients were somewhat stronger and more consistently significant among men.

Some differences also emerged in family-related variables. Marital status was positively associated with anticipated social connectedness among men, whereas the corresponding estimates for women were generally weaker and statistically insignificant in the baseline models. In contrast, the number of children was more strongly and consistently positively associated with the dependent variable among women than among men.

Regarding socioeconomic variables, household income was positively associated with anticipated social connectedness for both men and women in several specifications, although the estimates were not uniformly significant in all subgroup models. The coefficient on household financial assets was negative in some models, particularly among men, but this association was less stable among women. These patterns suggest that the correlates of anticipated social connectedness under dementia may differ modestly by gender, especially with respect to family structure and economic circumstances, although the overall direction of the main associations remains broadly similar. In the fully adjusted gender-specific models, unemployment was negatively associated with anticipated social connectedness among both men (coefficient = -0.107 , $p < 0.01$) and women (coefficient = -0.147 , $p < 0.05$). Log household income was positively associated with the dependent variable for both men (coefficient = 0.0767 , $p < 0.01$) and women (coefficient = 0.0739 , $p < 0.01$). Family-related variables showed different patterns by gender: marital status was positively associated

with the dependent variable among men (coefficient = 0.0835, $p < 0.01$), whereas the number of children was positively associated with it among women (coefficient = 0.0573, $p < 0.01$). Myopic views of the future were negatively associated among men (coefficient = -0.0593 , $p < 0.05$), but not among women.

Table 4. Results by Gender.

Anticipated Social Connectedness Under Dementia								
VARIABLES	Male					Female		
Age	−0.0492 *** (0.00581)	−0.0567 *** (0.00595)	−0.0580 *** (0.00600)	−0.0580 *** (0.00599)	−0.0364 *** (0.00962)	−0.0404 *** (0.00976)	−0.0435 *** (0.00982)	−0.0434 *** (0.00981)
Age Squared	0.000572 *** (5.44 × 10 ^{−5})	0.000666 *** (5.68 × 10 ^{−5})	0.000686 *** (5.72 × 10 ^{−5})	0.000686 *** (5.72 × 10 ^{−5})	0.000465 *** (9.54 × 10 ^{−5})	0.000517 *** (9.78 × 10 ^{−5})	0.000555 *** (9.85 × 10 ^{−5})	0.000555 *** (9.84 × 10 ^{−5})
Marital Status	0.127 *** (0.0236)	0.114 *** (0.0236)	0.0840 *** (0.0246)	0.0835 *** (0.0246)	−0.0112 (0.0346)	−0.0230 (0.0349)	−0.0575 (0.0373)	−0.0568 (0.0373)
Children	0.00669 (0.0103)	0.00464 (0.0104)	−0.000624 (0.0105)	−0.000203 (0.0105)	0.0609 *** (0.0160)	0.0593 *** (0.0160)	0.0568 *** (0.0161)	0.0573 *** (0.0161)
Education	−0.0253 (0.0189)	−0.0237 (0.0189)	−0.0311 (0.0194)	−0.0321 * (0.0194)	−0.000548 (0.0311)	0.00110 (0.0311)	−0.0120 (0.0323)	−0.0115 (0.0323)
Unemployed		−0.158 *** (0.0272)	−0.108 *** (0.0295)	−0.107 *** (0.0295)		−0.179 *** (0.0647)	−0.147 ** (0.0661)	−0.147 ** (0.0661)
Log of income			0.0771 *** (0.0173)	0.0767 *** (0.0173)			0.0731 *** (0.0281)	0.0739 *** (0.0281)
Log of asset			−0.0174 ** (0.00870)	−0.0184 ** (0.00870)			−0.00779 (0.0161)	−0.00703 (0.0161)
Myopic				−0.0593 ** (0.0268)				0.0436 (0.0428)
/cut1	−1.682 *** (0.153)	−1.838 *** (0.155)	−0.953 *** (0.281)	−0.989 *** (0.282)	−1.351 *** (0.239)	−1.436 *** (0.241)	−0.508 (0.441)	−0.474 (0.442)
/cut2	−0.905 *** (0.153)	−1.061 *** (0.155)	−0.175 (0.281)	−0.211 (0.282)	−0.572 ** (0.239)	−0.657 *** (0.241)	0.272 (0.441)	0.306 (0.441)
/cut3	0.599 *** (0.154)	0.446 *** (0.156)	1.333 *** (0.282)	1.297 *** (0.282)	0.873 *** (0.240)	0.789 *** (0.242)	1.719 *** (0.442)	1.753 *** (0.442)
/cut4	1.429 *** (0.155)	1.277 *** (0.157)	2.165 *** (0.283)	2.128 *** (0.284)	1.793 *** (0.242)	1.710 *** (0.245)	2.641 *** (0.441)	2.676 *** (0.442)
Observations	15,286	15,286	15,286	15,286	5066	5066	5066	5066

