East Meets West: Cross-national Comparisons of the Gender Gap in Depressive Symptoms among U.S. and Japanese Elders

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INTRODUCTION

There is a substantial body of literature that focuses on depression as an indicator of elder well being (Silverstein et al. 1996; Sugihara et al 2008; Yang 2006). Depression increases with age and tends to be higher among the female population—this reflects the fact that women represent a greater proportion of the oldest old and widowed (Mirowsky and Ross 1992). Depression has been previously linked to social support networks, poor physical health and transitions across life stages—for example to retirement, becoming disabled and widowed (Pudrovska et al. 2006; Sugisawa et al 2002). Finally, depression has become a standard for evaluating well-being in an international context (Yatomi et al. 1993).

This paper advances the study of depression as correlated to gender and age in international research. As opposed to preexisting studies in the United States and Japan that have focused on the well-being of the caregiver, this research orients itself from the perspective that damaging and supportive relationships, or the lack thereof, flow in both directions. Second, the mediating relationship of social support between gender and depression is complex, since physical disability can create the need for care and culturally proscribed roles determine how families commit to such exchanges. This research attempts to isolate the nature of social support in relation to gender and depression in the United States and Japan, thereby creating possibilities for comparisons and examples of successful exchanges of support. Third, filial obligations to care, traditions surrounding inheritance of property and patterns of residency are distinct in Japan and the United States (Nonoyama 2000; Therborn 2004). Examinations of residential patterns in relation to social isolation and depression are deprioritized in the United States and coresidency has previously been assumed the norm in research on Japan—although contemporary research acknowledges changing preferences (Ogawa and Retherford 1993). This paper will provide a

platform for addressing transitions to new residences and how attitudes about these changes have implications for elder well-being and depression.

The gender gap in depression is among the most persistent phenomena in the modern study of mental health. John Mirowsky (1996) has stated that the gap appears to follow a similar pattern of origin in young adulthood, leveling off in middle age and increasing sharply in advanced years. However, according to Mirowsky, it is highly unlikely that its roots are biological or related simply to "differential socialization." It appears to be the result of sexual stratification "…from the growing disparity of demands, sacrifices, resources, and benefits…," that men and women experience as they age and move through society's institutions. Some may argue that its manifestation is related to how the sexes express themselves (i.e. men are more apt to channel frustration into substance abuse, violence and antisocial behavior). However, the persistence of gender disparities in depressive symptoms over time and in younger birth cohorts suggests that despite rising workforce equality, the gap will not close. This may be an indication that men's lives improve with the greater job prospects of their spouses, while sex differences in the household division of labor persist.

The objective of the following analyses is to first, confirm the existence of the gender gap in the United States and Japan and then, to trace associations among gender, social support and depressive symptoms. Female longevity and persistent gender stratification in the public and domestic sectors imply that women will report more depressive symptoms than men in both nations, an assertion that finds considerable support in past research (Mirowsky and Ross 1992; Moen and Chermack 2005). The interaction between somatic health and support is also explored. Where points of comparison emerge between the experience of Japanese and U.S. elders, they are discussed within a framework of productive roles and residency patterns. Frequent depressive

symptoms are understood as signs of distress that can be explained by gender and family role strain, conflicts brought about by poor health and dependency, and the absence of productive support networks.

THEORETICAL FOUNDATION

Gendered Labor, Role Strain and Depressive Symptoms

Gender is the lens through which cultural predispositions and family roles are filtered and it is also a stratifying force in terms of economic and health outcomes. While biology may be the primary factor in determining female longevity, gendered expectations centered on labor result in disparate levels of distress, anxiety and lifestyle behaviors (e.g. consumption of alcohol and tobacco; lack of sleep) that in turn impact morbidity and mortality (Arai et. al 2007). Additional evidence exists that there are mental health benefits to engaging in paid labor, volunteer work and fulfilling roles associated with the informal labor sector. However, withdrawal from the salaried labor sector may have a more profound impact on men's sense of self worth and efficacy, marking a period of heightened depressive symptoms (Sugihara et al. 2008). Men may have less extensive social networks than women and are less likely to turn to confidants other than spouses in times of need. For these reasons, retirement and changes in marital status, such as widowhood, may have a sharper impact on men's well-being (Berg et al. 2008).

On the other hand the *role strain* hypothesis states that women face increased expectations to provide instrumental and affective care for family members at all stages of the life course. Traditional productive roles for women, which carry implications for family care, are less likely than those of men to enhance psychological well-being (Sugihara et. al 2008). Women are exposed to the burden and stress of caretaking in the household as well as the impediments of

the *glass ceiling* in the public sector. Exacerbating the problem of gender stratification in employment, the persistence of a cross-national *second shift* implies that women are hindered at various stages in the life course from steady full-time work (Brinton 1988; Lyonnette and Yardley 2003).

Productive Roles, Mastery and Locus of Control

Although, evident at the aggregate level, it may be overly simplistic to argue that men's sense of self worth, purpose in life and well-being are centered on the provider role, while women expose themselves to greater incidences of stress due to the family caretaking role. While the protective effect of engaging in formal or informal work is connected to fulfilling gender expectations surrounding that labor, the crucial factor on the individual level may be *locus of control* or a sense of *mastery*. Logic dictates that regardless of gender or sex, people who sense they have some control over their environments are more likely to express a positive sense of self-worth. Past studies have found correlations between life satisfaction, internal locus of control and reduced depressive symptoms (Berg et al. 2005; Berg et al. 2009). The crucial point to be explored in terms of this research is what sorts of narratives are available to men and women at late stages of the life course and whether the resources provided by these roles have disparate impacts on men and women. One can posit that the tools utilized by and made available to men and women are even more likely to be gender-stratified among the oldest-old.

Arguably all lives, regardless of nationality and gender, are embedded in extended networks defined by mutual obligation and support. However, despite the seeming anachronism, the caretaking role continues to have greater influence in shaping women's choices in light of the needs of children and spouses (Moen and Chermack 2005). Men, on the other hand, may be ill

equipped to deal with transitions to disability, retirement and widowhood due to their life's conditioning.

Residency, Isolation and Depressive Symptoms

Norbert Elias (1984) and Anthony Giddens (1991) described aging as a gradual process of isolation from public society as well as primary relationships. Aging includes a loss of intimate support networks and increased reliance on expert organizations that sanitize the experience of infirmity and death. This research focuses on the deterioration of primary support networks, living arrangements among the elderly and geographic separation from family members as indicative of isolation. More specifically, living alone, widowhood, childlessness, lack of contact with family and community organizations, and status as an urban or rural resident should mediate the relationship between gender and depressive symptoms.

It is important to incorporate individual choice into status as an elder, living alone. The current generation of elderly in both the United States and Japan have benefitted from public welfare programs as well as private pensions that smooth over the transition to retirement. Past research has confirmed that the primary factor impacting residential independence in late life is disability, while the availability of geriatric service organizations increases the possibilities for living alone (Burr and Mutchler 2007; Takagi and Silverstein 2006). While elders in the United States are less likely to live in the same household as their adult children, Japanese elderly frequently live with their eldest son's family. However, the implementation of an expanded public, long-term care system in Japan means that elders have increased options for support outside of immediate family (Ozawa and Nakayama 2005).

While widowhood increases the risk of depression among elders, since spouses have a bolstering effect on well-being (Sugisawa et al. 2002), it also opens the opportunity for increased

support from adult children. In a U.S. based study Ha and colleagues (2006) found that elders who lost spouses became significantly more dependent on children. However they also found that high levels of education among the elderly negated differences between men and women as well as their overall dependency. Additional research has provided evidence that widowed fathers receive more support than mothers from their children, but are also more likely to lose that support with remarriage (Kalmijn, 2007). At the same time, adult children are not always adequate substitutes for the care formerly provided by deceased spouses. Geographic distance from children may impact the quantity and quality of support received and may only be protective of parents during the initial period of recovery form grief (Ha et al. 2006). It may also be inferred from this body of literature that childlessness reduces available support for the elderly, increasing social isolation and depressive symptoms.

