HOUSEHOLD MEMBERS AS SOCIAL CONNECTORS OR CONSTRAINTS:
THE EFFECT OF LIVING ARRANGEMENTS ON SOCIAL NETWORKS AMONG OLDER MEN AND WOMEN

ABSTRACT:
This study examines the possible effects of household members (e.g., spouse, child, and relatives/non-relatives) on older adult's social networks and social supports. Using data from the 2005-2006 National Social Life, Health, and Aging Project (NSHAP), the study finds that having a co-resident spouse is associated with large social networks and more social support for older adults, compared to singles living alone, and that these associations are greater for older men. Co-resident child(ren) and other relatives/non-relatives are associated with smaller networks for married older men than for those living only with a spouse, but not for single older men. For older women, the results are the opposite, showing that co-residency with child(ren) or other relatives/non-relatives constrains single older women for large networks. These associations further vary by age of household members. The results demonstrate that additional household members do not guarantee larger networks or more support. Findings from this study provide additional insight into the processes through which gender differences in potential support providers emerge at older age.

Key Words: Living Arrangements, Social Networks, Social Support, Strains

Introduction

Living arrangements and social networks are two main sources of social integration in later life. The demographic trends, however, show that men and women experience very different living arrangement status in later life suggesting that the processes through which older men and women integrate into society may vary greatly. In 2008, 61 percent of women age 65 and older either lived alone (42%) or live with grandchildren and relatives/nonrelatives (19%) while the majority of older men live with their spouses (72%) and 10 percent of older men live with relatives/non-relatives alone (U.S. Census Bureau, Current Population Survey, 2008). In addition, studies show that older women appear to have larger network size than older men and have more kins in their social networks while older men have more friends in their networks (Ajrouch, Blandon, & Antonucci, 2005; Cornwell, Laumann, & Schumm, 2008; Moore 1990; Umberson, Chen, House, Hopkins, & Slaten, 1996). If the demographic trends show that women are more likely to live alone or in the extended living arrangements but that the majority of

men live with a spouse, to what extent household members (e.g., spouse, child(ren), grandchild(ren), siblings, or friends) serve as connections to (or constraints to) larger social networks? This study examines the effects of household members on social networks and social support in later life and how they differ by gender.

Looking at only one aspect of social integration may mask the dynamics of social relationships in later life. For example, the American Changing Lives Wave I data (House 2002), a national probability sample of adults age 24 to 96, indicated that for those who have someone with whom they can share private feelings, only 50.2 percent (65.8 % of men and 39.3% of women) list their spouse as one of the top three persons in whom they confide (Ha 2008).[1] These cases imply that a spouse/ partner is not always a confidant and may not be the primary source of support even if the respondent is still married and living with the spouse. In addition, these cases also imply that household members may not be included as social network members, suggesting that living in extended households does not guarantee large and supportive social networks. Therefore, in order to understand the more precise nature of social relationships in late life, we need to consider living arrangement status and social networks of older adults simultaneously. Few studies, however, weigh these simultaneously, and even fewer have addressed the effects of social factors, like gender and age, on the ways in which household relationships (e.g., presence of children and other relatives in the household) shape older adults' social ties.

This study examines to what extent household compositions—living with children and relatives/non-relatives, for instance—foster or undermine the social networks and social support of older adults and how they differ by gender. The study asks: 1) Is large household size also associated with large social network size or more social support? 2) Do child(ren) and other relatives/non-relatives of the household (e.g., grandchild, siblings, extended kins, friends) serve as connectors for larger social networks and more social supports? Alternatively, do they serve as constraints that are associated with smaller networks or larger complexity of interactions (e.g., demands and strains)?

Household Members as Social Connectors and Social Constraints

Household is a basis for connections and constraint for social ties. One basis for the claim that one additional co-resident member in the household become connector for large social networks is that the presence of a household member increases the number and volume of interactions in an absolute sense. Furthermore, an additional household member may bring in resources—including time, finances, and support—that allow older adults' investment in the formation of a greater number of external social ties. Like any other social ties, household members connect individuals to other person and to social circle (Hughes & Waite, 2002), drawing information benefits, instrumental resources, and emotional support from the ties outside the households (e.g., "strength of weak tie" Granovetter, 1979). In this respect, household members are social connectors.

However, even if the absolute size and volume of the interactions is greater for those in extended households, additional members may also increase the complexity of interactions within the limited space. In particular, the role of added distal kin in the core nuclear family is less clear (e.g., Rossi & Rossi, 1990; Waite & Harrison 1992), making their share of household work and contribution to resources more ambiguous, with a higher possibility of increasing the burden on the older adult (e.g. health decline; Hughes and Waite 2002). In such cases, time and resources spent interacting with the household member merely constrains time otherwise available for socializing with friends and kin. Some social interaction models (e.g., the "socio-emotional selectivity" model) predict that older adults shed less pleasant connections (Carstensen 1992). Problematic relationships within the household, however, cannot be easily ignored, as interactions among household members are generally physically unavoidable. Thus, older adults' overall and non-resident external social networks are conditioned by the social arrangements within the household.

Hypothesis 1: The presence of an additional household member is *not* associated with larger size social networks of older adults.

Throughout this study, connectors (resources) and constraints (demands) are conceptual tools summarizing within-household dynamics from the perspective of a particular household member - an older adult. Yet, the meaning and the effect of one additional household member may have different

implications depending on the presence or absence of a spouse in the household. For instance, while married couples enjoy more abundant resources (Waite & Gallagher, 2000), they are also more tied up in "spouse-roles" that consume time and resources that might be spent in network-building beyond the family. On the other hand, widowhood is often associated with fewer economic or social resources (e.g., a widower whose kin-network is managed by his wife), but the surviving spouse may also have more time and energy to form social networks outside the household following bereavement (Connidis & Davies, 1992; Ha, 2008; Zettle & Rook, 2004). In this respect, this study first addresses the role of a spouse as either a potential social connector or a constraint and then discusses how additional household members—child(ren), other relatives (e.g., grandchild, siblings), and non-relatives (e.g., friends)- are associated with social networks and social resource distributions, compared to living only with a spouse.[2] The role of household member as potential social connectors or constraints for single older adults is discussed separately.