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3. Results by Age Group

Table 5 reports the ordered probit estimates by age group and gender. The age-group analysis provides suggestive evidence of heterogeneity across life stages, although some subgroup estimates should be interpreted cautiously because of smaller sample sizes. In the 40–64 age group, several of the main associations remained visible: age retained a negative association, age squared remained positive, unemployment was negatively associated with the dependent variable, and household income was positively associated with it. In the under-39 group, the estimates were somewhat less stable, although some variables, particularly household income, continued to show associations in the expected direction. For respondents aged 65 or older, several associations also remained visible, including the nonlinear age pattern, a positive association for the number of children, a negative association for unemployment, and a positive association for household income, although some coefficients were less stable across specifications.

Table 5. Ordered Probit Estimates by Age Group and Gender.

Anticipated Social Connectedness Under Dementia												
VARIABLES		Under 39				Male 40–64			65 or over			
Age	−0.0931 (0.0805)	−0.0931 (0.0805)	−0.0982 (0.0809)	−0.0952 (0.0806)	−0.0410 *	−0.0514 **	−0.0648 ***	−0.0652 ***	−0.115 (0.177)	−0.110 (0.177)	−0.106 (0.178)	−0.106 (0.178)
Age Squared	0.00122 (0.00124)	0.00122 (0.00124)	0.00134 (0.00125)	0.00129 (0.00124)	0.000510 **	0.000625 ***	0.000763 ***	0.000765 ***	0.00108 (0.00124)	0.00109 (0.00124)	0.00106 (0.00125)	0.00106 (0.00125)
Marital Status	0.163 ** (0.0662)	0.163 ** (0.0664)	0.157 ** (0.0706)	0.155 ** (0.0705)	0.138 *** (0.0277)	0.123 *** (0.0279)	0.0868 (0.0291)	0.0861 (0.0291)	−0.00944 (0.0633)	−0.0313 (0.0633)	−0.0496 (0.0644)	−0.0496 (0.0644)
Children	0.0376 (0.0369)	0.0376 (0.0369)	0.0350 (0.0373)	0.0355 (0.0371)	0.00401 (0.0120)	0.00133 (0.0121)	−0.00521 (0.0122)	−0.00458 (0.0122)	−0.00179 (0.0229)	−0.00475 (0.0231)	−0.00910 (0.0231)	−0.00910 (0.0230)
Education	−0.0524 (0.0576)	−0.0523 (0.0576)	−0.0451 (0.0593)	−0.0469 (0.0594)	−0.0178 (0.0221)	−0.0167 (0.0221)	−0.0318 (0.0229)	−0.0327 (0.0229)	−0.0294 (0.0474)	−0.0248 (0.0473)	−0.0213 (0.0481)	−0.0213 (0.0482)
Unemployed		0.00411 (0.175)	0.0424 (0.177)	0.0480 (0.177)		−0.155 (0.0375)	−0.0805 (0.0420)	−0.0792 (0.0420)		−0.198 (0.0444)	−0.168 (0.0471)	−0.168 (0.0471)
Log of income			0.0391 (0.0575)	0.0369 (0.0576)			0.0910 (0.0211)	0.0908 (0.0211)			0.0750 * (0.0424)	0.0750 * (0.0424)
Log of asset			−0.0468 *	−0.0471 *			−0.0119 (0.0104)	−0.0131 (0.0104)			−0.0339 (0.0220)	−0.0339 (0.0221)
Myopic				−0.0751 (0.0676)				−0.0662 ** (0.0315)				1.64 × 10 ^{−6} (0.0755)
/cut1	−2.370 * (1.286)	−2.370 * (1.287)	−2.557 * (1.451)	−2.561 * (1.448)	−1.406 ** (0.639)	−1.659 *** (0.641)	−0.780 (0.682)	−0.825 (0.682)	−4.014 (6.301)	−3.755 (6.286)	−3.035 (6.369)	−3.034 (6.368)
/cut2	−1.534 (1.286)	−1.534 (1.286)	−1.720 (1.450)	−1.724 (1.447)	−0.643 (0.638)	−0.894 (0.641)	−0.0149 (0.681)	−0.0599 (0.682)	−3.215 (6.302)	−2.953 (6.286)	−2.231 (6.369)	−2.231 (6.368)