In Japan, despite tendencies for elders to live with adult children, depressive symptoms have been described as correlated with gender, health, widowhood, and urban residency (Koizumi et al. 2005). Urban residents and elder widows in particular, may miss out on the social cohesion that rural communities provide through daily contact with friends, kin and relatives. In Japan, urban men and women who rarely meet close relatives have elevated risks for mortality, while men face the same risk when lacking involvement in community organizations (Iwasaki et al. 2002). Japanese urban residents may also be at a lower risk for physical disability than their rural counterparts, but more prone to depressive symptoms (Tanaka and Johnson 2010). The reason for this distinction may be that urban residents are less likely to be integrated into communities that provide identity reinforcing roles as well as reside in large households.

Conversely, Sugisawa and colleagues (2002) found no evidence for the effect of community ties on depressive symptoms in either Japan or the United States. However, their

results indicated that adult children may be more important as substitutes for spouses among elder Japanese than Americans. This can be attributed to stronger norms of filial piety, despite a shift in preferences towards independent living among Japanese widows (Izuhara 2000).

Race and Depressive Symptoms

North American scholars tend to view race as a social construct that is intimately connected to the economic and political histories of nations such as the United States. Race is an unstable social positioning that is contested and transformed within new historical contexts (Omi and Winant 1994). U.S. studies have documented health disparities between blacks and whites and provided sound evidence of correlations between race, environment, socioeconomic status, somatic health and mental health (Beard et al. 2009). African Americans have been discussed as having poorer mental health outcomes and increased depressive symptoms over whites. This has been attributed to stressors associated with socioeconomic status. However, it is important to keep in mind that many past studies have not taken into account the general heterogeneity of the African American population. Socioeconomic status and quality of social support networks are perhaps the strongest predictors of depressive symptoms, rather than race itself (Lincoln and Takeuchi 2010; Miller et al. 2004).

In contrast, research on aging and mental health in Japan generally does not take race or ethnicity into account. Studies that do so tend to focus on the specialized position of immigrant care workers, such as the recent wave of Philippino migrant workers granted visas under the Japan-Philippines Economic Partnership Agreement (Suzuki 2007). Other race–based accounts of Japanese society have focused on long-term resident populations, such as the racialization of ethnic Koreans and Chinese (McLleland 2008). The paucity of reflection on race within the Japanese context can be understood within a framework of national homogeneity. The tendency

of the Japanese population to distinguish itself from foreign populations is not only based on perceived genetic differences, but also finds its origin in a shared language, culture and history that is believed to be uniquely Japanese and passed on by direct descent. The concept of national inheritance blends with political, economic and historical contexts, in a distinctly Japanese sense of *racial formation.* Thus, to borrow the U.S. paradigm, Japanese is both a race and an ethnicity, defined against the otherness of the foreigner (Yamashiro 2008). For this reason, racial disparities in mental and physical health outcomes rarely become the focus of research into elder mental health and well-being.

RESEARCH QUESTIONS, CONCEPTUAL MODEL, BASELINE HYPOTHESES

This study posits the existence of a gender gap in depressive symptoms among elders across nations. The cross-sectional analyses have the following 3 objectives:

1. Confirming the existence of the gap in depressive symptoms in both nations.
2. Explaining the associations among gender, social support and depressive symptoms, based on the position that social support mediates this relationship.
3. Since somatic health also mediates the relationship between gender and depressive symptoms, these analyses should identify an interaction between somatic health and social support. The baseline study attempts to clarify this interaction.

Figure 1: Somatic Health and Social Support Mediate Gender and Depressive Symptoms

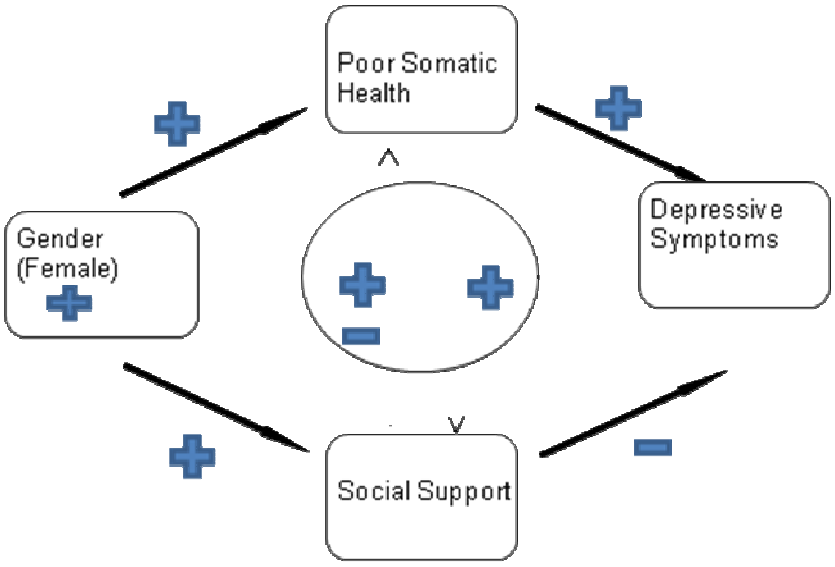

Figure 1 depicts probable associations between gender, somatic health, social support and depressive symptoms. Following the path of the arrows from left to right, this figure posits a positive relationship between female gender and heightened depressive symptoms. Social support and somatic health mediate the relationship. Female gender should have a positive association with poor health, a fact that can be attributed to longevity and greater prevalence of disability and chronic illness. Since evidence exists that women's social support networks are more extensive than men's (Sugihara et al. 2008), there is also a positive association between female gender and support. While social support protects elders from depressive symptoms, poor somatic health exacerbates the experience. Finally, the figure describes a probable association between somatic health and support. While logic dictates that poor health activates latent support networks, the possibility exists that too much support and combative relationships may worsen somatic health.

It is necessary to draw attention to the fact that since the baseline analyses are cross-sectional, no causal statements concerning the afore-mentioned relationships can be made.

Instead, statistically significant correlations provide a solid foundation for interpreting gender differences in the expression of depressive symptoms and provide direction for the subsequent longitudinal analyses.

Hypotheses

This research is centered on the following four hypotheses:

1. Elder women will report more depressive symptoms than men. The gender gap should be larger in Japan than in the United States. Age, educational attainment, income and status as homeowner will be correlated with depressive symptoms.

2. Social support, as measured through giving and receiving care, mediates the relationship between gender and depressive symptoms. There is a negative association with depressive symptoms. Coresidency with a spouse or children, provides greater opportunities to receive care and also has a negative association with depressive symptoms. However, since the literature indicates that combative relationships may heighten depression, particularly in the case of elder, Japanese women, the receipt of instrumental care may indicate a loss of mastery and heightened depressive symptoms.

3. Isolation, as the inverse of social support, mediates the relationship between gender and depressive symptoms and has a positive correlation with depressive symptoms. Lack of participation in community groups, living alone, childlessness and infrequent family contact exacerbate depression.

4. Poor health and disability are correlated with increased depressive symptoms. Poor health and disability are conceptualized through the presence of problems with activities of daily living (ADLs), chronic conditions (heart disease; back pain), and self-reported health.

ANALYZING THE GENDER GAP: CROSS-SECTIONAL ANALYSES

Data

This research uses data from two major national surveys. United States data is provided by the Health and Retirement Study (HRS) and Japanese data is supplied by the Nihon University Japanese Longitudinal Study of Aging (NUJLSOA).

