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## **Gender Differences Among Elderly Japanese: Importance of family and social relations for life satisfaction**

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### Abstract

The purpose of this study is to investigate how family and social relations affect the life satisfaction levels of elderly men and women in Japan. We used micro-data from 3,063 Japanese elderly adults (1,565 men and 1,498 women) collected from a sample in the first-wave of the Japanese Study of Aging and Retirement (JSTAR), a survey compatible with HRS in the United States and SHARE in Europe. This study found that life satisfaction is more closely associated with family and social relations for women than for men, after controlling for socioeconomic, health, and other factors. Women are more sensitive than men to coresidence and contact with family members, especially parents-in-law, as well as to social relations with others in the community, while men become much more depressed than women following a divorce or widowhood.

Observed associations between each factor and life satisfaction are largely consistent with those separately reported by preceding studies. However, this analysis compared the relative importance of each factor and its gender difference, contributing to a more comprehensive and subjective understanding of the well-being of elderly people.

*Keywords:* life satisfaction, family relations, and social relations.

*JEL classification:* I31; R23

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## **Introduction**

The purpose of this paper was to investigate how the associations of life satisfaction with family and social relations differ between elderly men and women in Japan. There is a large volume of literature that discusses the correlates of elderly well-being and their gender differences. The observed gendered patterns can be explained by differences in social exposures between men and women, which are likely dependent on social and cultural backgrounds. Most previous studies, however, have been confined to investigating the association of well-being with a single factor or two, such as marital status, relations with children, parents, or others, and social activities.

In this study, I attempted to jointly examine these factors and assess their relative importance in terms of their associations with elderly life satisfaction. The data were collected from the newly established Japanese Study of Aging and Retirement (JSTAR), which was designed to be compatible with the Health and Retirement Study (HRS) in the United States and the Survey of Health, Ageing, and Retirement in Europe (SHARE) in continental Europe (Ichimura, Hashimoto, & Shimizutani, 2009). Hence, the results obtained from this study can be consistently compared with those in the United States and European countries.

This study's main focus was the life satisfaction of the elderly, a comprehensive indicator of subjective well-being (Blanchflower & Oswald, 2004; Diener, Suh, Lucas, & Smith, 1999). Empirical studies of happiness have often used life satisfaction as an equivalent of perceived happiness and found that it is closely related to income, comparisons with others, occupational status, and other socioeconomic factors (Blanchflower & Oswald, 2004; Clark & Oswald, 1994; Di Tella, MacCulloch, & Oswald, 2001). An equally interesting issue is how life satisfaction is associated

with relations with family members and others. Families are generally basic units of emotionally supportive ties and are likely to contribute to well-being as a buffer against stressful events (Lin, Woelfel, & Light, 1985; Umberson & Chen, 1994; Umberson, Wortman, & Kessler, 1992). Moreover, elderly adults are likely to have a wider variety of family relations than young adults. This is especially important in societies that are characterized by multigenerational or patriarchal family structures, such as Japan and Korea (Jeon et al., 2007; Takeda et al., 2004).

In addition, it is well known that relations with people other than family members are closely related with elderly well-being. When individuals perceive their time as limited, their goals tend to revolve around social relationships that are more gratifying and enjoyable as well as activities that seem more meaningful (Carstensen, Isaacowitz, & Charles, 1999). Hence, frequent social interactions likely increase the chances of finding social support and social contacts, and social activities are postulated to be crucial for successful aging (Lin, Ye, & Ensel, 1999; Rowe & Kahn, 1998, Umberson, Chen, House, & Hopkins, 1996). There have also been some observations that older adults may have less frequent contact with members of their social network and tend to be satisfied with greater emotional closeness to the network partners (Lang, Staudinger, & Carstensen, 1998; Shaw, Krause, Liang, & Bennett, 2007).

In general, associations between life satisfaction and family/social relations are likely to be complex and differ substantially between men and women. Regarding marital status, widowhood may have a stronger depressive effect for men than women (Chipperfield & Havens, 2001; Lee, Demaris, Bavi, & Sullivan, 2001). The association between divorce and life satisfaction is more difficult to explore because divorce is endogenously determined by the couple's dissatisfaction with their married life. The possible asymmetry of the couple's attitudes may cause gender differences in

life satisfaction after divorce (Gardner & Oswald, 2006; Oswald, 1997).