Gender and Social Connectors and Constraints in Late Life

Studies show that current cohort of older men and women are more likely to be socialized into traditional gender role: men specialize in financial, legal, and advisory role in the household, and women take care of children and household chores (Becker, 1991). Many studies link this widely documented gender typed socializations and allocation of marital roles to men's and women's structural differences in networks (Munch et al 1997; Haines, Hurlbert, & Beggs, 2008) that accumulate over the life course (Smith-Lovin & McPherson, 1993). For instance, women's widely accepted role as kinkeeping yield more kin in their networks but the composition of network members may remain relatively stable throughout the life course compared men who have more friends and work mates in their networks (e.g., Moore 1990; Ajrouch, Blandon, & Antonucci 2005). In addition, women's longer life expectancy increases their chance of either living alone or living with children and other relatives/non-relatives (Waite & Das, 2010). Because men and women in late life generally differ in their patterns of living arrangements, they experience different expectations and obligations that are attached to their roles, consequently the role of household members as social connectors and constraints may vary as well.

Spouse as Connector and Constraint

Living with a spouse is directly associated with having larger social connections. Marriage is associated with large network size (Ajrouch, Antonucci, & Janevic 2001; Ajrouch et al. 2005) and in the proportion of kin in networks as marriage integrates individuals into family reunions and couple-based socializing (Acock and Hurlbert 1993; Burt 1987; Hurlbert & Acock 1990). The majority of women in mid to older age take on the role of "kin-keeper," which integrates them into larger kin-based networks compared to single persons (Fischer, 1982; Burt, 1987; Cornwell, Laumann, & Schumm, 2008; Cornwell, 2011; Gallagher & Gerstel 1993; Moore 1990; Waite & Harrison 1992). Similarly, men are connected to kin networks mainly through their spouse and daughters (Gallagher 2001; Sarkisian 2007). In addition, spouses promote social connections indirectly through their provision of economic, emotional, and social resources (e.g., social support and companionship)(Waite & Gallagher 2000). Marriage achieves an economy of scale that allows maneuvering economic resources for interacting with those outside the household (Waite & Gallagher 2000). A relatively clear understanding of well-defined roles within the household and task-sharing based on those roles saves time for those involved, time that can then be used, for example, to enjoy socializing with friends.[3]

However, more men than women face retirement in late life and this trend may lead to smaller social connections for men unless there are other resources, such as a spouse or strong ties with kin, that compensate for the loss (e.g., Morbarak, Scharlack, Birba, & Sokolov 1992). Therefore, this study expects that, for both older men and women, spouses are the greatest source of connections, compared to single older men and women, but the effect of the presence of a spouse is greater for older men.

Hypothesis 2: For both older men and women, the presence of a spouse in the household is positively associated with larger size overall and external household social networks, compared to singles, but the effect of co-resident spouse is greater for older men.

Children as Connectors and Constraints

Children are viewed as a source of both integration and isolation for their parents (Munch et al. 1997; Gallagher & Gerstel, 2001). For both men and women, the role of parenting consumes time and resources that could foster the formation and maintenance of social connections. As previous studies noted, employment, childrearing, and caregiving are the major factors that affect gender differences in social networks in early to mid-age (Fischer and Oliker 1983; Moore 1990; Munch et al. 1997; among women, Gerstel 1993). Women are greatly affected by childrearing (e.g., until age of the youngest child is three, Munch et al. 1997); but they restore their connections and have larger social networks in older age compared to younger mothers and older men (Fischer and Oliker 1983; Ajrouch et al. 2005; Cornwell et al. 2008).

Social networks of men and women are also influenced by an age of co-residing child(ren) (Munch et al. 1997). For instance, children's neighborhood and school-based activities may increase adult interactions and ties in the neighborhood (Fischer, 1982; Tivers, 1988; Ishiikuntz & Seccombe, 1989); mothers with young children may have more access to kin in terms of childcare or financial assistance (Hofferth 1984; Hogan, Hao, & Parish 1990). Although many studies are focused on young children as social glue, others show that co-resident adolescent or adult children may also foster greater interactions with members of outside the household (e.g., Eggebeen & Knoester 2001; Gallagher & Gerstel, 2001). Waite and Harrison (1992), for instance, find that mid-aged women with "other relatives" (which includes women's parent and grandchildren) in the household have more interactions with siblings, raising the possibility that an older mother initiates or encourages visiting with siblings outside the household. From older mother's point of view, this implies that her desire and need to see people outside the household may be realized through the support of her co-residing adult children.

Fathers socialize more in family events and exchange social support when a child (especially, son) is present in the household (Katzev, Warner, and Acock 1994; Knoester & Eggebeen 2006; Townsend 1998). However, child(ren) may also reduce older men's interactions with co-workers, friends, and non-kin who are more prominent members of men's social networks (Fischer and Oliker 1983; Marsden 1987; Moore 1990; Munch et al. 1997). Moreover, when the presence of (young) children in the household and

retirement overlap, or when older men live with (adult) children after retirement, resident child(ren) may indicate a reduction in the size of networks of older men. Given the evidence from previous intergenerational studies, this study expects that child(ren) provide connections for kin and neighbors but somewhat less for non-kin who are not nearby, especially friends. Because men are more tend to list friends and co-workers as their network members than women, the presence of coresident child(ren) till later life is expected to have negative association with men's social networks. These evidences yields two related hypothesis:

Hypothesis 3a-1: For married older men, co-resident child(ren) are *negatively* associated with size of social networks, compared to older men living with a spouse only.

Hypothesis 3a-2: For married older women, co-resident child(ren) are *not* associated with size of social networks, compared to older women living with a spouse only.

Hypothesis 3b: For both married older men and women, co-resident young (age 18 or under) child(ren) are *negatively* associated with size of overall and external household social networks, compared to married persons living with a spouse only.

Others as Connectors and Constraints

The "others" category consists of household members who are not nuclear family members, and thus includes parents, parents-in-law, step-children, siblings, other extended kin, other-in-laws, friends, neighbors, and co-workers. One basis for the claim that co-resident others might affect one's networking opportunities is that these other members make it more difficult to make some investments associated with social interactions. One major source of resource depletion is other relatives/non-relatives move in without sufficient resources but consume the limited resources already available in the household. Networking opportunities are also influenced by the role characteristics of and the age of other relatives/non-relatives are While grandchildren who live outside the household may propel the social interaction of grandparents with their adult children and expand the kin-based network (Bucx, van Wel, Knijn, and Hagendoorn 2008; Silverstein and Marenco 2001), co-resident grandchildren can actually impede networking opportunities for grandparents, especially grandmothers of the skipped-generation

(i.e., living with grandchildren with no adult children present). Caring for grandchildren directly affects the networking of grandparents by reducing the time available for engaging in hobbies and socializing (Pruchno 1999) and indirectly by increasing financial strains from reduced hours of paid employment (Minkler and Roe 1996) and hampering the health of older adults (Burton1992; Goodman and Silverstein 2006; Jendrek 1993; Hughes, Waite, LaPierre, and Luo 2007).