"The HRS (Health and Retirement Study) is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan" (HRS Website 2010). The sample is drawn from approximately 22,000 respondents over the age of 50. The HRS follows a cluster design. Its primary sampling unit is based on the U.S. Census and Current Population Survey definitions of Metropolitan Statistical Areas (MSAs). The sample is further stratified into sub-regions, households and individuals. The respondents are asked to answer follow-up surveys every two years for the life course. Baseline surveys, enrolling new cohorts, were conducted in 1992, 1993, 1998 and 2004. 1988 serves as the baseline for this study since it roughly coincides with the implementation of the NUJLSOA. This year also marks the first time that two previous sub-samples, the Asset and Health Dynamics Study (AHEAD) and HRS, were combined in the same questionnaire. The HRS has been selected for comparison with the NUJLSOA since it covers topics that are central to this investigation such as somatic health, depression, family structure and intergenerational exchanges, housing and access to care services. Proxy responses were dropped from the analyses since they were deemed inappropriate for a study focused on self-reports of depressive symptoms. This may have rendered the sample non-representative of the community-dwelling population aged 65 and over. Since removing these respondents implies fewer significant results due to a smaller sample size and missing data from the oldest and most disabled survey participants, weights were adjusted by predicting the probability of not being a proxy. After dropping proxies, removing respondents under the age of 65, applying adjusted weights and specifying the survey design, the 1998 sample population was reduced from 21384 to 9471. Additional missing responses on CES-D items further reduced the population for the regression analyses (N=9399).

The NUJLSOA (Nihon University Center for Information Networking 2010) is a unique, nationally-representative survey that compiles information from face-to-face interviews on demographic characteristics, physical and mental health (including depressive symptoms), access to health care services, family structures and exchanges, social networks and lifestyle behaviors. Its four waves were administered in 1999, 2001, 2003 and 2006. A fifth wave is currently underway. The survey was conducted nationally through a multi-stage, stratified, cluster method that divided the nation into 11 distinct regions and then proceeded to selected respondents from within smaller clusters based on population density. Data were collected on Japanese citizens aged 65 years and over (baseline N=4997). Since respondents aged 75 years and over were over-sampled, weights were also developed for use with the survey (NUJLSOA Website 2010). As was the case with the HRS data, proxy respondents were dropped from the analyses. Weights were adjusted after predicting the probability of not being a proxy. The final sample size was 4320. Due to missing responses, the sample size for regression analyses was further reduced to 3768 respondents.

MEASURES

Dependent Variables-Depressive Symptoms Index (CES-D); Dichotomous Depression

The dependent variables for this study are generated from a summary of items that are based on two shorts versions of the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff 1977). Although the validity of the CES-D has been called into question in cross-cultural and ethnic studies, the scale has been previously adapted for Japanese respondents. In addition, shortened versions have been implemented in both the United States and Japan and found to have high reliability (Kohout et al. 1993; Shima et al. 1985; Yatomi et al. 1993). The CES-D asks that survey respondents provide answers to questions assessing their well-being over

the previous week. Items assessing positive affect are reverse coded so that higher values indicate increased depressive symptoms. Sample items include "The people around me seemed unfriendly," "I've had trouble sleeping," and "The future seemed bright."

Several distinctions exist between the HRS and NUJLSOA versions of the CES-D. First, response categories are coded in the Japanese scale as 1 "rarely," 2 "sometimes," and 3 "often." NUJLSOA and HRS responses were intended to measure respondents' depressive symptoms during the week previous to the administration of the survey. The HRS version has collapsed responses into two categories, measuring either the presence of symptoms of depression or their absence. This implies that the Japanese data may be more nuanced. Another potential problem lies in the fact that the HRS has dropped all positive affect items from the scale. However, despite using 8 items, collapsing responses into 2 categories and dropping positive affect items, tests indicated that reliability for the HRS index was remarkably similar to the NUJLSOA index. Both scales displayed moderate to high reliability (HRS $\alpha = 0.74$; NUJLSOA $\alpha = 0.74$).

Radloff (1977) intended the CES-D as a screen for depressive symptoms, not a tool for clinical diagnoses of depression. It does not test duration or intensity of symptoms and does not include measures of stress, anxiety, bereavement and substance abuse side-effects. However, it has been used in this manner by the literature and found to be fairly accurate when compared to scales such as the Composite International Diagnostic Interview for Major Depressive Episodes (CIDI-MDE). A score of 16 has been designated a reliable threshold for depression on the 20-item scale (Shima et al. 1985). Based on these measures, scores of 7-8 on the NUJLSOA 11-item scale and 3-4 on the HRS 8-item scale are considered valid cut-off points for depression (Yokoyama et al. 2008; Wallace et al. 2000). A dichotomous variable was generated for logistic regression analyses (0=no/very few depressive symptoms, 1=depression) that distinguishes

between respondents who have experienced few to no depressive symptoms and sufficient symptoms to be categorized as depressed.

Independent Variables

The independent variables used in this study are intended to capture gender differences in depressive symptoms and explore the mediating roles of social support, isolation and somatic health. These variables correspond to four conceptual areas; social support, isolation, health and general demographic indicators of depression. Variables were selected from both the HRS and NUJLSOA for their compatibility. In general, there was more variation in the coding of composite variables and indexes than with dichotomous variables. For example, the index of chronic conditions contained 13 items from the HRS and 16 items from the NUJLSOA, while the coding of variables such as *female* (gender) took the universal 1=female, 0=male format.

Social Support/Isolation

Since the primary distinction between the U.S. and Japanese elder populations is posited to be residency patterns (Nonoyama 2000), coresidency with adult children is a key measure of social support. The presence of coresiding children is included in the HRS analyses (0=no coresiding children, 1=coresiding children). The NUJLSOA analyses take into account coresiding daughters (0=no coresiding daughter, 1=coresiding daughter) and sons as separate variables (0=no coresiding son, 1=coresiding son). Next, since transitions to living with adult children may increase conflict (Izuhara 2000; 2002) due to loss of household *mastery*, status as head of household (0=respondent not head of household, 1=respondent head of household) is included as a measure of social support. The NUJLSOA provides further information on residents' status as head of household. A variable capturing adult children's status as head of household was included in the analyses (0=child not head of household, child head of household).

Receipt of support from children is conceptualized as *emotional/expressive* or *instrumental* support and added to the NUJLSOA regression models as two separate variables (0=did not receive instrumental/emotional support, 1=received instrumental/emotional support). The variable designated as *instrumental support* within the HRS analyses was generated from an item covering the general receipt of financial and other instrumental transfers over the past survey period from a child (2 years). There was no single item within the HRS describing emotional support or the presence of a regular confidant. For this reason, a variable was generated from a summary item capturing the presence of regular caregivers over the past two years. This variable was labeled *child primary caregiver* (0=no child primary caregiver, 1=presence of regular child caregiver) rather than *emotional support*.

Provision of support by elders may indicate "mattering" to family (Byers et al. 2008) and is also included as an independent variable in both sets of analyses. In most cases support provided by elders to their adult children and their families was in the form of economic transfers. These responses were also dichotomized (0=did not provide support, 1=provided support).

Isolation, or the inverse of support, was measured through not being married (0=married, 1=divorced/widowed/never married), household size (number of residents) and degree of community integration (HRS: frequency of interaction with friends and neighbors (1-6); NUJLSOA: sum of group memberships (0-11)). Since past research indicates that urban residency is correlated with depressive symptoms and alienation among elders in Japan (Ha et al. 2006; Sugisawa et al. 2002; Tanaka and Johnson 2010), status as an urban resident is also included in the Japanese analyses as a measure of isolation (0=rural resident, 1=metropolitan area resident).