It is also well known that parent/adult child relations are ambivalent. Involvement and interaction with adult children may add to elderly well-being in general, as the children provide instrumental and emotional support for their parents. Coresidence with adult children in particular should raise the life satisfaction of the parents, along with intergenerational solidarity and availability of financial support and/or caregivers (Burr & Mutchler, 2007; Lye, 1996; Silverstein & Bengtson, 1997). Coresidence with children, however, may have a negative impact as well, presumably due to a shift in control over the household, a reversal in family roles, or the stress caused by caregiving (Jeon, 2007; Tiedt, 2010). These ambivalent relations between parents and children may also have gender differences, reflecting the different roles played, or expected to be played, by men and women within the social and cultural context of the society.

Well-being of the elderly is also affected by their relations with their parents. Many studies have indicated that the need for parent care is negatively associated with caregiver well-being (Amirkhanyan & Wolf, 2006; Bookwala, 2009; Choi & Marks, 2006). In addition, enhanced pension benefits and availability of public nursing care services may make adult children less obliged to coreside with parents or parents-in-law and to provide care for them. The impact of the relation with parents on well-being is likely to differ between men and women, especially in societies where the daughter-in-law is expected to be a primary caregiver for her husband's parents (Takeda et al., 2004).

Finally, social relations are expected to impact the life satisfaction of the elderly. Preceding studies uniformly indicate that productive activities, including full-time employment and volunteering, have a positive association with subjective well-being (Hao, 2008; Luoh & Herzog,

2002; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003). Frequent social interactions increase the chances of finding social support and social contracts, reducing depression caused by family or other factors. In addition, a positive association has been found between well-being and general trust in people, which is often considered a comprehensive proxy for social capital (Bjornskov, 2006; Ram, 2010). Relations with others may be more important for women than for men, as women tend to use their friends as confidants, maintain or expand contact with friends and others, and make up for network loss when widowed (Cheng & Chan, 2006; Gurung, Taylor, & Seeman, 2003; Zettel & Rock, 2004).

Following these preceding researches, I attempt to jointly examine the associations of elderly life satisfaction with these family and social relations as well as their gender differences among elderly Japanese. The conventional view is that family relationships are more vertical in Japan than in Western countries; elderly adults tend to live with the oldest son, pass their property on to him and his wife, and expect his wife to provide care to them. In recent years, however, Japan has experienced a rapid change in family relations (Rindfuss, Choe, Bumpass, & Tsuya, 2004). Reflecting the higher labor participation of women and the enhanced social security programs for the elderly, both parents and adult children are now more inclined to live independently (Izuhara, 2002; Raymo & Kaneda, 2003). At the same time, extended longevity raises the possibility that the elderly are committed to caring for their parents, directly or indirectly, even if public nursing care services are available.

On the basis of the results obtained from preceding studies, it is reasonable to hypothesize that life satisfaction is more closely associated with family and social relations for women than for men. Women are posited to be more sensitive than men to coresidence and contact with family members,

and their well-being is more affected by their social activities and interactions with others. Another issue to be addressed in this study is whether relations with family members or with non-family members are more important for elderly well-being. This question will become more important in the future, when there may be fewer marriages and children; indeed, 24% of Japanese women born in 1990 are projected to remain unmarried and 38% are projected to have no children, compared to 11% and 18% of women born in 1955 (National Institute of Population and Social Security Research, 2006).

## **Methods**

### *Sample*

Data were obtained from the first-wave survey of the JSTAR, which was designed and carried out jointly by the Research Institute of Economy, Trade, and Industry and Hitotsubashi University in Japan. The JSTAR was conducted in five municipalities in the eastern area of Japan: Sendai, Shirakawa, Kanazawa, Takigawa, and Adachi. The survey sampled 2,000 persons aged between 50 and 75 years in Sendai, Adachi, and Kanazawa each and 1,000 persons in the same age range in both Takikawa and Shirakawa using two-step stratified sampling. The original sample size was 4,163 persons (2,084 men and 2,079 women; response rate 59.1%). The respondents were asked to fill in the leave-behind questionnaire and were interviewed on a later day. We used data from 3,063 persons (1,565 men and 1,498 women), 73.6% of the original sample, after excluding missing key variables such as income.