Hypothesis 4: For married older men and women, co-resident other relatives/non-relatives are *negatively* associated with size of social networks, compared to older adults living with a spouse only.

Single older adults may lack a major source of resources, a spouse, but may have more time and energy that enables them to associate with people outside the household. For single persons more so than for married couples, therefore, are more influenced by the characteristics of coresident household members. Children, for instance, may either foster or impede the networking of single older men and women depending on the ages of the children; if the children are adults, they may support the surviving spouse, while younger children (e.g., 18 or under) may be a burden for single older adults, impeding opportunities for recruiting new network members. Other relative and non-relative household members of single persons are more likely to be adult siblings and friends (Kim 2011). Siblings and friends may provide extra financial and social resources by sharing housing, giving all of them economies of scale in living expenses (Chappell 1991).

However, household members are more likely to be connector than constraints for single older men. Many studies show that single men's social contact with child(ren) and families are greatly reduced than single women (Ha, et al. 2008; Kalmijn 2007). As mentioned, women in general are "kin-keeper" and men are connected to families and children through their spouse, thus, losing a spouse is expected to have greater effect on men. When single older men co-reside with child(ren) or other relatives or friends, however, they may maintain or restore their connectedness through coresident child(ren) and relatives. This effect is expected to be marginal for single women; or may we worse if their coresident members are

young dependant as older women in this cohort are relatively in lower income and employment status than are men. For these reasons, this study expects that:

Hypothesis 5a-1: For single older men, co-resident child(ren) and/or other relatives/nonrelatives are *not* associated with the size of social network, compared to married older men.

Hypothesis 5a-2: For single older women, co-resident child(ren) and/or other relatives/nonrelatives are *negatively* associated with size of social network, compared to married older women.

Gender and Social Resources in Late Life

Social support and strains are relational contents of household and social networks (House, Umberson & Landis, 1988). Support and strains are quality of relationships that capture functional aspects of household member as social connectors or constraints. Previous study shows that women receive more support from their adult children (Umberson et al. 1996) and from other relatives/non-relatives (e.g., friends, neighbors and co-workers;Turner and Marino 1994; Umberson et al. 1996; Liebler and Sandefur 2002) than men. Men are less likely than women to provide social support but are often recipients of social support from a spouse, daughters and female relatives (Umberson et al. 1996).

Hypothesis 6a: For both older men and women, the presence of a spouse in the household is positively associated with more social support, compared to singles, but the effect of co-resident spouse is greater for older men.

Hypothesis 6b-1: For older men, co-resident child(ren) and /or other relatives/non-relatives are *not* associated with more social support, compared to older men living with a spouse only.

Hypothesis 6b-2: For older women, co-resident child(ren) and/or other relatives/non-relatives are associated with *more* social support, compared to older women living with a spouse only.

DATA AND MEASURES

The data are drawn from the National Social Life, Health, and Aging Project (NSHAP), a nationally representative, population-based study of community-residing older adults funded by the National Institutes of Health (NIH) and conducted by NORC at the University of Chicago. From summer 2005 to spring 2006, NSHAP conducted in-person interviews with 3,005 individuals, aged 57–85. The study achieved a final weighted response rate of 75.5 percent (O'Muircheartaigh, Eckman, and Smith 2009).

Living Arrangements and Household Size. Living arrangements and household size measures are constructed from questions about the respondent's social networks, which included household membership and detailed information on relationship to the respondent.[4] Eight living arrangements are distinguished: 1) spouse only (SP), 2) spouse and children (SPCH), 3) spouse and others (SPOTH), 4) spouse, children, and others (SPCHOTH), 5) single alone, 6) single with children (CH), 7) single with others (OTH), 8) single with children and others (CHOTH). The category "single" includes those who are never married, widowed, or divorced, and "spouse" includes co-resident partner. In order to assess the effects of age of coresident child(ren) or other relatives/non-relatives on social networks and social support, I further separate living arrangements by age of child(ren) or others: adult child(ren) or other relatives/non-relatives (age 19 and older) and young child(ren) or other relatives/non-relatives (age 18 or under).

Social Network Size. Social network measures are drawn from the National Health, Social Life, and Aging's (NSHAP) ego-centric network roster. NSHAP's network roster concerns those persons with whom a respondent "discussed important matter" within the past twelve months.[5] Respondents were allowed to name up to five persons and then indicate if they had more than five. When discussants were identified, respondents were asked to describe the relationship between respondent and alters by selecting from 18 categories.[6] Social network size outside the household is calculated as older adults' egocentric network size minus number of network members living with ego in the same household.

Social Resources: Social Support/ Strains. Social support assesses three potential providers of support: spouse/partner, family, and friends. Respondents were asked how often they can open up to their

spouse/partner if they need to talk about their worries, and how often they can rely on spouse/partner when they have a problem. These questions were repeated for family and friends. For strains, respondents were asked to indicate how often each person or category makes too many demands on them, and how often each person or category criticizes them. Each of the items score from "1" (hardly ever (or never)) to "3" (often). The questions on family and friends are used for those with no spouse/partner, and questions on spouse, on family, and on friends are used for those with all. These measures are averaged and standardized in order to compare relative differences in support and strain scores across living arrangements.

Covariates. This study includes a number of sociodemographic variables and self-rated physical health as controls. Gender and education measures are coded as dummy variables and age as continuous. Self-rated health is the respondent's subjective assessment of his/her own physical status and well-being. Respondents were asked: "Would you say your health is excellent, very good, good, fair, or poor?" All covariates and dependent variables are summarized in Table 1.

ANALYTIC STRATEGY

The first step of analysis is to get a better picture of both the living arrangements and social networks of older adults. This study starts with descriptive statistics of older adults who belong to specific types of living arrangements and their features of social networks such as size and external household connections. The second step, multivariate regression analysis is used in order to estimate the extent to which being in a specific living arrangements are associated with differentials in social networks and social resources. Model 2 of men and women further assess the extent to which age of co-resident child(ren) or other relatives/non-relatives are associated with social networks and social support.