/cut3	−0.332 (1.286)	−0.332 (1.287)	−0.517 (1.450)	−0.521 (1.447)	0.861 (0.638)	0.611 (0.641)	1.491 ** (0.681)	1.447 ** (0.682)	−1.495 (6.302)	−1.225 (6.287)	−0.502 (6.370)	−0.502 (6.369)
/cut4	0.465 (1.289)	0.466 (1.289)	0.282 (1.455)	0.277 (1.452)	1.668 *** (0.638)	1.419 ** (0.641)	2.300 *** (0.681)	2.255 *** (0.682)	−0.548 (6.299)	−0.270 (6.284)	0.453 (6.368)	0.453 (6.366)
Observations	1988	1988	1988	1988	10,728	10,728	10,728	10,728	2570	2570	2570	2570
Anticipated social connectedness under dementia												
VARIABLES		Under 39				Female 40–64			65 or over			
Age	−0.0387 (0.0988)	−0.0382 (0.0999)	−0.0570 (0.101)	−0.0552 (0.101)	0.0170 (0.0418)	0.0123 (0.0419)	0.00703 (0.0420)	0.00517 (0.0420)	−0.596 (0.440)	−0.560 (0.442)	−0.527 (0.448)	−0.563 (0.449)
Age Squared	0.000373 (0.00154)	0.000367 (0.00155)	0.000639 (0.00156)	0.000612 (0.00156)	−1.60 × 10 ^{−5} (0.000405)	3.48 × 10 ^{−5} (0.000405)	9.12 × 10 ^{−5} (0.000407)	0.000112 (0.000408)	0.00440 (0.00308)	0.00416 (0.00310)	0.00394 (0.00314)	0.00420 (0.00315)
Marital Status	0.0613 (0.0795)	0.0506 (0.0796)	−0.0202 (0.0852)	−0.0215 (0.0851)	0.00555 (0.0412)	−0.00328 (0.0414)	−0.0266 (0.0445)	−0.0253 (0.0445)	−0.232 * (0.122)	−0.275 ** (0.126)	−0.286 ** (0.130)	−0.281 ** (0.130)
Children	−0.0172 (0.0417)	−0.0200 (0.0418)	−0.0166 (0.0421)	−0.0173 (0.0424)	0.0712 *** (0.0186)	0.0694 *** (0.0187)	0.0675 *** (0.0188)	0.0681 *** (0.0189)	0.146 *** (0.0538)	0.144 *** (0.0542)	0.143 *** (0.0540)	0.141 *** (0.0538)
Education	0.0524 (0.0700)	0.0517 (0.0700)	0.0232 (0.0715)	0.0241 (0.0714)	0.00863 (0.0369)	0.00826 (0.0369)	−0.00122 (0.0383)	0.000684 (0.0383)	−0.101 (0.121)	−0.0870 (0.121)	−0.0909 (0.125)	−0.0955 (0.126)
Unemployed		−0.465 * (0.256)	−0.384 (0.254)	−0.386 (0.254)		−0.142 * (0.0854)	−0.118 (0.0879)	−0.119 (0.0879)		−0.169 (0.120)	−0.148 (0.126)	−0.146 (0.127)
Log of income			0.137 ** (0.0647)	0.136 ** (0.0647)			0.0461 (0.0332)	0.0478 (0.0332)			0.0747 (0.110)	0.0726 (0.110)
Log of asset			−0.0123 (0.0405)	−0.0129 (0.0406)			−0.00128 (0.0186)	0.000242 (0.0186)		−0.0365 (0.0626)	−0.0379 (0.0630)	−0.0379 (0.0630)
Myopic				−0.0400 (0.0912)				0.0882 * (0.0504)				−0.122 (0.168)
/cut1	−1.495 (1.559)	−1.504 (1.578)	0.0609 (1.733)	0.0605 (1.735)	0.120 (1.072)	0.00299 (1.072)	0.559 (1.155)	0.587 (1.154)	−21.20 (15.62)	−19.96 (15.69)	−18.23 (16.12)	−19.58 (16.19)
/cut2	−0.668 (1.559)	−0.675 (1.578)	0.892 (1.733)	0.892 (1.735)	0.888 (1.072)	0.771 (1.073)	1.327 (1.155)	1.355 (1.154)	−20.43 (15.62)	−19.19 (15.69)	−17.46 (16.12)	−18.81 (16.19)
/cut3	0.562 (1.558)	0.556 (1.578)	2.125 (1.733)	2.125 (1.735)	2.375 ** (1.073)	2.258 ** (1.073)	2.815 ** (1.155)	2.844 ** (1.155)	−18.75 (15.61)	−17.51 (15.68)	−15.78 (16.12)	−17.13 (16.19)
/cut4	1.486 (1.564)	1.481 (1.584)	3.054 * (1.739)	3.052 * (1.741)	3.264 *** (1.072)	3.147 *** (1.072)	3.705 *** (1.153)	3.734 *** (1.152)	−17.55 (15.57)	−16.29 (15.64)	−14.56 (16.07)	−15.91 (16.15)
Observations	1097	1097	1097	1097	3591	3591	3591	3591	378	378	378	378