### *Measures*

The key dependent variable was life satisfaction. The JSTAR asked respondents to answer the question, “Generally speaking, are you satisfied with your life these days or not?” on a four-point scale (1 = “satisfied” to 4 = “dissatisfied”). The order was reversed in regression analyses. The empirical models included various independent variables, and the key variables were divided into two groups. The first group was a set of variables that captured the respondent’s relations with his/her family members. First, I categorized marital status as “married,” “never married,” “divorced,” and “widowed.” Second, I considered different types of coresidence: residing with a son, married son, daughter, married daughter, parents, and parents-in-law (including cases both of single and multiple persons in each category). Coresidence included residing within the same residential lot. If the respondent coresides with his/her married son (daughter), then his/her dummy variables for a son and married son (daughter and married daughter) were both set at one.

To capture the respondent’s family relations, I further collected data on the frequency of contact with at least one of their children, parents, and parents-in-law, respectively, and set up three categories: “often” (more often than several times a week [including coresidence]), “sometimes” (around once a week to around once a month), and “no or seldom” (less than once a month). Finally, I considered whether the respondents provide nursing care to at least one of their parents or parents-in-law. The directions of financial support from and to the respondent were available from the JSTAR. I did not utilize them in the final regression models, however, because they turned out to be largely insignificant when additionally included as predictors. The association of elderly well-being with financial support appears to be closely related to that with coresidence and/or contact with family members as well as with marital status of children.



The second group of variables captured the respondent's relations with his/her friends and others in the local community. First, I collected data on the reported number of friends, which were divided into three categories: none, one to ten, and eleven or more. Second, I counted the number of social activities with people other than family members. The JSTAR asked the respondent whether he or she joined in each of ten social activities in the local community, such as community work, assistance of neighbors, and voluntary and charitable activity. I created four categories for the reported number of social activities: none, one, two, and three or more. Lastly, I included the respondent's general trust in people in the community by assigning a value of one, if he or she answered yes to the question "Can you generally trust people in your community?"

In order to highlight and compare the associations of life satisfaction with family and social relations, I controlled for various factors. I first created five age groups—50–54, 55–59, 60–64, 65–69, 70–75, and 75–79—instead of using the original value of age, considering the possibility of non-linear relations between age and life satisfaction. I then considered four variables regarding socioeconomic factors. The first was educational attainment, which was divided into four categories: those who graduated from junior high school or below (9 or fewer years of education), high school (12 years), junior college (14 years), and college or above (16 or more years). The second was disposable income, which was the sum of the respondent's income and his or her spouse's if they were combined in the household budget, or if not, only the respondent's. I then set up four income quantiles using the reported or imputed income. Furthermore, I examined whether life satisfaction is associated with house ownership, which likely reflects the level of household asset.

Finally, I considered health by utilizing self-rated health on a five-point scale. It is well known that self-rated health is a good indicator of general health conditions (Idler & Benyamini, 1997). The

problem is that health, or its subjective assessment, could be affected by life satisfaction. In addition to this endogeneity, the possibility that health mediates the association between life satisfaction and family/social relations cannot be ruled out. There is no well-established theory that can explain the relationship between health and subjective well-being. Hence, I estimated two models—Model 1 with self-rated health and Model 2 without it—and compared their respective results.

#### *Analytical strategy*

I estimated ordered logit models to explain life satisfaction through various factors of family and social relations as well as other variables separately for men and women. To make it easier to assess and compare the estimation results, I categorized all explanatory variables and presented the odds ratios for reporting higher levels of life satisfaction when each variable changes from zero to one. In addition, I included the dummy variables for surveyed municipalities in order to control for region-specific factors.

The validity of the analysis based on ordered logit models is generally based on the assumption that the coefficients that describe the relationship between, say, the lowest versus all higher categories of the response variable are the same as those that describe the relationship between the next lowest category and all higher categories, etc. I conducted an approximate likelihood-ratio test of this proportional odds assumption. As discussed later, the ordered logit models for life satisfaction on the original four-point scale violated this assumption. Hence, I condensed four categories into three.