Health

This study hypothesizes a direct, negative correlation between poor somatic health and depressive symptoms. The presence of difficulties with activities of daily living (ADLs), chronic conditions and poor subjective assessment of health are primary correlates of depression and impact decisions to coreside with adult children (National Research Council 2001; Pudrovska et al. 2006). Two variables are included as indicators of poor somatic health. First, a summary index has been created from seven NUJLSOA items and 8 HRS items concerning problems with activities of daily living (range=0-7; 0-8). These are bathing, dressing, eating, standing up from/getting out of bed and chairs, walking around the house, going outside and going to the bathroom. The HRS separates getting out of bed and standing up from chairs into 2 separate questions. Next, a summary scale of chronic conditions is generated from 13 HRS items and 16 NUJLSOA items. The HRS scale includes high blood pressure, diabetes, cancer, lung disease, heart conditions, having had a heart attack, angina, congestive heart disease, having had a stroke, arthritis, broken bones, incontinence and localized pain (range=0-13). The NUJLSOA scale adds cerebrovascular ailments, dementia, digestive illnesses, ailments of the liver/gallbladder and osteoporosis to this list, while collapsing all heart-related illnesses into 2 categories (range=0-16). Next, an item is added to the regression models from both surveys capturing respondents' self-assessment of health and called *subjective health* (1=poor, 2=fair, 3=good, 4=very good, 5=Excellent). The NUJLSOA contains items capturing access to distinct elder care services under the federal *Golden Plan*. These responses were added to the analyses as a summary index (range=0-7).

Demographic Variables

The regression models also controlled for demographic variables that were hypothesized to have correlations with depressive symptoms. Since past studies indicate that women report

increased depressive symptoms over men (Mirowsky and Ross 1992), status as *female* (0=male: 1=female) is the key demographic variable. The models also controlled for age, which was subsequently mean-centered for regression analyses (NUJLSOA: ages 65-99; HRS: ages 65-105). Next, the regression models controlled for variables capturing socio-economic status. The first was educational attainment (NUJLSOA: 1=junior high, 2=high school equivalency, 3=junior college, 4=university, 5=graduate school; HRS: 1=high school equivalency; 2=junior college; 3=university; 4=master's degree; 5=PhD/MD/professional degree). Educational attainment was included for two reasons. First, men of the elder generation tend to have higher attainment than women, while the inverse is true in the younger generations. Second, higher levels of education may facilitate situations where individual skills and talents can be explored and self-expression becomes routine. For these reasons education should have a significant correlation with depressive symptoms (Krause 2007). The next socio-economic variable was income (mean centered for regression analyses) (NUJLSOA (Yen): 1=less than 500,000, 2=2-3 million, 13=more than 15 million; HRS (Dollars)=range 0-330,000). Property ownership was also added to the models (0=not property owner; 1=property owner). Income and property ownership were included in order to account for the impact of wealth and household mastery/management on depressive symptoms. Since the HRS includes items that capture employment status, this variable was added to the U.S. analyses, but not the Japanese analyses (0=unemployed; 1=employed).

Finally, in the United States, as opposed to Japan, research has documented unequal mental and somatic health outcomes among people of European and African ancestry (Lincoln and Takeuchi 2010; Miller et al. 2004). For this reason, a variable for race, dichotomized to mark

status as Black/African-American, is included in the U.S. regression models (0=not Black/African American, 1=Black/African American.

Statistical Analyses

Independent Samples T-tests were run alongside descriptive statistics in order to test the study's first hypothesis that women would report more frequent depressive symptoms than men. The regression analyses consisted of a series of nested models that were designed to capture variation in the depression symptoms index according to demographic and household variables, health-related variables and female interaction terms. Results of the OLS regression analyses are presented in tables 3 (NUJLSOA) and 7 (HRS) and binary logistic regression analyses are presented in Tables 4 (NUJLSOA) and 8 (HRS). OLS and logistic regression models employ the same set of independent variables in predicting either range of depressive symptoms (CES-D) or depression (dichotomous, dependent variable). The baseline model of all regression analyses included household and demographic variables. The second model adjusted for health, adding a variable capturing access to public care services, two summary scales based on positive responses to a list of problematic activities of daily living and chronic conditions, and an item measuring subjective health. The third model added female interaction terms. The OLS model fit was evaluated using adjusted R square.

NUJLSOA WAVE 1 CROSS-SECTIONAL RESULTS

The descriptive statistics of the variables used in this study present a general picture of the situation of Japanese elders. On average the sample was female, married and about 73 years old. The majority lived in rural areas and in households consisting of about 3 people. Most had never completed high school and earned just under 2 million yen (a little under $24,000) in annual

income. Although most elder respondents were homeowners (88 percent), about 30 percent claimed an adult child as head of household.

More elders coresided with adult sons than daughters and a few claimed to coreside with children for instrumental or emotional support. Most elders reported some involvement with community groups and organizations and a minority accessed state-sponsored care services. A majority reported at least 1 *chronic condition* and a few described problems with aspects of daily living that posed a problem for their daily routine. However, most elders felt themselves to be of average to good health.

Table 1. Means and Confidence Intervals for Depressive Symptom Indicators in the NUJLSOA Sample (N=4320)

Variable	Mean	95% Confidence Interval	
CES-D Index (0-22)	4.34	4.22	4.46
Dichotomous Depression[a]	0.15	0.13	0.17
Female	0.56	0.55	0.58
Not Married	0.36	0.34	0.37
Urban	0.38	0.34	0.43
Income (Yen in Intervals 1-13)[b]	4.84	4.71	4.96
Educational Attainment[c]	1.43	1.49	1.57
Age	73.41	73.25	73.58
Household Size	3.20	3.10	3.29
Homeowner	0.88	0.86	0.90
Child Head Household[d]	0.32	0.30	0.34
Coresides w/Son	0.38	0.36	0.40
Coresides w/Daughter	0.14	0.13	0.15
Transfers to Child[e]	0.16	0.15	0.18
Instrum Support from Child[f]	0.12	0.11	0.13
Emotional Support from Child[g]	0.10	0.08	0.11
Community Contact (Group Membership)	1.12	1.05	1.49
Accessed Govt Care (0-7 Items)	0.26	0.20	0.31

ADLs (0-8 Items)	0.39	0.33	0.45
Chronic Conditions (0-15 Items)	1.64	1.57	1.70
Subjective Health[h]	3.11	3.06	3.15

[a] Dichotomous Depression (Dichotomized Depression Index): 0= few symptoms, 1=acute symptoms. [b]Income (Yen): 1=less than 500,000, 5= 2-3 million, 13=more than 15 million. [c]Educational Attainment: 1=Junior High, 2=High School/Vocational High School, 3= Junior College, 4=University, 5=Graduate School. [d]Child Head Household: 0=head of household is not child/in-law, 1=head of household is child/in-law. [e]Transfers to Child: 0=did not provide instrumental support to child, 1=provided instrumental support to child. [f]Instrum Support from Child: 0=did not receive support, 1=received support. [g]Emotional Support from Child: 0=did not receive support, 1=received support. [h]Subjective Health (Scale of 1-5): 1=not very healthy, 5=very healthy.

After running independent samples T tests for the study variables by gender, a more nuanced picture of the elder Japanese population took shape. Several differences between men and women were significant. As hypothesized, women had higher CES-D scores than men. This was further confirmed by a gender difference in *dichotomous depression*. Women were significantly more likely to report being depressed than men. Women were also less likely to be married; a distinction that can be attributed to longevity and being younger than their spouses at age of first marriage.