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Family-related variables displayed some variation across age groups. The number of children was positively associated with anticipated social connectedness under dementia in the oldest group, whereas this association was weak or absent in some younger specifications. Marital status was positively associated with the dependent variable in the middle-aged group, but less clearly so among older respondents. These results suggest

that the perceived capacity to remain socially connected under dementia may be associated with different forms of social and economic resources at different stages of the life course. The age-group estimates also indicate that the strength of the associations varied across life stages. Among male respondents aged 40–64, log household income was positively associated with the dependent variable (coefficient = 0.0908, $p < 0.01$), while unemployment was negatively associated with it in the fully adjusted model (coefficient = -0.0792 , $p < 0.10$). Among male respondents aged 65 or older, unemployment remained negatively associated with the dependent variable (coefficient = -0.168 , $p < 0.01$), and log household income was positive but more weakly significant (coefficient = 0.0750, $p < 0.10$). Among female respondents, the number of children was positively associated with the dependent variable in the 40–64 group (coefficient = 0.0681, $p < 0.01$) and the 65-or-older group (coefficient = 0.141, $p < 0.01$), although estimates for the oldest female subgroup should be interpreted cautiously because of the smaller sample size.

4.4. Robustness Check

Table 6 reports the estimates using a binary version of the dependent variable. As a robustness check, we re-estimated the model using this binary specification. The main patterns were broadly similar to those obtained from the ordered probit models. In particular, unemployment remained negatively associated with anticipated social connectedness under dementia, while household income continued to show a positive association in the specifications where it was included. The nonlinear age pattern was also preserved. These results suggest that the main findings are not driven solely by the ordinal specification of the dependent variable.

Table 6. Estimates Using the Binary Outcome Specification.