Finally, I examined the percentage reduction in McFadden's pseudo  $R^2$ —defined as one minus the ratio of the log likelihood of the model with predictors to that of the model without

predictors—when categories of variables were excluded from the regression for the model that incorporated all variables. Although pseudo  $R^2$  cannot be linearly decomposed, this calculation is expected to help roughly assess the relative importance of each category for elderly life satisfaction.

## Results

Table 1 summarizes basic features of the sample. Two findings should be mentioned regarding life satisfaction. First, the observed distribution of life satisfaction is substantially skewed to the high end for both men and women, with the proportion of the lowest category (“dissatisfied”) as low as 4–5%. This fact points to the possibility that the association between life satisfaction and explanatory variables substantially differs at different levels of life satisfaction. Second, there is no significant gender difference in the distribution of life satisfaction. Indeed, the means of its four-point scales for men and women are very close, 3.06 and 3.10, respectively (not reported in the table), and the  $t$  test cannot reject the null hypothesis of equal means ( $p$ -value 0.210). Furthermore, the Kolmogorov–Smirnov test cannot reject the null hypothesis of no gender difference in the distributions ( $p$ -value 0.758). These results imply that gender differences in each factor are largely offset for life satisfaction as a whole.

Table 2 provides the key results obtained from the ordered logit models of life satisfaction for men and women in two model specifications. The table concentrates only on variables for family and social relations, without reporting the results for control variables, in order to save space. The ordered logit models in the table utilized life satisfaction on a three-point scale—not the original

four-point scale—by combining the lowest two categories into one. This was done because the proportional odds assumption was violated in the ordered logit models with the original four-point scale. This was not surprising given the very small proportion of the lowest category of life satisfaction, as shown in Table 1. The modified three categories share around 20% (dissatisfied and somewhat dissatisfied), 50% (somewhat satisfied), and 30% (satisfied), respectively, for both men and women, and made the proportional odds assumption hold for all model specifications (see the note on Table 2 for  $p$ -values).

There are several findings observed from this table. First, Model 2 had a much higher goodness of fit, indicating that health is closely associated with life satisfaction. Second, however, there are no substantial differences between Models 1 and 2 in terms of the patterns of the levels and statistical significance of the odds ratios for each variable, indicating that the associations between family/social factors and life satisfaction were not much affected by the additional consideration of health.

When it comes to gender differences, the table first shows that men are more sensitive than women to separation from a spouse. In particular, divorce makes men very depressed, while it does not always affect women's life satisfaction. Bereavement of a spouse makes both men and women less happy, but the depressive effect is significant only for men. Regarding relations with children, coresidence with a son is negatively associated with life satisfaction for both men and women, while coresidence with a married son raises it substantially. This suggests that elderly parents want their sons to be economically independent of them and that coresidence with an unmarried adult son provides his parents with psychological stress, which might be amplified by the Confucian norm that the (oldest) son must care for his parents. This relation is somewhat clearer for men than for women,

presumably reflecting antagonistic relations between mothers-in-law and daughters-in-law accompanied by the son's marriage. In comparison, coresidence with a daughter adds to women's satisfaction, while men's satisfaction is not related to coresidence with a daughter, regardless of whether she is married or not. Finally, the frequency of contact with children is not closely related to life satisfaction for either men or women.

There are substantial differences between relations with one's own parents and those with parents-in-law. Table 2 indicates no significant association with coresidence, frequency of contact, or nursing care for either men or women. In contrast, relations with parents-in-law have substantially different associations with life satisfaction by gender. For men, coresidence, frequency of contact with parents-in-law, or nursing care of them, does not affect their life satisfaction. Although coresidence and more frequent contact with parents-in-law tend to reduce men's life satisfaction, their associations are not statistically significant. In sharp contrast, coresidence and frequent contact with parents-in-law, as well as nursing care of them, substantially reduces women's life satisfaction.