In the regression model for network size, 30 cases are excluded due to missing data on race-ethnicity (n = 12), some college education (n = 2), self-rated physical health (n=12), and network size (n = 4) (analytic sample for men = 1,444; women =1,531). In the regression model for social networks outside the households, additional 69 respondents who did not list any network members are excluded, because the current study examines how additional and types of household members are associated with

social networks and social resources (analytic sample for men = 1,404; women =1,506). For the social support and strains models, 100 cases are excluded due to additional item-level missing data on social support (n= 71) an d strains (n = 67), therefore, analytic sample for the social support and strain regression model is 1,416 for men and 1,487 for women. In additional analysis, all analysis were duplicated using the smallest analytic sample (i.e., the analytic sample for the social support model), but the results did not differ in significance or effect size. All models are survey-adjusted and weighted to account for probability of selection and non-response (O'Muircheartaigh et. al 2009).

RESULT

Table 1 presents the means (or proportions) and standard deviations for men and women on the variables measuring living arrangements, social network characteristics, and demographics. Consistent with previous findings, older women are more likely to live alone or in extended households and have a larger social network size than older men.

[TABLE 1 ABOUT HERE]

Household Members as Social Connectors and as Constraints

Figure 1 and Appendix Table 1 present average household size, social network size, and number of external social network members by living arrangement types. Obviously, there is a significant difference in household size by living arrangements, with complex households showing as larger in size. However, having more household members does not increase the size of social networks (Hypothesis 1). Women in large households are do not differ in their network size from those living with a spouse only; but single women in complex households and living with child(ren) have significantly smaller networks. Furthermore, for men, two types of living arrangements with larger household sizes (spouse, children, others (SPCHOTH) = 4.97; Spouse, child(ren) (SPCH) = 3.36) have the smallest social network size (SPCHOTH = 2.65; single children, others (CHOTH) = 3.11). Older men in these two types of living arrangements have smaller networks that are outside the household (SPCHOTH = 1.20; CHOTH = 1.97).

[FIGURE 1 ABOUT HERE]

Gender and Household Members as Social Connectors or Constraints

Table 2 examines the extent to which co-resident spouse, child(ren), and other distal relatives/non-relatives are associated with social networks and how they differ by gender. Table 2 also shows interactions of living arrangements and an indicator of age of co-resident child(ren) and other relatives/non-relatives who are age 18 or under (i.e., young children or other relatives/non-relatives).

[TABLE 2 ABOUT HERE]

Single vs. Spouse – For both older men and women, single living alone has significantly smaller social network size. In other words, living only with a spouse is associated with having a significantly larger social networks compared to single living alone, supporting Hypothesis 2. Yet, the effect of having a spouse, compared to single older men and single older women, respectively, is greater for older men (size model: 0.38 larger for men and 0.19 for women). For both men and women, a spouse is a potential social connector.

Men – For men, co-residing with children (SPCH) or children and other relatives/non-relatives in addition to a spouse (SPCHOTH) is associated with significantly smaller social network size (Hypothesis 3a-1, Hypothesis 4), indicating that children and other members are more likely to be constraints. On the other hand, being single and living with additional members does not differ from a married couple on overall network formation (Hypothesis 5a-1). Moreover, for single men, co-resident child(ren) has even positive signs for larger social networks, although it did not reach statistical significance; in fact, when compared with single living alone, single older men living with children have about 0.66 larger networks compared to single men (significantly differ from "single, alone" at $p = 0.05$).[7]

Women – For older women living with a spouse, however, a large number of household members or the complexities of household composition are not associated with larger or smaller network size (Hypothesis 3a-2). On the other hand, single older women either living alone or with children have smaller network sizes (Hypothesis 5a-2). Compared to married older women, single older women living with children have 0.48 smaller size; and even compared to single living alone women, their network size is not significantly smaller. This pattern persists even after the effects of income and assets and

employment are controlled (an analysis available on request). For single women, children are potential social constraints.

Age of Co-Resident Child(ren) and Others

Men – Compared to married men living with a spouse only (SP), married men co-residing with adult children (i.e., age 18 and older) (SPCH) and both adult child(ren) and adult others (SPCHOTH) have significantly smaller social networks, indicating that adult child(ren) and other members are more likely to be constraints (Hypothesis 3b). In addition, for married men living with young other relatives/non-relatives (SPOTH) significantly reduce network size, partly supporting Hypothesis 4. When single men are compared with married men living with a spouse only (SP), co-residing with young child(ren), not adult child(ren), significantly reduces the size of social networks; when compared with single alone, however, single living with adult child(ren) have about 0.68 more persons in networks compared to single men and only those living with very young child(ren) have smaller network size (significantly different from "single, alone" at $p = 0.05$).

Women – For married women, age of co-residing child(ren) or other relatives/non-relatives is not associated with having a larger or smaller network, compared to married women living only with a spouse. Surprisingly, however, older married women living with others who are age 18 or under have significantly larger networks, compared to married women living with a spouse only. For single women, young co-resident children or other relatives/non-relatives are associated with larger networks, while adult child(ren) are associated with smaller networks. Note that all of these results show exact opposite associations between men and women. That is, for single older men, it is adult co-resident child(ren), not very young child(ren), who are associated with being potential social connectors, while for single older women, it is very young co-resident child(ren) who are associated with being potential social connectors.

Figure 2 shows the predicted network size from the Table 2 size model and Table 4 summarizes the results from Table 2. In short, for older married men, adult children and very young other relatives/non-relatives are potential constraints for having a larger network, while for older married

women, age or composition of household members are not associated with network size except for very young other relatives/non-relatives being a potential social connector.

Gender, Household Members, and Social Support and Strains

Table 3 examines the extent to which co-resident spouse, child(ren), and other distal relatives/non-relatives are associated with social support and strains and how they differ by age of child(ren) and other relatives/non-relatives. For both older men and women, a co-residing spouse is associated with more support and less strains, compared to single living alone (Hypothesis 6a).

Men – Compared with older men living with only a spouse, additional household members are not associated with more social support or strains (Hypothesis 6b-1). Only single older men living alone or living with child(ren) and other relatives/non-relatives (CHOTH) show a significantly lower level of support. When single household types are compared with single living alone, single men living with child(ren) reported higher level of support. Single men living with both child(ren) and other relatives/non-relatives (CHOTH), however, report a higher level of strains and no different level of support, indicating that single older men living with child(ren) and others risk a lack of support and increased strain.