Table 2. Gender Differences in Means and Standard Deviations of NUJLSOA Sample

	Men (N=1880)		**Women (N=2440)**	
Variable	**Mean**	**SD**	**Mean**	**SD**
CES-D Index (0-22)	4.12***	2.33	4.51***	2.83
Dichotomous Depression	0.13**	0.28	0.17**	0.35
Urban	0.38	0.48	0.48	0.49
Not Married	0.13***	0.33	0.53***	0.50
Income (Yen in Intervals 0-13)	5.53***	2.21	4.27***	2.30
Educational Attainment	1.66***	0.95	1.43***	0.64
Age	72.84***	5.58	73.86***	5.49
Household Size	3.24	1.77	3.17	1.85
Homeowner	0.89	0.27	0.87	0.33
Child Head Household	0.40***	0.48	0.26***	0.45
Coresides w/Son	0.34***	0.47	0.41***	0.50
Coresides w/Daughter	0.12*	0.32	0.15*	0.36
Transfers to Child	0.16	0.37	0.16	0.37

Instrum Support from Child	0.09***	0.29	0.14***	0.35
Emotional Support from Child	0.07***	0.26	0.12***	0.33
Community Contact (Groups Membership)	1.12	1.25	1.12	1.27
Accessed Govt Care (0-7 Items)	0.25	0.84	0.26	0.86
ADL Scale (0-8 Items)	0.34	1.23	0.43	1.33
Chronic Conditions (0-15 Items)	1.56**	1.33	1.70**	1.53
Subjective Health	3.21***	1.12	3.03***	1.09

Gender Differences Significant at *p<.05; **p<.01; ***p<.001

In terms of social and economic capital, men scored significantly higher than women, suggesting the validity of sociological perspectives that describe gender as a stratifying force. Men reported more annual income than women (a difference of 1 million Yen; slightly less than a 12 thousand dollar difference). They were also more educated, although the majority of the sample respondents were not high school graduates.

An unexpected finding was that men were more likely than women to reside in a house where their adult child was the head of household. However, this result does not contradict the assumption that a greater percentage of women would coreside with adult children due to widowhood. It may instead reflect Confucian notions of patrilineal inheritance. Elder men may be more likely than elder women to reside in a home that was originally their own, but that has been transferred to their children. Conversely, the fact that more women than men coresided with sons and daughters reveals that a number of elder widowers can count on their spouses for lifelong support. Highlighting the idea that a greater percentage of elder women than men coreside with children when it becomes necessary for their physical and emotional well-being, these data demonstrate that women were more likely than men to receive both instrumental and emotional support from an adult child.

Taking the health-related variables into consideration, women reported significantly more *chronic conditions* than men. Men also self-assessed their health as being slightly better than women.

Before regressing the depression index on the independent variables, a correlation matrix was run to identify variables that displayed high multicollinearity. None of the independent variables were found to have strong correlations with the depression index. Not surprisingly, correlations were higher and significant between the female interaction terms and the variable for female gender. In order to reduce the risk of multicollinearity with interaction terms and loss of significance with key independent variables, the gender differences model was limited to interactions that captured being female, receiving social support and health.

The results of OLS regression illuminated several key predictors of depression among Japanese elders at baseline. *Not married* (i.e. single, divorced, widowed and never married) was a strong predictor of higher scores on the depression index (b=0.39; B= 0.20). As expected, increased age was associated with depressive symptoms, although the effect was small (b=0.04; B=0.01). Higher incomes were associated with reduced depressive symptoms (b=-0.15; B=0.04). Coresidence with both sons (b= -0.62; B=0.20) and daughters (b= 0-.52; B=0.21) had strong, negative associations with depressive symptoms, suggesting the protective effect of family support networks. The variables describing various aspects of social support provided evidence for both reducing and exacerbating depressive symptoms as had been hypothesized. While *community contact* was correlated with reduced symptoms (b= -0.19; B=0.04), declaring a child as head of household (b=0.62; B=0.19) and receiving instrumental support from children were strong predictors of depressive symptoms (b=0.56; B=0.18).

Table 3: OLS Regression Predicting Depressive Symptoms among Japanese Elders (N=3768)

	Baseline		Health Model		Gender Differences	
	b	**B**	**b**	**B**	**b**	**B**
Constant	5.56***		5.89***		5.62***	
Female	0.11	0.13	0.21	0.17	0.73	0.62
Not Married	0.39*	0.20	0.52	0.30	0.56*	0.29
Income	-0.15***	0.04	-0.04	0.05	-0.05	0.05
Educational Attainment	-0.08	0.08	-0.17	0.10	-0.18	0.09
Age	0.04***	0.01	0.00	0.02	0.00	0.02
Urban Resident	-0.26	0.16	-0.27	0.23	-0.29	0.21
Household Size	-0.11*	0.05	-0.05	0.07	-0.05	0.07
Coreside w/Son	-0.62**	0.20	-0.81**	0.31	-0.92**	0.29
Coreside w/Daughter	-0.52*	0.21	-0.79*	0.35	-0.83*	0.34
Child Head Household	0.62**	0.19	0.71*	0.30	0.78*	0.30
Homeowner	0.23	0.15	0.41	0.33	0.34	0.30
Transfers to Child	0.09	0.17	0.23	0.24	0.22	0.23
Instrum Support from Child	0.56**	0.18	0.83*	0.35	0.20	0.38
Emotional Support from Child	-0.29	0.21	-0.50	0.27	-0.66*	0.32
Community Contact	-0.19***	0.04	-0.08	0.06	-0.05	0.06
Accessed Govt Care			0.09	0.11	0.02	0.11
ADLs			0.22	0.21	0.72	0.40
Chronic Conditions			0.16*	0.07	-0.08	0.09
Subjective Health			-0.46***	0.09	-0.30*	0.13
Instrum Support x Female					1.27*	0.49
Emotion Support x Female					0.29	0.46
ADLs x Female					-0.87*	0.42
Chronicconditions x Female					0.40**	0.13
Subjectivehealth x Female					-0.27	0.16
R^2		0.07		0.14		0.18
Adj R^2		0.07		0.12		0.16

***p<.05;**
****p<.01;***parents<.001**

The demographic variables capturing not being married, income and age lost significance in the health model. The variables capturing support and coresidency, with the exception of *household size* and *community contact*, maintained their significant correlations with depressive symptoms. As expected, the presence of *chronic conditions* was correlated with increased depressive symptoms (b=0.16; B=0.07), while better *subjective health* was associated with reduced symptoms (b=-0.46; B=0.09). The strongest predictor of depressive symptoms in the health

model was *receipt of instrumental support from a child* (b=0.83; B=0.35). This fact suggests the possibility of the hypothesized conflict between generations, although there was no evidence of a gender difference. Children may have provided support when an elder parent was sufficiently incapacitated to necessitate intervention; a state that might have caused greater distress and anxiety than disability alone.

When examined as a whole, the gender differences model posed some intriguing questions concerning the gender gap in depressive symptoms. First, the state of not being married once again displayed a positive association with depressive symptoms at the 95% confidence level, suggesting the increased isolation of elder women over men. Second, receipt of instrumental support continued to exacerbate depressive symptoms among women, but not among men. The gender interaction term indicated that women receiving instrumental support from adult children experienced more than a one unit increase over men on the CES-D index (b=1.27). This interaction term also accounted for the greatest amount of variation in the CES-D index (B=0.49). In contrast, receipt of emotional support was associated with reduced depressive symptoms (b= -0.66; B=.32) and there appeared to be no gender difference. This highlights the critical role that confidants within families play in alleviating the burden and stress of poor physical health.

The gender differences model also contained one surprise. The interaction term capturing being female and experiencing difficulties with activities of daily living displayed a strong negative correlation with depressive symptoms (b= -0.87; B=0.42). However, the variable capturing *ADLs* was associated with heightened depressive symptoms (b=.72; B=.40). Although the variable *ADLs* was not significant at the 95% confidence level, it was significant at the 90% confidence level (p=.0.07). This result implies that elder men with incapacitating physical

conditions experienced more acute depressive symptoms than women. Hence for every reported problem with an activity of daily living, men scored about 0.14 units higher than women on the CES-D index $\{Y_{Female}=5.62 + (0.73_{Femalegender} + 0.72_{ADLs}) + (-0.87_{ADLsInteraction} * 1_{Female})\}$.