Another focal point was to what extent relations with people other than family members are associated with an individual's life satisfaction. Table 2 examines this from three angles: number of friends, and number of social activities in the community, and general trust in people in one's residential area. First of all, general trust is closely related to life satisfaction for both men and women; the association is significant at the 0.1% level. The odds ratios are in a high range, between 1.73 and 1.94, and not much different between men and women. As for the other two aspects of social relations, clear gender differences are observed. The number of one's friends is not related to life satisfaction for either men or women as long as it is small. Once it rises beyond five, however, it adds to women's life satisfaction but not to men's. In the same manner, the positive association with

the number of social activities one performs with others is significant only for women. It should be noted, however, that the positive association with life satisfaction is the largest when the number of activities is two, suggesting that active participation puts stress on individuals as well.

## **Discussion**

The regression results revealed gender differences in the associations between family/social relations and life satisfaction. To provide more insight into these gender differences, it is useful to compare the relative importance of each category of independent variables. Table 3 provides the pseudo  $R^2$  for each of the four models and shows how it decreases when each category of variables is excluded. I considered six categories: age, socioeconomic factors, family relations, social relations, health, and surveyed municipalities. As the pseudo  $R^2$  is very close between men and women for Models 1 and 2, this table can help us assess the gender differences in the relative importance of each category of variables. The figures in Model 1 are all larger than those in Model 2, because the latter model includes health, which is closely related with life satisfaction.

Several interesting findings can be obtained from this table. First, health is the most important single category that is associated with life satisfaction, as excluding it reduces pseudo  $R^2$  by about 30% for both men and women in Model 2. This suggests that elderly life satisfaction depends heavily on health, although health is likely affected by subjective well-being as well. Second, socioeconomic factors (including educational attainment, income, house ownership, and occupational status) are the second key category following health in terms of relative importance.

Men care about income more than women, but women are more cautious about occupational status and educational attainment. In general, women are somewhat more sensitive to socioeconomic factors than men.

More importantly, and related to the main issue in this study, the relative importance of family relations as a whole is almost the same for men and women: about 20% in Model 1 and 13% in Model 2. A closer look at the results, however, reveals a difference between marital status and those with other family factors. Men are more sensitive to marital status, while women are sensitive to other family factors, especially relations with parents-in-law. By comparison, there is not much of a gender difference in the relative importance of relations with children or one's own parents.

Table 3 also shows that general trust in people has the second largest impact on life satisfaction for both men and women, and that social relations are almost as important as family relations and more important than relations with family members other than a spouse. Moreover, relations with others are more important for women than for men in both models. These observations point to the importance of relations with others for elderly well-being, especially for women. Another interesting finding about social relations is that their relative importance declines more sharply for women than men from Model 1 to Model 2. This may suggest that unfavorable health conditions may restrain social relations, which are more related to life satisfaction for women than for men. Consistently, the relative importance of social relations for women is less remarkable in Model 2, which includes health.

Together with these observations from Table 3, it can be concluded that women are more sensitive to family and social relations than men, although men are much more depressed than women by divorce or widowhood. In particular, the negative association with coresidence and

contact with parents-in-law and the positive association with social activities are much more substantial for women than for men. These findings are largely consistent with those obtained from preceding studies that investigated each factor separately. In addition, the observed relations between a married son and his parents-in-laws underscore the impact of Japan's patriarchal family structure on subjective well-being of the elderly. Finally, the estimation results suggest that health mediates the association between social relations and life satisfaction.

This analysis has several limitations. For example, my definitions of family and social relations were tentative. Although a significant association with the directions of intra-family financial support was not found, another specification of family relations may lead to a different result. Another aspect of well-being, such as depression and other mental health issues, can have different associations with family and social relations. Moreover, as is often the case with a cross-section analysis of this type, this study could not precisely identify any causality regarding life satisfaction. An analysis based on panel data is expected to help address this problem. These issues must also be researched in the future.