Women – For older women living with a spouse, additional child(ren) or other relatives/non-relatives are not associated with more support or strain; but living with both child(ren) and others (SPCHOTH) is associated with more support, partly supporting Hypothesis 6b-2. When single households are compared with single living alone, co-residing child(ren) or other relatives/non-relatives are not associated with more support but are associated with more strains.

Figure 3 shows the predicted level of social support and strains from Table 3 model 1. A notable point from Figure 3 is that the patterns of support and strain are more salient by gender alone than across the types of living arrangements. For women, any type of the household that include a spouse is associated with more support (above women's average = 0.17), with not much difference in strain; while being single in any type of household is associated with high strain (above women's average = -0.05) and negligible levels of support. For older men, on the other hand, a co-resident spouse in any type of household is associated with higher strain (above men's average = 0.03) and not much difference in

support level; while being single in any type of household is associated with lower levels of support (below men's average = -0.10; except for those living with children).

[TABLE 4 ABOUT HERE]

[FIGURE 3 ABOUT HERE]

DISCUSSION

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Figure 1. Household Size and Social Network Size by Living Arrangements and Gender

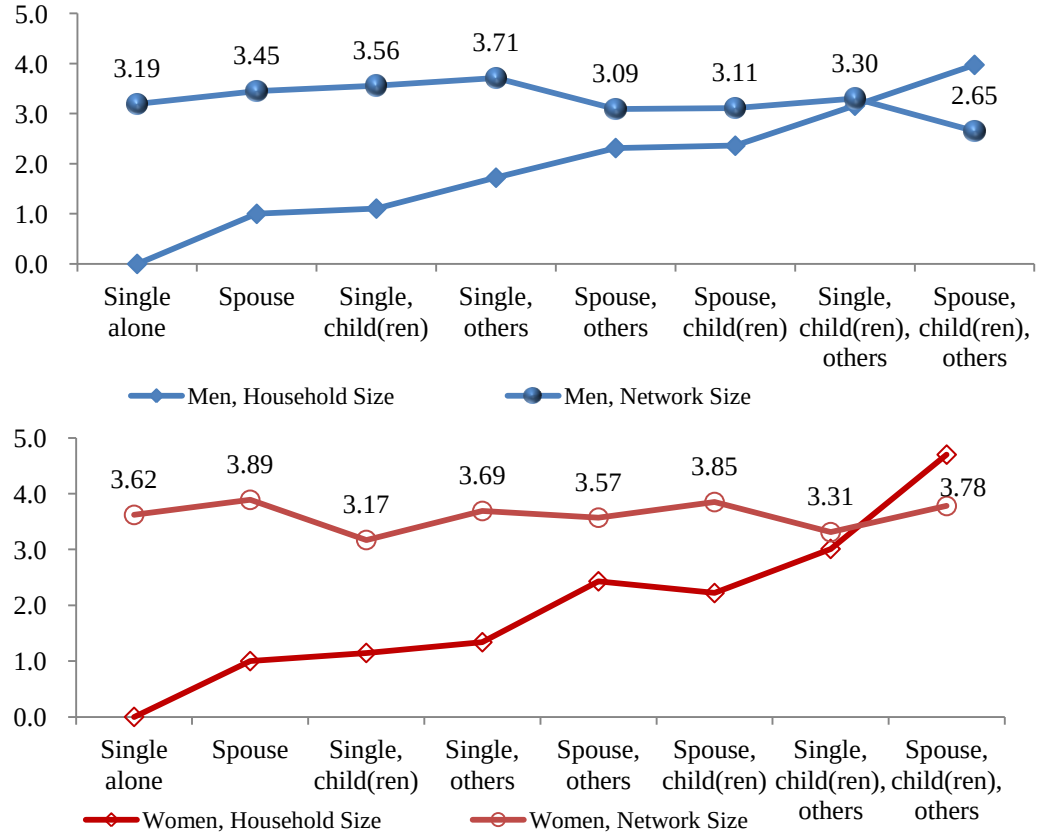
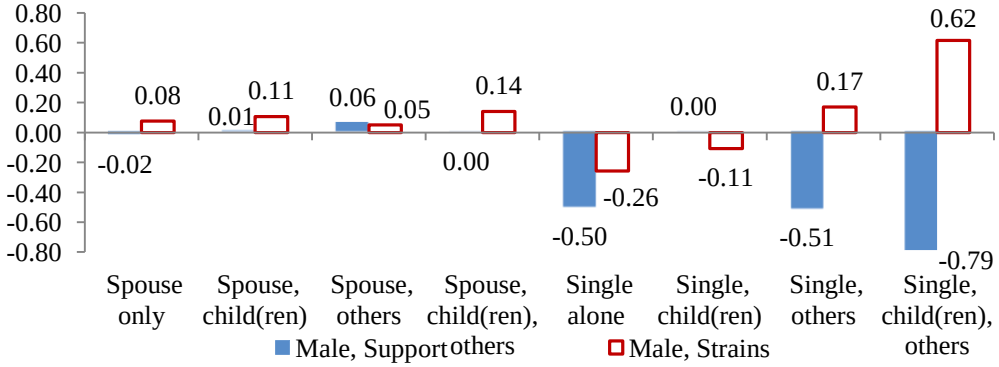


Figure 2. Predicted Values of Social Support and Strains by Living Arrangements and Gender