The variable capturing gender was insignificant across models. This would be expected with the addition of female interaction terms in the gender differences model. However, the variable *female's* lack of significance in the first two models, despite the clear gender difference at the bivariate level, implicates the aforementioned mediating relationship of health and social support. For example, the presence of chronic conditions and poor subjective health were associated with depressive symptoms in the health model. After adjusting for health, several demographic variables lost significance. After controlling for female interaction terms in the third model, the variable capturing chronic conditions lost significance. However the interaction term for female and having chronic conditions had a positive correlation with depressive symptoms (b=0.40). In addition, the interaction term for being female and receipt of instrumental support was the strongest predictor of depressive symptoms in all three models (b=1.27; B= .47), marking the relationship among social support, gender, health and depressive symptoms. Overall, the 3 models imply that health and support not only mediate the relationship between gender and depressive symptoms, but also account for most of the variation in the CES-D index.

The results of OLS regression indicate that the experience of depressive symptoms by elder men and women is dependent on the context of social support networks as well as individual conceptions of physical well-being. Since the OLS models may have captured statistically significant relationships that failed to describe more robust and substantive differences in depressive symptoms between men and women, a logistic regression was run as a diagnostic follow-up. The logistic models provided support for some of the more intriguing

findings from the OLS regression analyses. For example, in the first two models the odds of falling beyond the threshold for depression were quite high for those who had received some form of instrumental support from a child. The odds of depression were 1.72. to 1 at baseline and 2.36 to 1 after adjusting for health. Mirroring the OLS regression models, respondents with chronic conditions were more likely to experience depression than those without existing conditions. In addition, respondents with better subjective health were less likely to experience depression.

Table 4: Logistic Regression Predicting Depressive Symptoms among Japanese Elders (N=3768)

	Baseline OR	**Health Model OR**	**Gender Differences OR**
Gender (female)	1.00	1.37	1.27
Not Married	1.36	1.69	1.88
Income	0.84***	0.85*	0.84*
Educational Attainment	0.98	1.13	1.13
Age	1.03*	0.97	0.96
Urban Resident	0.68*	0.54	0.51*
Household Size	0.85**	0.89	0.89
Coreside w/Son	0.55*	0.40	0.33
Coreside w/Daughter	0.63	0.43	0.41
Child Head Household	1.63*	2.08	2.47
Homeowner	1.13	2.22	2.09
Transfer to Child	1.12	1.05	1.09
Instrum Support from Child	1.72**	2.36*	0.96
Emotional Support from Child	0.97	1.11	0.64
Community Contact	0.82**	0.91	0.93
Gold Plan Access		0.98	0.93
ADLs		1.09	1.49*
Chronic Conditions		1.31**	1.10
Subjective Health		0.57***	0.61
Transfer from Child X Female			3.97
Child Primary Care X Female			2.01
ADL X Female			0.57*
Chronicconditions X Female			1.34
Subjectivehealth X Female			0.90

***p<.05; **p<.01; ***p<.001**

In the gender differences model, the variables describing receipt of instrumental support, having chronic conditions and subjective health lost significance. However, the same negative correlation that appeared in the OLS analyses between the *female/ADLs* interaction term and depressive symptoms was significant. While the presence of problems with activities of daily living increased the odds of depression by about 50 percent, the female interaction term indicated about a 43 percent reduction.

Finally, in contrast to the OLS models, higher incomes reduced the probability of depression by about 20 percent across models. Despite the fact that urban residency was not significant in the OLS models, the logistic regression analyses revealed that urban residents were 30 percent less likely than rural residents to be depressed at baseline and half as likely in the gender differences model. This result contradicts my initial research hypothesis that urban residents would report more depressive symptoms than rural residents as a result of the breakdown of primary support networks and multigenerational living arrangements. This hypothesis was based on the findings of Tanaka and Johnson (2010), who conducted a study that also utilized the NUJLSOA data. However, the disparate results may be explained by Tanaka and Johnson's use of the CES-D 9 — a scale that dropped all positive affect items—and the fact that proxy responses were included in their analyses.

HRS 1998 CROSS-SECTIONAL RESULTS

Descriptive statistics highlight the sample as majority female, about 74 years old and almost as likely to be widowed, divorced, separated or never married as married. About 8 percent of the sample self-identified as *Black/African American*. This figure is lower than the national average, despite the oversample. This may be due to the fact that it does not include respondents who

identified as Hispanic, a group that was also oversampled in the HRS. About 2 percent of the sample was employed at the time of the survey and the average annual income was approximately $36,500. Most respondents had achieved high school equivalency.

Table 5. Means and Confidence Intervals for Depressive Symptom Indicators in the HRS Sample (N=9471)

Variable	Mean	95 % Confidence Interval	
CES-D Index (0-8)	1.70	1.63	1.78
Depressive Symptoms[a]	0.17	0.16	0.18
Female	0.60	0.59	0.61
Race (Black/African American)[b]	0.08	0.07	0.10
Not Married	0.47	0.45	0.48
Income (Dollars)	36575.87	34660.26	38491.49
Employed	0.11	0.10	0.12
Educational Attainment[c]	1.10	1.05	1.15
Age	74.55	74.34	74.75
Household Size	1.34	1.31	1.36
Homeowner	0.70	0.69	0.72
Number Children	3.08	2.99	3.18
Coreside w/Children	0.15	0.14	0.17
Transfers to Child[d]	0.29	0.27	0.30
Instrum Support from Child[e]	0.04	0.03	0.04
Child Helper[f]	0.16	0.14	0.17
Community Contact[g]	3.71	3.66	3.77
ADLs (0-8 Items)	1.30	1.25	1.34
Chronic Conditions (0-12 Items)	2.57	2.51	2.62
Subjective Health[h]	2.95	2.91	2.98

[a]Depressive Symptoms (Dichotomized Depression Index): 0=few symptoms, 1=acute symptoms. [b]Race: 0=Not Black/African American, 1=Black/African American. [c]Educational Attainment: 1=GED/HS, 2=Junior College, 3=University/Four Year College, 4=Master's Degree, 5=Ph.D/M.D/Professional Degree. [d]Transfers to Child: 0=Did not provide instrumental support to child, 1=Provided instrumental support to child. [e]Instrum Support from Child: 0=Did not receive support, 1=Received support. [f]Child Helper: 0=No child primary caregiver; 1=Child primary caregiver [g]Community Contact (Get together with neighbors): 1=Almost Never, 2=Yearly, 3=Monthly, 4=Every 2 Weeks, 5= Weekly, 6=Daily. [h]Subjective Health: 0=DK, 1=Poor, 2=Fair, 3=Good, 4=Very Good, 5=Excellent.

A majority of respondents were homeowners and had about three children. However, only 15 percent of the sample coresided with children as opposed to about half of the Japanese sample. While a small number received support from their children, nearly thirty percent of the sample indicated giving support. In most cases, this was an economic transfer. The sample also reported

visiting their friends, acquaintances and neighbors on more than a monthly basis, indicating a certain degree of social inclusion. Finally, despite the fact that respondents believed their health to be good, most described at least one problem with an activity of daily living and 2-3 chronic conditions. These figures were higher than the averages reported by the Japanese sample. In terms of depressive symptoms, about 17% of the U.S. sample and 15% of the Japanese sample fell beyond the cut-off for depression. It is important to mention that indicators of poor mental and somatic health were higher in the U.S. sample. However, it is difficult to say whether or not this can be attributed to cultural norms that prohibit the direct expression of negative emotions among Japanese respondents.