Anticipated Social Connectedness Under Dementia				
VARIABLES	(1)	(2)	(3)	(4)
Gender	−0.0290 (0.0309)	−0.0212 (0.0310)	−0.0268 (0.0310)	−0.0257 (0.0310)
Age	−0.0621 *** (0.00769)	−0.0699 *** (0.00790)	−0.0729 *** (0.00799)	−0.0730 *** (0.00800)
Age Squared	0.000609 *** (7.37×10^{-5})	0.000707 *** (7.75×10^{-5})	0.000742 *** (7.84×10^{-5})	0.000743 *** (7.84×10^{-5})
Marital Status	0.0353 (0.0337)	0.0218 (0.0338)	−0.0116 (0.0355)	−0.0107 (0.0355)
Children	0.0395 *** (0.0146)	0.0378 *** (0.0146)	0.0343 ** (0.0148)	0.0341 ** (0.0148)
Education	0.00329 (0.0276)	0.00570 (0.0276)	−0.0112 (0.0284)	−0.00937 (0.0284)
Unemployed		−0.192 *** (0.0459)	−0.154 *** (0.0487)	−0.156 *** (0.0487)
Log of income			0.0777 *** (0.0263)	0.0788 *** (0.0263)
Log of asset			−0.000411 (0.0133)	0.00123 (0.0133)
Myopic				0.0973 *** (0.0360)
Constant	0.0200 (0.196)	0.177 (0.199)	−0.937 ** (0.399)	−1.003 ** (0.399)
Observations	20,352	20,352	20,352	20,352

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

At the same time, some coefficients were sensitive to changes in specification and subgroup definition, especially for educational attainment, household financial assets, and myopic views of the future. For example, household financial assets were negatively associated with the dependent variable in the ordered probit model, but the corresponding coefficient was close to zero and statistically insignificant in the binary specification. Myopic views of the future were not statistically significant in the fully adjusted ordered probit model, whereas they were positively associated with the binary outcome. These differences suggest that some associations depend on how the dependent variable is operationalized, particularly whether the full ordinal information is used or the outcome is collapsed into a binary indicator. Future research should examine alternative thresholds and richer measures of future orientation before drawing firm conclusions about psychological correlates.

5. Discussion

This study examined anticipated social connectedness under dementia and its association with demographic, socioeconomic, and psychological characteristics in Japan. Overall, the findings suggest that respondents' confidence in remaining connected to society under dementia is associated with both social and economic circumstances. In particular, unemployment was negatively associated with anticipated social connectedness under dementia, while household income was positively associated with it across several specifications. These patterns are broadly consistent with the view that individuals' perceived ability to remain socially connected under possible cognitive decline may reflect the resources, opportunities, and support structures available to them.

One possible interpretation of the results is that socioeconomic position may matter not only for material living conditions but also for how individuals anticipate their future social resilience. Respondents with higher household income may perceive themselves as better able to cope with the social challenges associated with possible cognitive decline. By contrast, unemployment may be associated with weaker anticipated social connectedness because it may coincide with reduced daily social participation, fewer structured interactions, or greater uncertainty about future support. These interpretations should be treated cautiously, however, because the present analysis identifies associations rather than causal effects.

The findings also suggest that family-related factors may be relevant, although their associations were not fully uniform across all models. Marital status was positively associated with anticipated social connectedness in the full sample and more clearly among men, while the number of children showed a positive association in the full sample and appeared particularly relevant among women, with more mixed patterns across age groups. These patterns may indicate that family structure is associated with expectations about future interpersonal support and social inclusion under dementia. At the same time, the subgroup differences were not strong enough to support definitive conclusions about gender-specific or life-course mechanisms, and they are better interpreted as suggestive rather than conclusive.

The age results point to a nonlinear association between age and anticipated social connectedness under dementia. Rather than indicating a simple monotonic relationship, the estimates suggest that the association varies across the age distribution. One possible implication is that perceptions of future social connectedness under dementia may reflect different combinations of concerns, resources, and expectations at different stages of the life course. However, because the present study is cross-sectional, the estimated age pattern may also capture cohort-related differences rather than within-person changes over time. The age coefficients should therefore be interpreted with caution.

An additional point of interest is that household income and household financial assets were not always associated with anticipated social connectedness under dementia in the same direction. While income was positively associated with the dependent variable, household financial assets showed a negative association in some specifications. One possible interpretation is that flow-based economic resources and stock-based economic resources may capture different aspects of respondents' social and economic circumstances. Current income may be more closely related to ongoing participation in work and everyday social life, whereas accumulated assets may reflect other factors, such as life-course stage, retirement status, or precautionary behavior. However, because the association for household financial assets was not fully stable across models, this contrast should be interpreted cautiously.