## References

- Amirkhanyan, A. A., & Wolf, D. A. (2006). Parent care and the stress process: Findings from panel data. *Journal of Gerontology: Social Sciences, 61B*, S248–S255.
- Bjornskov, C. (2006). The multiple facets of social capital. *European Journal of Political Economy, 22*, 22–40.
- Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics, 88*, 1359–1386.
- Bookwala, J. (2009). The impact of parent care on marital quality and well-being in adult daughters and sons. *Journal of Gerontology: Psychological Sciences, 64B*, 339–347.
- Burr, J. A., & Mutchler, J. E. (2007). Residential independence among older persons: Community and individual factors. *Population Research and Policy Review, 26*, 85–101.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*, 165–181.
- Cheng, S. T., & Chan, A. C. M. (2006). Relationship with others and life satisfaction in later life: Do gender and widowhood make a difference? *Journal of Gerontology: Psychological Sciences, 61B*, P46–P53.
- Chipperfield, J. G., & Havens, B. (2001). Gender differences in the relationship between marital status transitions and life satisfaction in later life. *Journal of Gerontology: Psychological Sciences, 56B*, P176–P186.
- Choi, H., & Marks, N. F. (2006). Transition to caregiving, marital disagreement, and psychological well-being. *Journal of Family Issues, 27*, 1701–1722.

- Clark, A. E., & Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of Public Economics*, *61*, 359–381.
- Di Tella, R., MacCulloch, R. J., & Oswald A. J. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *American Economic Review*, *91*, 335–341.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective wellbeing: Three decades of progress. *Psychological Bulletin*, *125*, 276–302.
- Gardner, J. & Oswald, A. J. (2006). Do divorcing couples become happier by breaking up? *Journal of the Royal Statistical Society: Series A*, *169*, 319–336.
- Gurung, R. A. R., Taylor, S. E., & Seeman, T. E. (2003). Accounting for changes in social support among married older adults: Insights from the MacArthur Studies of Successful Aging. *Psychology and Aging*, *18*, 487–496.
- Hao, Y. (2008). Productive activities and psychological well-being among older adults, *Journal of Gerontology: Social Sciences*, *63B*, S64– S72.
- Ichimura, H., Hashimoto, H., & Shimizutani, S. (2009). Japanese Study of Aging and Retirement. *RIETI Discussion Paper Series 09–E–047*.
- Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, *38*, 21– 37.
- Jeon, G. S., Jang, S. N., R, Rhee, S. J., Kawchi, I., & Cho S. I. (2007). Gender differences in correlates of mental health among elderly Koreans. *Journal of Gerontology: Social Sciences*, *62B*, S323–S329.
- Izuhara, M. (2002). Care and inheritance: Japanese and English perspectives on the “generational

- contract.” *Ageing and Society*, 22, 61–77.
- Lang, F., Staudinger, U., & Carstensen, L. (1998). Perspectives on socioemotional selectivity in late life: How personality and social context do (and do not) make a difference. *Journal of Gerontology: Psychological Sciences*, 53B, 21–30.
- Lee, G. R., DeMaris, A., Bavin, S., & Sullivan, R. (2001). Gender differences in the depressive effect of widowhood in later life. *Journal of Gerontology: Social Sciences*, 56B, S56–S61.
- Lin, N., Woelfel, M., & Light, S. (1985). The buffering effect of social support subsequent to an important life event. *Journal of Health and Social Behavior*, 26, 247–263.
- Lin, N., Ye, X., & Ensel, W. (1999). Social support and depressed mood: Structural analysis. *Journal of Health and Social Behavior*, 40, 344–359.
- Luoh, M., & Herzog, R. A. (2002). Individual consequences of volunteer and paid work in old age: Health and mortality. *Journal of Health and Social Behavior*, 43, 490–509.
- Lye, D. (1996). Adult child-parent relationships. *Annual Review of Sociology*, 22, 79–102.
- Morrow-Howell, N., Hinterlong, J., Rozario, P. A., & Tang, F. (2003). Effects of volunteering on the well-being of older adults. *Journal of Gerontology: Social Sciences*, 58B, S173–S180.
- National Institute of Population and Social Security Research. (2006). *Population Projections for Japan: 2001-2050*. <http://www.ipss.go.jp/pp-newest/e/ppfj02/top.html>.
- Oswald, A. J. (1997). Happiness and economic performance. *Economic Journal*, 107, 1815–1831.
- Ram, R. (2010). Social capital and happiness: Additional cross-country evidence. *Journal of Happiness Studies*, 11, 409–418.
- Raymo, J. M., & Kaneda, T. (2003). Changes in the living arrangements of Japanese elderly: The role of demographic factors. In J. W. Traphagan & J. Knight (Eds.), *Demographic change and*