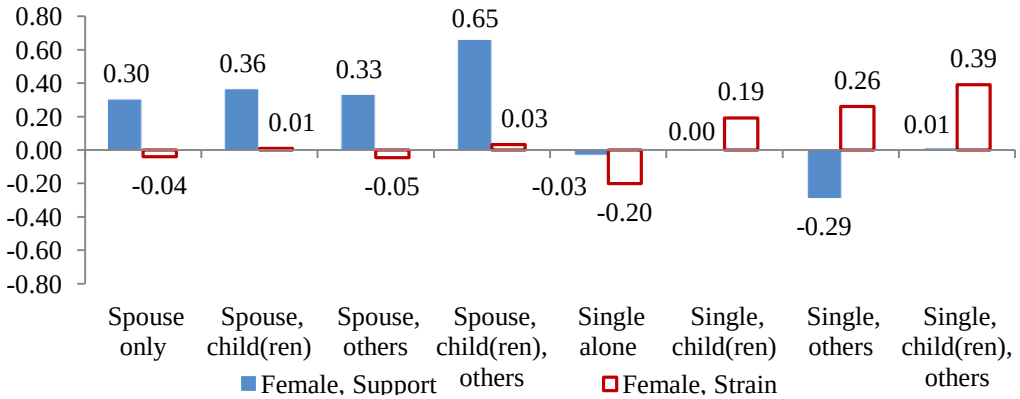
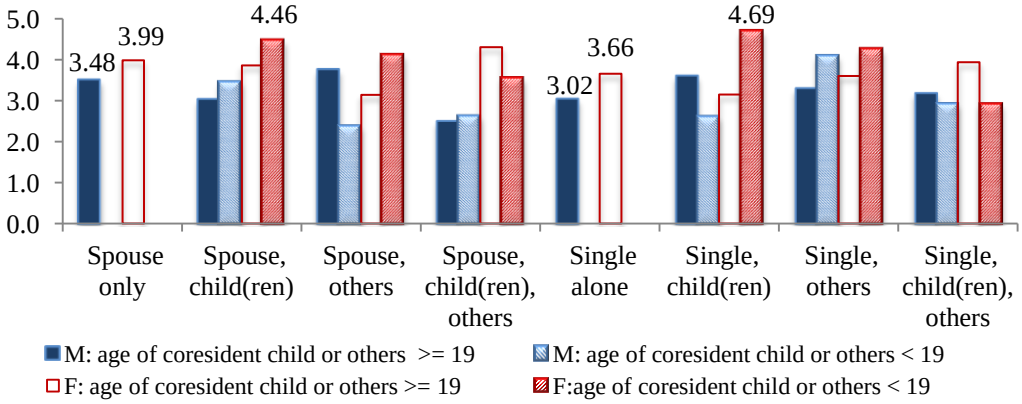


Figure 3. Predicted Social Network Size by Living Arrangements and Gender



NOTES

[1] An examination of the National Social Life, Health, and Aging Project, (NSHAP) (Waite et al., 2007), a national representative sample of older adults (age 57-85), also indicates that 20.3 percent of those live with a spouse or romantic partner did not list their coresident spouse or partner as network member (373 out of 1,835), with striking gender differences; while only 14.7% of older men did not list their spouses or partners as their network member (160 out of 1,087), 28.5% of older women did not list their coresiding spouses or partners (213 out of 748).

[2] Social connectors and constraints connote causal arguments that are not directly tested under current cross-sectional study. As such, current study instead uses the term *potential* social connectors and constraints.

[3] On the other hand, the spouse sometimes limits social connections to persons outside the household. Although marital status is not associated with smaller network size (Hurlbert and Acock 1990), married people report smaller numbers of friends (Fischer and Oliker 1983; Moore 1990; Ajrouch et al 2005). In particular, an ill spouse constrains the other spouse in forming connections outside the household, especially with friends (Gallagher and Gerstel 1993, 2001). Studies show that caregivers sometimes increase more interactions with kin as they reciprocate the support they are receiving for their ill spouse (Gallagher and Gerstel 1993, 2001).

[4] These include: Spouse; Ex-spouse; Romantic/Sexual partner; Parent; Parent in-law; Child; Step-child; Brothers or sisters; Other relative of yours; Other in-law; Friend; Neighbor; Co-worker or boss; Minister, priest, or other clergy; Psychiatrist, psychologist, counselor, or therapist; Caseworker/Social worker; Housekeeper/Home health care provider/Other (*Specify*).

[5] The wording of question is: "From time to time, most people discuss things that are important to them with others. For example, these may include good or bad things that happen to you, problems you are having, or important concerns you may have. Looking back over the last 12 months, who are the people with whom you most often discussed things that were important to you? Please list these people in Section A of your roster."

[6] "Which of the following best describes [name]'s relationship to you?" Spouse; Ex-spouse; Romantic/ Sexual partner; Parent; Parent in-law; Child; Step-child; Brothers or sister; Other relative of yours; Other in-law; Friend; Neighbor; Co-worker or boss; Minister, priest, or other clergy; Psychiatrist, psychologist, counselor, or therapist; Caseworker/ Social worker; Housekeeper/ Home health care provider/ Other (*Specify*); Don't know; Refused.

[7] In a supplementary analysis, the effect of income, assets, and retirement were respectively controlled for both men and women model but the results did not show much difference.

Table 1. Summary Statistics for Lving Arrangement, Covariates, and Dependent Variables[a]

	Men			Women		
	Mean or Proportion	S.D.	n	Mean or Proportion	S.D.	n
Lving Arrangement (Unweighted)			1,455			1,550
single	0.19	-	279	0.37	-	579
single, others	0.02	-	32	0.05	-	77
single, child(ren)	0.03	-	41	0.06	-	87
single, child(ren), others	0.01	-	16	0.04	-	59
spouse	0.56	-	817	0.4	-	601
spouse, others	0.04	-	52	0.02	-	26
spouse, child(ren)	0.12	-	178	0.05	-	84
spouse, child(ren), others	0.03	-	40	0.02	-	37
Coresident spouse/partner	0.78	0.41	1,455	0.57***	0.5	1,550
Household size	2.2	0.94	1,455	1.95***	1.01	1,550
Social Network Characteristics						
Network Size	3.33	1.63	1,453	3.79***	1.49	1,548
Network Size, Outside the Household[b]	2.54	1.52	1,411	3.20***	1.36	1,521
Social Reources						
Standardized Social Support	-.10	.96	1,417	.17	.97	1,488
How often can you… {1 = "often," 2 = "some of the time," 3 = "hardly ever (or never)"}						
Open up to your spouse or partner?	2.74	.51	1,190	2.71	.51	809
Rely on your spouse or partner?	2.87	.38	1,187	2.80	.46	807
Open up to members of your family?	2.12	.76	1,341	2.47	.66	1,446
Rely on members of your family?	2.51	.69	1,328	2.66	.58	1,438
Open up to your friends?	1.86	.71	1,286	2.18	.71	1,391
Rely on your friends?	2.24	.69	1,283	2.39	.68	1,370
Standardized Social Strains	.03	.96	1,417	-.05	.97	1,488
How often do … {1 = "hardly ever (or never)," 2 = "some of the time," 3 = "often"}						
spouse or partner make too many demands on you?	1.53	.67	1,189	1.44	.64	809
spouse or partner criticize you?	1.62	.66	1,189	1.43	.57	807
members of your family make too many demands on you?	1.30	.55	1,326	1.42	.64	1,441
members of your family criticize you?	1.22	.47	1,313	1.32	.54	1,418
friends make too many demands on you?	1.14	.38	1,283	1.13	.36	1,385
friends make criticize you?	1.17	.41	1,262	1.12	.35	1,340
Demographics and Covariates			1,417			1,488
Age	67.5	7.49		68.4*	7.72	
Attended college {1 = "at least some college"; 0 = "no college attendance"}	.55	.50		.47***	.50	
Race/Ethnic Group						
White	.81	.39		.81	.39	
Black	.09	.29		.11	.31	
Hispanic, non-black	.07	.26		.07	.25	
Others	.03	.17		.02	.14	
Sefl-rated Physical Health	3.29	1.11		3.28	1.10	