In contrast to the NUJLSOA sample, all of the gender differences explored through independent samples T-tests were significant in the HRS, with the exception of *community contact* and *subjective health*. This can be attributed to the larger sample size (HRS N=9471; NUJLSOA N=4320). Thus within the U.S. sample, first and foremost, one can expect women to report increased depressive symptoms over men, a result that confirms hypothesis one of this dissertation. However it is difficult to say whether the gender gap is more prevalent in the United States or Japan based on this analysis. While U.S. respondents were slightly more likely to score beyond the threshold for depression in the univariate analysis, the results of T-tests show us that about 13 percent of men in either nation fell into this category. However, since more women in the U.S. than Japan met this threshold (U.S.=0.20; Japan =0.17), the gap is about 3 percentage points higher in the United States. Thus, while it may be difficult to make broad statements assessing the prevalence of depression in Japan versus the United States, the results seem to indicate that culture plays a part in guiding respondents' interaction with survey items.

Table 6. Gender Differences in Means and Standard Deviations of HRS Sample

	Men (N=3777)		Women (N=5694)	
Variable	**Mean**	**SD**	**Mean**	**SD**
Depression Index (0-8)	1.43***	1.83	1.89***	1.96
Depressive Symptoms (Dichotomous)	0.13***	0.34	0.20***	0.40
Race (Black/African American)	0.08**	0.27	0.09**	0.28
Not Married	0.27***	0.45	0.59***	0.49
Income (Dollars)	46450.28***	67707.42	30012.64***	39200.08
Employed	0.15***	0.37	0.09***	0.28
Educational Attainment	1.26***	1.37	0.99***	1.01
Age	73.09***	6.61	74.97***	6.86
Household Size	1.31**	0.79	1.35**	0.81
Homeowner	0.73***	0.45	0.68***	0.46
Number Children	3.24***	2.34	2.98***	2.22
Coreside w/Children	0.14*	0.36	0.16*	0.36
Transfers to Child	0.33***	0.48	0.26***	0.43
Instrum Support from Child	0.03***	0.17	0.05***	0.21
Child Helper	0.20***	0.41	0.12***	0.32
Community Contact	3.69	2.00	3.73	1.96
ADLs (0-8 Items)	1.06***	1.64	1.46***	1.82
Chronic Conditions (0-12 Items)	2.43***	1.82	2.66***	1.81
Subjective Health	2.98	1.18	2.92	1.15

Gender Differences Significant at *p<.05; **p<.01; ***p<.001

As with the Japanese sample, this bivariate analysis indicates that women were slightly older than men (by about a year) and much less likely to be married than men. Men also had higher educational attainment (high school equivalency among men and less than high school among women), higher incomes, were more likely to be employed and own their own homes than women.

The social support variables reveal that men were more likely to report a transfer to a child (in most cases economic), while women reported receiving more support from children. In terms of somatic health, women were more likely than men to report at least 1 *ADL* and a *chronic condition*.

Before regressing the dependent variable, the CES-D index, on the independent variables a correlation matrix was run, displaying significant correlations among the variables. As expected, correlations were highest and significant between the variable capturing gender and the female interaction terms. Following the same logic as with the NUJLSOA analyses, interaction terms were restricted to five items in order to maintain the integrity of the regression models.

As hypothesized, in the baseline model *female* gender (b=0.21) and self-response as *Black/African American* (b=0.28) were associated with increased depressive symptoms. Not being married also indicated a significant, positive correlation with depressive symptoms (b=0.43). As expected, the socio-economic indicators, *employment status* (b=-0.41), *educational attainment* (b=-0.20) and status as a *homeowner* (b=-0.18) had significant, negative correlations with depressive symptoms. While these data confirm hypothesis one, they also represent a departure from the NUJLSOA analyses, where *income* was the key SES indicator. One might speculate that this relates to the higher retirement age in the U.S. and less substantial public welfare system, which necessitates employment late in life or post-retirement. In addition, since most of the U.S. sample achieved high school equivalency, while this was not true of the Japanese sample, education may have been a more important factor in the U.S. sample for reducing depressive symptoms. Next, mirroring the Japanese sample, increased age displayed an almost negligible positive association with depressive symptoms at baseline (b=0.02; B=0.00). Also similar to the Japanese sample, support (in the HRS, the child as primary caregiver) (b=0.22) had a positive association with depressive symptoms, while community contact displayed a negative correlation (b=-0.19).

Table 7: OLS Regression Predicting Depressive Symptoms among U.S. Elders (N=9399)

	Baseline	Health Model	Gender Differences

	B	B	b	B	B	B
constant	1.86***		2.19***		1.89***	
Gender (female)	0.21***	0.05	0.19***	0.04	0.69***	0.17
Race (Black/African-American)	0.28**	0.08	0.13	0.08	0.12	0.08
Not Married	0.43***	0.05	0.41***	0.04	0.41***	0.04
Income	0.00	0.00	0.00	0.00	0.00	0.00
Employed	-0.41***	0.06	-0.06	0.05	-0.07	0.06
Educational Attainment	-0.20***	0.02	-0.09***	0.02	-0.09***	0.02
Age	0.02***	0.00	-0.00	0.00	0.00	0.04
Household Size	0.05	0.05	0.00	0.04	0.01	0.01
Number Children	0.01	0.01	0.01	0.01	0.03	0.03
Coreside w/ Children	0.11	0.10	0.12	0.09	0.12	0.09
Home Owner	-0.18**	0.05	-0.01	0.04	-0.00	0.04
Transfer to Child	0.02	0.05	-0.04	0.04	0.04	0.04
Transfer from Child	0.07	0.12	-0.04	0.11	-0.12	0.17
Child Primary Caregiver	0.22***	0.05	0.21***	0.05	0.18*	0.07
Community Contact	-0.07***	0.01	-0.04***	0.01	-0.04***	0.01
ADLs			0.25***	0.02	0.30***	0.03
Chronic Conditions			0.07***	0.01	0.08***	0.02
Subjective Health			-0.38***	0.02	-0.31***	0.03
Instrum Support X Female					0.11	0.18
Child Primary Care X Female					0.06	0.11
ADL X Female					-0.08	0.03
Chronicconditions X Female					-0.02	0.02
Subjectivehealth X Female					-0.13**	0.04
R^2		0.08		0.25		0.25
Adj R^2		0.08		0.25		0.25

***parents<.05; **p<.01; ***p<.001**

After adjusting for health, *race (Black/African-American)* and *employment status* lost significance, while *marital status*, *educational attainment, child as primary caregiver, and community contact maintained* significance. All three health-related variables were associated with the CES-D index as hypothesized, although they did not account for much variation; *ADLs* (b=0.25; B=0.02), *Chronic Conditions* (b=0.07; B=0.01), *Subjective Health* (b=-0.38; B=0.02). This confirms the heterogeneity of racial populations in the United States and this study's assertions that somatic health and social support are the critical indicators of depressive states.

Since the HRS respondents were less likely to coreside with children than the NUJLSOA respondents, one may also infer that spouses play a more prominent caretaking role in the U.S.

sample than in the Japanese sample. Thus, as an indicator of isolation, *not married* seems to be one of the crucial factors in predicting depressive symptoms in the HRS. Conversely, having a *child as a primary caregiver* may indicate that a spouse is not present to provide such support.

In the third model, poor *subjective health* was correlated with increased depressive symptoms (b=-0.31; B=0.03), and women score 0.13 points lower on the CES-D than men, all else constant, a clear gender difference; *subjectivehealth X female* (b=-0.13; B=0.04). However, only one of the female interaction terms was significant, highlighting the general collapse of the gender gap after adjusting for demographic, household and health-related variables. Since three of the NUJLSOA interaction terms were significant, the results of OLS regression suggest the persistence of gender roles in guiding the expression of depressive symptoms and distress, in general, in Japan. At the same time, in the HRS gender differences model, *not being married*, *educational attainment,* and all health variables continued to display significant correlations with depressive symptoms. In addition, having a *child as a primary caregiver* was associated with higher CES-D scores (0.18), while *community contact* appeared to have a protective effect (b=-0.04). Based on these results, it can be posited that for U.S. respondents who are not married, support from adult children may not be sufficient in alleviating the pain and mental anguish associated with disability. However, community contact does have a protective effect.