- the family in Japan's Aging Society* (pp. 27–52). Albany: State University of New York Press.
- Rindfuss, R. R., Choe, M. K., Bumpass, L. L., & Tsuya N. O., (2004). Social networks and family change in Japan. *American Sociological Review*, 69, 47–67.
- Rowe, J. W., & Kahn, R. L. (1998). *Successful aging*. New York: Random House.
- Shaw, B., Krause, N., Liang, J., & Bennett, J. (2007). Tracking changes in social relations throughout late life. *Journal of Gerontology: Social Sciences*, 62B, S90–S99.
- Silverstein, M., & Bengtson, V. (1997). Intergenerational solidarity and the structure of adult child-parent relationships in American families. *American Journal of Sociology*, 103, 429–460.
- Takeda, Y., Kawachi, I., Yamagata, Z., Hashimoto, S., Matsumura, Y., Oguri, S., & Okayama, A. (2004). Multigenerational family structure in Japanese society: Impacts on stress and health behaviors among women and men. *Social Science & Medicine*, 59, 69–81.
- Tiedt, A. D. (2010). The gender gap in depressive symptoms among Japanese elders: Evaluating social support and health as mediating factors. *Journal of Cross-Cultural Gerontology*, 25, 239–256.
- Umberson, D. J., Chen, M. D., House, J. S., & Hopkins, K. (1996). The effect of social relationships on psychological well-being: Are men and women really so different? *American Sociological Review*, 61, 837–857.
- Umberson, D., & Chen, M. (1994). Effects of a parent's death on adult children: Relationship salience and reaction to loss. *American Sociological Review*, 59, 152–168.
- Umberson, D., Wortman, C., & Kessler, R. (1992). Widowhood and depression: Explaining long-term gender differences in vulnerability. *Journal of Health and Social Behavior*, 33, 10–24.

Zettel, L. A., & Rook, K. S. (2004). Substitution and compensation in the social networks of older widowed women. *Psychology and Aging, 19*, 433–443.

**Table 1. Basic features of the sample**

<i>Proportion</i>		<b>Men</b>	<b>Women</b>	<b>All</b>
<b>Life satisfaction</b>	1 (dissatisfied)	0.053	0.040	0.047
	2 (somewhat dissatisfied)	0.158	0.147	0.153
	3 (somewhat satisfied)	0.466	0.490	0.478
	4 (satisfied)	0.323	0.323	0.323
<b>Education</b>	Junior high school or below	0.303	0.339	0.321
	High school	0.416	0.448	0.432
	Junior college	0.066	0.166	0.115
	College or above	0.215	0.047	0.133
<b>Marital status</b>	Married	0.897	0.760	0.830
	Never married	0.029	0.029	0.029
	Divorced	0.043	0.057	0.050
	Widowed	0.031	0.154	0.091
<b>Coresidence with</b>	Children	0.505	0.476	0.491
	Parents	0.162	0.045	0.105
	Parents-in-law	0.049	0.075	0.062
<b>Age</b>	Mean	62.3	62.7	62.5
	S. D.	6.9	7.1	7.0
<b>Income</b>	Mean (thousand yen)	3,092	2,379	2,743
	S.D.	3,214	2,927	3,097
<b>Number of observations</b>		1,565	1,498	3,063

**Table 2. Odds ratios for reporting higher levels of life satisfaction**

	Model 1 <sup>a</sup>		Model 2 <sup>a</sup>	
	Men	Women	Men	Women
<b>(1) Family relations</b>				
<b>Marital status</b> (reference = married)				
Never married	0.68	0.70	0.70	0.74
Divorced	0.41 <sup>***</sup>	1.02	0.45 <sup>**</sup>	0.98
Widowed	0.55 <sup>*</sup>	0.81	0.57	0.81
<b>Relations with children</b>				
Coresidence with:				
son	0.70 <sup>**</sup>	0.72 <sup>*</sup>	0.70 <sup>**</sup>	0.79
married son	1.88 <sup>**</sup>	1.72 <sup>**</sup>	1.94 <sup>***</sup>	1.52 <sup>*</sup>
daughter	1.00	0.79	0.98	0.80
married daughter	1.30	1.77 <sup>*</sup>	1.37	1.86 <sup>*</sup>
Frequency of contact <sup>b</sup>				
often	0.78	0.94	0.76	0.98
sometimes	1.12	1.11	1.13	1.15
<b>Relations with parents</b>				
Coresidence				
	0.89	0.90	0.95	0.98
Frequency of contact <sup>b</sup>				
often	0.98	1.60	1.05	1.66
sometimes	0.76	1.21	0.81	1.25