The results for household financial assets and myopic views of the future were more mixed. Household financial assets were negatively associated with the dependent variable in some models, particularly among men, but the pattern was not fully stable across specifications. Similarly, myopic views of the future showed a negative association in some cases, but this relationship was not consistently observed across all models and subsamples. These findings may indicate that the relationship between anticipated social connectedness under dementia and psychological or balance-sheet-related factors is more complex than the main socioeconomic gradients captured by income and employment status. For this reason, these results should be treated as tentative.

This study contributes to the literature in at least two ways. First, it shifts attention from realized outcomes of dementia to a forward-looking and subjective dimension: individuals' self-assessed confidence that they could remain connected to society if they were to develop dementia. This complements existing research that has focused more heavily on diagnosis, caregiving, healthcare use, stigma, and economic burden. Second, by examining demographic, socioeconomic, and psychological characteristics within a unified framework, the study highlights that anticipated social resilience under dementia may itself be socially patterned. In this sense, concerns about dementia may not be limited to medical vulnerability alone, but may also be associated with broader inequalities in anticipated capacity to remain socially integrated.

Overall, the findings provide suggestive evidence that anticipated social connectedness under dementia may be weaker among individuals in less advantaged socioeconomic positions, particularly those with lower income or without employment. This does not imply a causal effect of socioeconomic status on anticipated social connectedness. Rather, the results indicate that dementia-related social resilience may be perceived differently across socioeconomic groups. From a policy and practice perspective, these findings suggest that dementia preparedness should not be limited to medical care and caregiving arrangements. Support for maintaining social participation, access to community resources, and confidence in future decision-making may be especially important for individuals in less advantaged socioeconomic positions.

6. Limitations

This study has several limitations. First, the analysis is based on cross-sectional survey data and therefore does not permit causal interpretation. Second, the dependent variable captures self-assessed confidence rather than realized social connectedness under actual dementia onset. Although the item has face validity because it directly asks about confidence in remaining connected to society under a future dementia scenario, it does not fully establish construct or content validity for the broader multidimensional concept of social connectedness. Social connectedness may include network size, frequency and quality of interaction, perceived support, community participation, and access to services,

which cannot be captured by a single survey item. Third, the sample consists of Rakuten Securities account holders, who may differ from the general population in financial literacy, digital access, socioeconomic status, investment experience, and future planning orientation. Accordingly, the findings should not be generalized mechanically to the broader Japanese population. Finally, the analysis includes only one psychological variable, myopic views of the future, because the survey did not include broader validated measures of resilience, self-efficacy, optimism, anxiety, perceived control, mental health, or dementia-related fear. Unobserved psychological and social factors may therefore still be associated with the dependent variable.

7. Conclusions

This study examined anticipated social connectedness under dementia and its association with demographic, socioeconomic, and psychological characteristics among Japanese securities account holders. Using ordered probit models, we found that unemployment was negatively associated with respondents' confidence that they could remain connected to society if they were to develop dementia, while household income was positively associated with this confidence across several specifications. Family-related variables, such as marital status and number of children, also showed positive associations in some models, although these patterns differed by gender and age group. By contrast, the associations for household financial assets and myopic views of the future were less stable and should be interpreted cautiously.

The findings suggest that anticipated social resilience under dementia may be socially patterned and linked to broader socioeconomic circumstances. This perspective complements prior research on dementia-related stigma, caregiving, and economic burden by focusing on a forward-looking subjective assessment of social connectedness under possible cognitive decline. However, the results should be interpreted as descriptive associations rather than causal effects. The analysis is based on cross-sectional data from Rakuten Securities account holders, and the dependent variable captures self-assessed confidence rather than realized social connectedness among people living with dementia. Future studies using longitudinal data, more representative samples, and richer measures of social networks and dementia-related expectations would be useful for clarifying the mechanisms underlying these associations. Population-based aging surveys and municipal data on long-term care and community services would complement the present securities-account-holder sample. Mixed-methods research could further examine how overall resilience, family history of dementia, rurality, and access to aging- and dementia-related services shape anticipated social connectedness under dementia. Such evidence would help translate the present findings into policy and service planning for dementia-inclusive communities.

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