* : Significant gender difference (*** p<0.001, ** p<0.01, * p<.05)

[a] Survey-adjusted and weighted to account for the probability of selection, with post-stratification adjustments for non-response

[b] 69 case were excluded for those who do not have any social connection (network size = 0)

Table 2. Social Network Size on Living Arrangements[a]

	Network Size				Network Size, Outside the Households			
	Men-1	Women-1	Men-2	Women-2	Men-1	Women-1	Men-2	Women-2
Living Arrangement								
Spouse only (refernce)								
Spouse, child(ren)	-0.31*	-0.03	-0.39*	-0.05	-0.68***	-0.41*	-0.73***	-0.45**
	(0.14)	(0.17)	(0.16)	(0.17)	(0.13)	(0.16)	(0.14)	(0.15)
age 18 or under			0.36	0.47			0.23	0.71
			(0.29)	(0.71)			(0.26)	(0.73)
Spouse, others	-0.19	-0.27	0.35	-0.69	-0.26	-0.15	0.31	-0.68
	(0.25)	(0.32)	(0.22)	(0.45)	(0.27)	(0.33)	(0.24)	(0.40)
age 18 or under			-1.29**	1.04*			-1.36**	1.27**
			(0.39)	(0.50)			(0.40)	(0.43)
Spouse, child(ren), others	-0.74***	-0.02	-0.84*	0.52	-1.28***	-0.68**	-1.55***	-0.55
	(0.21)	(0.30)	(0.35)	(0.34)	(0.19)	(0.23)	(0.28)	(0.47)
age 18 or under			0.15	-0.77			0.43	-0.16
			(0.49)	(0.50)			(0.35)	(0.52)
Single alone	-0.38**	-0.19*	-0.39**	-0.19*	0.64***	0.60***	0.64***	0.60***
	(0.14)	(0.09)	(0.14)	(0.09)	(0.14)	(0.08)	(0.14)	(0.08)
Single, child(ren)	0.28	-0.48*	0.30	-0.57**	0.38*	-0.36	0.41*	-0.48*
	(0.19)	(0.21)	(0.20)	(0.21)	(0.17)	(0.22)	(0.18)	(0.21)
age 18 or under			-0.98**	1.74**			-1.21***	2.17**
			(0.33)	(0.51)			(0.29)	(0.69)
Single, others	0.08	-0.02	-0.08	-0.19	0.65+	0.24	0.73**	0.08
	(0.44)	(0.21)	(0.42)	(0.24)	(0.37)	(0.21)	(0.26)	(0.23)
age 18 or under			0.90	0.78*			-0.40	0.70*
			(1.41)	(0.33)			(1.23)	(0.33)
Single, child(ren), others	-0.21	-0.27	-0.01	0.43	-0.48	-0.56*	-0.50*	-0.16
	(0.38)	(0.27)	(0.25)	(0.35)	(0.41)	(0.22)	(0.20)	(0.35)
age 18 or under			-0.34	-1.18**			0.01	-0.68+
			(0.58)	(0.38)			(0.58)	(0.38)
Age	-0.00	-0.01*	-0.00	-0.01*	0.00	-0.02**	0.00	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Attend College	0.37**	0.42***	0.37**	0.41***	0.26*	0.33***	0.26*	0.33***
	(0.12)	(0.08)	(0.12)	(0.08)	(0.10)	(0.07)	(0.10)	(0.07)
Black	-0.33*	-0.45**	-0.30+	-0.46**	-0.18	-0.28*	-0.17	-0.30*
	(0.16)	(0.15)	(0.16)	(0.15)	(0.13)	(0.13)	(0.13)	(0.13)
Hispanic, Nonwhite	-0.65***	-0.65**	-0.65**	-0.72***	-0.68***	-0.54*	-0.68***	-0.60**
	(0.18)	(0.21)	(0.19)	(0.20)	(0.14)	(0.21)	(0.15)	(0.19)
Others	-0.13	-0.36	-0.06	-0.54+	-0.10	-0.41	-0.03	-0.59*
	(0.23)	(0.32)	(0.23)	(0.30)	(0.21)	(0.31)	(0.21)	(0.28)
Self-rated Physical Health	0.06	0.10*	0.06	0.10*	0.05	0.10*	0.05	0.10*
	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
Constant	3.29***	4.35***	3.31***	4.36***	2.11**	3.83***	2.15**	3.82***
	(0.63)	(0.45)	(0.65)	(0.45)	(0.64)	(0.45)	(0.65)	(0.44)
Subpopulation	1,444	1,531	1,444	1,531	1,402	1,506	1,402	1,506
F test	4.83***	11.17***	5.84***	8.30***	21.44***	13.13***	17.80***	8.66***
df	(13, 38)	(13, 38)	(19, 32)	(19, 32)	(13, 38)	(13, 38)	(19, 32)	(19, 32)

Standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

[a] Survey-adjusted and weighted to account for the probability of selection, with post-stratification adjustments for non-response.

Table 3. Social Support and Strains on Living Arrangements[a]