Nursing care	0.92	1.09	0.90	1.01
<b>Relations with parents-in-law</b>				
Coresidence	0.62	0.29*	0.61	0.31*
Frequency of contact <sup>b</sup>				
often	0.57	0.17**	0.54*	0.17*
sometimes	0.61	0.33*	0.59	0.35
Nursing care	1.14	0.44**	1.09	0.44**
<b>(2) Social relations</b>				
<b>Number of friends</b> (reference = 0)				
1 to 5	1.07	1.27	1.10	1.23
6 to 10	0.99	1.65**	0.99	1.53*
11 or more	1.20	1.73**	1.17	1.52*
<b>Number of social activities</b> (reference = 0)				
1	1.01	0.99	0.97	1.00
2	1.39	1.67**	1.30	1.52*
3 or more	1.24	1.28	1.23	1.31
<b>General trust in people</b>	1.87***	1.81***	1.94***	1.73***
<b>Pseudo R<sup>2</sup></b>	0.0775	0.0768	0.1121	0.1079
<b>Log pseudo likelihood</b>	-1514.63	-1421.79	-1457.85	-1373.89
<b>Number of observations</b>	1,565	1,498	1,565	1,498

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ . The dependent variable was life satisfaction on a three-point scale (3 = "satisfied," 1 = "dissatisfied").

a. Self-rated health was controlled for in Model 2 but not in Model 1. Age, educational attainment,



house ownership, occupational status, and survey areas were controlled for in both models. The approximate likelihood-ratio tests of proportionality of odds across response categories showed that the likelihood ratio chi-square values were 44.80 and 48.98 for Model 1 (degree of freedom = 46) and 48.98 and 49.05 for Model 2 (degree of freedom = 46), meaning that the proportional odds assumptions were not violated in all models.

- b. For contact with family members, “often” and “sometimes” mean “several times a week or more often” and “once a week to once a month,” respectively, with “less than once a month” as the reference.

**Table 3. Percent decreases in Pseudo  $R^2$  when categories of variables are excluded**

	Model 1		Model 2	
	Men	Women	Men	Women
<b>Pseudo <math>R^2</math></b>	<b>0.0775</b>	<b>0.0768</b>	<b>0.1121</b>	<b>0.1079</b>
<i>Excluded category</i>				
<b>Age</b>	<b>5.7</b>	<b>3.4</b>	<b>3.7</b>	<b>1.9</b>
<b>Socioeconomic factors</b>	<b>30.2</b>	<b>32.6</b>	<b>17.9</b>	<b>22.3</b>
Educational attainment	2.2	4.2	1.3	2.8
Income	11.1	9.0	7.7	6.4
House ownership	6.7	7.3	4.5	4.4
Occupational status	9.3	11.2	4.7	8.2
<b>Family relations</b>	<b>19.1</b>	<b>19.9</b>	<b>12.7</b>	<b>12.9</b>
Marital status	5.9	1.3	3.3	0.7
Family members other than spouse	10.3	17.7	7.5	11.6
Children	6.7	6.8	4.9	3.8
Parents	1.4	2.9	1.1	2.4
Parents-in-law	2.3	8.7	1.6	5.9
<b>Social relations</b>	<b>17.9</b>	<b>25.5</b>	<b>12.2</b>	<b>13.3</b>
Number of friends	1.0	5.1	0.5	2.1
Number of social activities	1.5	3.6	0.8	1.8
General trust in people	13.5	13.4	10.1	8.0
<b>Health</b>	–	–	<b>30.9</b>	<b>28.8</b>
<b>Surveyed municipalities</b>	<b>0.3</b>	<b>0.9</b>	<b>0.1</b>	<b>0.8</b>