The follow-up logistic regression analyses confirmed many of the OLS regression results. Across all models, *female gender, not being married* and having a *child as primary caregiver* increased the odds of being depressed. Higher *educational attainment* reduced the odds of depression by over 10 percent. It is worth noting that women and respondents who were *not married* had the greatest odds of falling beyond the threshold for depression. Having *ADLs* and *chronic conditions* also increased the odds of depression. Interestingly, while it was not true in

the regression models, the interaction term that captured being female and having problems with activities of daily living indicated that women with *ADLs* were about 9% less likely than men to fall beyond the depression threshold.

Table 8: Logistic Regression Predicting Depressive Symptoms among U.S. Elders (N=9399)

	Baseline OR	Health Model OR	Gender Differences OR
Gender (female)	1.35***	1.33***	1.70*
Race (Black/African-American)	1.25*	1.13	1.14
Not Married	1.57***	1.65***	1.65***
Income	1.00	1.00	1.00
Employed	0.62***	0.98	0.99
Educational Attainment	0.81***	0.89***	0.89***
Age	1.02**	1.00	1.00
Household Size	1.07	1.03	1.03
Number Children	1.00	1.00	1.00
Coreside w/ Children	1.08	1.10	1.10
Home Owner	0.86*	1.01	1.02
Transfer to Child	1.04	1.11	1.12
Transfer from Child	0.94	0.82	0.64
Child Primary Caregiver	1.40***	1.48***	1.51**
Community Contact	0.93***	0.95**	0.95**
ADLs		1.25***	1.33***
Chronic Conditions		1.06*	1.08*
Subjective Health		0.61***	0.61***
Instrum Support X Female			1.36
Child Primary Care X Female			0.96
ADL X Female			0.91*
Chronicconditions X Female			0.97
Subjectivehealth X Female			1.01

***p<.05; **p<.01; ***p<.001**

DISCUSSION AND CONCLUSIONS

Discussion

The NUJLSOA analyses provided support for many of this paper's hypotheses. The descriptive statistics and independent samples T-tests confirmed the presence of a significant gender gap in

depressive symptoms. Women reported a higher mean level of depressive symptoms than men (4.51 versus 4.12) and were more likely to fall beyond the threshold indicating depression than men (17 percent versus 13 percent of the sample). In addition, these analyses clarified the advantaged position of men in terms of socio-economic variables and the fact that women were more likely to rely upon the support of adult children.

The regression analyses also supported many of the research hypotheses, although there were a few surprises. Social support and somatic health clearly mediated as well as moderated the relationship between gender and depressive symptoms, accounting for most of the variation in the CES-D index. While emotional support from adult children may have had a protective effect on depressive symptoms, there was evidence that instrumental support from children exacerbated depressive symptoms, supporting hypothesis two. Adjusting for female interaction terms also clarified the fact that instrumental support from adult children impacts women in a non-protective manner. These results confirm the findings of previous studies that have described combative relationships in households and the possibility that intergenerational exchanges can exacerbate stress and depressive states (Izuhara 2002; Jenike 2003). The fact that preferences are shifting in contemporary Japan towards independent living (Ogawa and Retherford 1997), suggests that many of the NUJLSOA respondents have few options regarding residency.

The OLS regression analyses also revealed that elder men who experienced trouble with activities of daily living reported more depressive symptoms than elder women. This result was confirmed by the logistic regression analyses, in which women with ADLs were about half as likely as men to fall beyond the clinical depression threshold. One might look to gender role theory (Moen 2005) in speculating that women's sense of personal worth and efficacy might

experience a greater impact from changes in the domestic sphere than men's and that receiving support from a child might compromise the household manager position. On the other hand, men may be more distressed by issues concerning physical mobility and less expressive of minor somatic difficulties than women. Having problems with ADLs implies that men require help with very private acts, such as dressing and going to the bathroom. This is in addition to being unable to perform traditionally masculine labor, which typically involves physical exertion in the public sphere.

Finally, it is worth noting that in the NUJLSOA analyses urban residents were less likely than rural residents to fall beyond the depression cut-off point. Based on findings from the Tanaka and Johnson study (2010), this dissertation's regression models adjusted for urban residency as an indicator of social isolation. Logistic regression results described the opposite effect. Since urban residents were half as likely to be depressed, one can posit that there are increased possibilities for social integration in large cities.

The HRS analyses provided tentative evidence that the gender gap, as it is quantified in the CES-D index, is larger in the United States than in Japan. This result contradicts hypothesis one of this dissertation. Independent samples T-tests confirmed that the gap between men and women was about seven percentage points in the United States and about four percentage points in Japan. However, these statistics must be evaluated with caution since the CES-D indexes are slightly different in both surveys. Due to the fact that the samples are independent of one another, there is also no way of establishing statistical significance. However, these results do provide support for the idea that there are cultural differences in the expression of mental health states between U.S. and Japanese respondents. HRS respondents were more forthcoming than Japanese respondents when discussing depressive states, which lead to slightly higher scores on the CES-

D index. Since U.S. women were the most expressive group, the gap was larger in the United States.

It is also crucial to point out that while female gender was positively associated with depressive symptoms and depression across U.S. regression models, this variable was insignificant in the Japanese models. This poses a problem for explaining the larger number of significant gender interaction terms in the NUJLSOA analyses. One can posit that if gender roles are slightly more stratified in Japan (Brinton 1988), the act of engaging in a support-related activity (whether it be giving or receiving) is what triggers the gender difference in mental health. At the same time, similar effects of support and poor health on depressive states can be observed, but to a lesser extent in the United States. For example, the HRS logistic regression analyses indicated that women with ADLs were less likely to be depressed than men with ADLs (Odds Ratio NUJLSOA=0.57; Odds Ratio HRS=0.91). While the gender gap exits in both samples at the bivariate level, it disappears and in some cases, reverses itself, after controlling for various demographic, household, support and health-related factors. Depressive states may be better explained by social isolation and poor somatic health.

The fact that multigenerational living between elders and adult children is not a significant cultural factor in the United States highlights the increased isolation experienced by U.S. widows and widowers and lends support for hypothesis three. When an elder has a disability and/or mobility problems, indicated by the presence of ADLs and a poor self-rating on health, marital status, having children as primary caregivers, community contact and educational attainment become the critical variables in the United States. In comparison, marital status was not as central to explaining depressive symptoms in the NUJLSOA analyses. Furthermore, it was not a significant predictor of clinical depression in the logistic regression analyses.

Conclusions

Despite the persistence of the gender gap in depressive symptoms in both nations at the bivariate level, the gap collapsed and reversed itself in several instances. For example, in the regression analyses, Japanese men with ADLs reported more frequent depressive symptoms than Japanese women. In the HRS regression analyses there was evidence of a similar tendency in the logistic regression analyses. In Japan, the crucial predictors of depressive states were somatic health and variables associated with residency patterns and/or social support. This is essentially a confirmation of past literature and hypotheses two and four of this dissertation. In Japan obligations to care are guided by traditional family roles that are in turn centered in gender. However in the Untied States, the critical predictors of depressive symptoms are not being married and requiring instrumental support from a child. In a culture where living in multigenerational households is an exception to the norm, isolation is a key predictor variable of depression. In a culture in which multigenerational living is the standard, the nature of the support received from family members, the direction of the support and the person from whom that support is received are important predictors of depressive states.

In either nation, the presence of somatic health issues, whether they be ADLs or chronic conditions, triggers latent support networks. The results of the baseline study indicate that changes in somatic health, marital status in the United States, and living arrangements in Japan, should impact depressive symptoms. The baseline analyses cannot establish cause and time order, due to their cross-sectional nature. The subsequent longitudinal analyses will control for changes in the CES-D index, as well as changes in marital status, residency and transitions to hospitalization and disability.

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