	Social Support				Strains			
	Men-1	Women-1	Men-2	Women-2	Men-1	Women-1	Men-2	Women-2
Living Arrangement								
Spouse only (refernce)								
Spouse, child(ren)	0.01	0.04	-0.01	0.05	-0.01	-0.02	0.01	-0.07
	(0.08)	(0.11)	(0.09)	(0.12)	(0.10)	(0.16)	(0.12)	(0.17)
age 18 or under			0.11	-0.13			-0.12	0.89
			(0.14)	(0.36)			(0.14)	(0.71)
Spouse, others	0.14	0.09	0.23	0.26+	-0.12	-0.05	0.00	-0.11
	(0.12)	(0.13)	(0.14)	(0.14)	(0.17)	(0.19)	(0.15)	(0.26)
age 18 or under			-0.23	-0.41			-0.28	0.15
			(0.25)	(0.27)			(0.27)	(0.42)
Spouse, child(ren), others	0.02	0.38**	-0.03	0.16	-0.04	-0.02	0.60**	0.28+
	(0.09)	(0.13)	(0.13)	(0.16)	(0.12)	(0.13)	(0.20)	(0.15)
age 18 or under			0.09	0.34+			-1.04***	-0.45*
			(0.21)	(0.18)			(0.28)	(0.21)
Single alone	-0.43***	-0.22**	-0.43***	-0.22**	-0.37***	-0.11*	-0.37***	-0.11*
	(0.10)	(0.07)	(0.10)	(0.08)	(0.09)	(0.05)	(0.09)	(0.05)
Single, child(ren)	0.07	-0.19	0.03	-0.23	-0.28+	0.21	-0.30*	0.27
	(0.14)	(0.19)	(0.13)	(0.19)	(0.15)	(0.20)	(0.15)	(0.21)
age 18 or under			1.39***	0.80**			0.86**	-1.05***
			(0.20)	(0.26)			(0.28)	(0.30)
Single, others	-0.44	-0.46**	-0.41	-0.48*	-0.01	0.28+	0.06	0.21
	(0.35)	(0.17)	(0.38)	(0.20)	(0.35)	(0.16)	(0.36)	(0.16)
age 18 or under			-0.40	0.07			-0.90*	0.32
			(0.38)	(0.30)			(0.41)	(0.30)
Single, child(ren), others	-0.70***	-0.18	-0.37	0.33	0.36	0.37+	0.39	0.13
	(0.17)	(0.16)	(0.27)	(0.23)	(0.23)	(0.21)	(0.51)	(0.32)
age 18 or under			-0.52	-0.93**			-0.03	0.42
			(0.36)	(0.30)			(0.68)	(0.35)
Age	-0.01	-0.02***	-0.01+	-0.02***	-0.00	-0.02***	-0.00	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Attend College	0.01	0.04	0.00	0.04	0.01	0.08	0.02	0.08
	(0.07)	(0.06)	(0.07)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
Black	0.04	-0.23*	0.04	-0.24*	0.53***	0.22	0.55***	0.22+
	(0.10)	(0.11)	(0.10)	(0.11)	(0.09)	(0.11)	(0.09)	(0.11)
Hispanic, Nonwhite	-0.13	-0.33**	-0.13	-0.33**	0.01	0.10	0.03	0.09
	(0.11)	(0.11)	(0.11)	(0.11)	(0.18)	(0.12)	(0.18)	(0.12)
Others	-0.12	0.19	-0.13	0.10	0.47*	-0.03	0.45+	0.04
	(0.19)	(0.19)	(0.19)	(0.19)	(0.22)	(0.21)	(0.23)	(0.20)
Self-rated Physical Health	0.08**	0.06	0.08**	0.06+	-0.06	-0.06*	-0.06+	-0.06*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
Constant	0.24	1.46***	0.26	1.48***	0.45	1.23***	0.47	1.23***
	(0.33)	(0.25)	(0.33)	(0.25)	(0.33)	(0.29)	(0.33)	(0.29)
Subpopulation	1,416	1,487	1,416	1,487	1,416	1,487	1,416	1,487
F test	8.83***	7.06***	260.9***	6.15***	8.76***	4.53***	100.5***	3.91***
df	(13, 38)	(13, 38)	(19, 32)	(19, 32)	(13, 38)	(13, 38)	(19, 32)	(19, 32)

Standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

[a] Survey-adjusted and weighted to account for the probability of selection, with post-stratification adjustments for non-response.

[b] 69 case were excluded for those who do not have any social connection (network size = 0)

Table 4. Household Members as Social Connectors or Constraints

	Network Size		Network Size, Outside the Households		Social Support		Strains[a]	
	Men	Women	Men	Women	Men	Women	Men	Women
Spouse only (refernce)								
Spouse, child(ren)	-		-	-				
age 18 or under[b]								
Spouse, others								
age 18 or under[b]	-	+	-	+				
Spouse, child(ren), others	-		-				+	
age 18 or under[b]							-	-
Single alone								
Single, child(ren)	+[c]	-	+	-			-	
age 18 or under[b]	-	+	-	+	+	+	+	-
Single, others			+			-		
age 18 or under[b]		+		+			-	
Single, child(ren), others			-					
age 18 or under[b]		-				-		

- : contraints, smaller networks and less support, compared to "Spouse, only"
+ : connectors; larger networks and more support, compared to "Spouse, only"
a: "+" indicates more strain, "-" indicates less strain
b: Age of co-resident child(ren) or other relatives/non-relative are 18 or under
c: Significantly positve, compared to "spouse, only" and "single alone"
Note: Derived from the models in Table 4.

Appendix Table 1. Household Size and Social Network Size by Living Arrangements and Gender

	Household Size			Network Size			Network Member Outside the Household		
	Total	Men (n = 1,411)	Women (n = 1,521)	Total	Men (n = 1,411)	Women (n = 1,521)	Total	Men (n = 1,411)	Women (n = 1,521)
Lving Arrangements									
Spouse	2.00	2.00	2.00	3.65[b]	3.45[b]	3.89[b] ***	2.84[b]	2.58[b]	3.15[b] ***
Spouse, child(ren)	3.30	3.36	3.22	3.40 [a]	3.11 [a]	3.85 ***	2.16[a,b]	1.82[a,b]	2.71[a,b] ***
Spouse, others	3.35	3.31	3.43	3.24 [a]	3.09	3.57	2.41[a,b]	2.19[b]	2.91[b]
Spouse, child(ren), others	5.29	4.97	5.70*	3.14 [a,b]	2.65[a,b]	3.78 ***	1.67[a,b]	1.20[a,b]	2.28[a,b] ***
Single alone	1.00	1.00	1.00	3.49 [a]	3.19 [a]	3.62 [a]**	3.49[a]	3.19 [a]	3.63[a] **
Single, child(ren)	2.14	2.10	2.15	3.30 [a]	3.56[a,b]	3.17[a,b]	2.66[b]	2.81[b]	2.59[a,b]
Single, others	2.44	2.72	2.34	3.69	3.71	3.69	3.16	3.00	3.21[b]
Single, child(ren), others	4.02	4.16	4.01	3.31	3.30	3.31 [a]	2.26[a,b]	1.97[b]	2.33[a,b]

[a] : Significantly different from *Spouse only* arrangement

[b] : Significantly different from *Single alone* arrangement

* : Significant gender difference (*** p<0.001, ** p<0.01, * p<.05)