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LIVING ARRANGEMENTS, PROXIMITY TO CHILD/PARENT AND DEPRESSIVE SYMPTOMS AMONG OLDER ADULTS

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By

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ABSTRACT

Studies have demonstrated the links between living arrangements and depressive symptoms among older adults. Yet, little is known about how these associations may differ among foreign- and native-born older adults who have different needs and expectations for family relations. Using the Health and Retirement Study, I examine predictors of living arrangements among native- and foreign-born adults over the age of 50 using multinomial logistic regressions. I also run a series of logistic regressions to examine the association between living arrangements and risk of high depressive symptoms. The results show that nativity and immigration characteristics are significant predictors of living arrangements. Older adults who live alone, regardless of proximity to kin, are at a heightened risk of high depressive symptoms for both groups. However, the association is more pronounced for foreign-born older adults. Living with others is associated with a reduced risk of high depressive symptoms among foreign-born only.

Keywords: living arrangements, depressive symptoms, older adults, family, foreign-born, United States

Introduction

In many developed countries, the number of older adults who experience social isolation is increasing. In the U.S., older adults account for over 40% of all Americans who report feeling isolated (Kaiser Family Foundation, 2018). Older adults' perception of their social relationship is closely linked to a range of mental health issues including depression (Hawthorne, 2008; Cornwell & Waite, 2009). Family is an important source of social and instrumental support among older adults and living arrangements have significant implications on the quality and amount of interaction within family (Cornwell & Wait, 2009; Gierveld, Groenou, Hoogendoorn & Smith, 2009). Residential distance may create barriers to maintaining regular and meaningful family interaction, while proximity may lead to excessive family contact and become a source of conflict and distress (Hank, 2007; Boredone, 2009; Lawton, Silverstein, & Bengtson, 1994; Barrio et al., 2008). Examinations of the association between living arrangements and depression have consistently identified living alone as a significant predictor of depression (Russell & Taylor, 2009; Dean, Kolody, Wood & Matt, 1992). Others also indicate that older adults who live with a family member other than their spouse are at a high risk of depression (Greenfield & Russell, 2011; Wilmoth & Chen 2003). Evidence suggests that the association between living arrangements and depressive symptoms may differ for foreign-born and native-born older adults who have different expectations and needs for family support (Wilmoth & Chen, 2003; Barrio et al., 2008). However, little is known about the extent to which nativity moderates this relationship. Furthermore, research has not considered residential distance to family members among those who live alone, ignoring the availability of family support outside the household. Using 2010 data from the Health and Retirement Study, this paper addresses the

gaps and explores the association between living arrangements and depressive symptoms among adults over the age of 50 in the U.S. First, it analyzes the nativity difference in the propensity for living arrangements. Next, it examines the association between living arrangements and risk of high depressive symptoms. The findings contribute to our understanding of the complex link between family relations and mental health of older adults and are especially relevant to the U.S. context where the share of foreign-born adults in older age is rapidly increasing (U.S. Census Bureau, 2015).

Literature Review

In many developed countries, an increasing number of older adults experience social isolation. In the U.S., older adults represent over 40% of all Americans who feel isolated, lonely and disconnected (Kaiser Family Foundation, 2018). The perception of social relations is especially important for older adults because of its implications on a range of mental health issues including depression (Cornwell & Waite, 2009; Hawthorne, 2008). As a result, a high prevalence of social isolation among older adults has raised serious public concerns and prompted efforts to understand and improve the social environment of older adults. Family is an important part of older adults' social network whom they rely on for social, emotional and instrumental support. Previous research consistently finds that having regular and healthy family interactions indicates having positive mental health among older adults (Cornwell & Wait, 2009; Gierveld, Groenou, Hoogendoorn & Smith, 2009). Living arrangements have significant implications on the quality and amount of social engagement within the older family. Research suggests that the number and frequency of interaction between older adults and their children decrease with residential distance (Hank, 2007; Bordone, 2009; Lawton, Silverstein & Bengtson, 1994). Furthermore, older parents and adult children who live far

from one another are more likely to have from poor relationships (Gillispie & Treas, 2017). Thus, living alone and being residentially distant from family may indicate lack of close companionship, emotional support, and meaningful connection that those who are close to their family enjoy.

In fact, living alone has been consistently identified as a significant predictor of depression (Wilmoth & Chen, 2003; Russell & Taylor, 2009; Dean, Kolody, Wood & Matt, 1992). For example, Greenfield and Russell (2011) find that adults over the age of 57 who live alone are at a higher risk of loneliness than those living in other types of living arrangements considered. Surprisingly, their findings suggest that older adults who live with children or others without a spouse are also at an increased risk of social isolation. Others also indicate that living with others without a spouse is associated with experiences of serious psychological distress (Henning-Smith, 2016; Wilmoth & Chen, 2003).

The context in which older adults decide to coreside with others may explain why they are at a high risk of experiencing social isolation and depression. Intergenerational household is often formed to help older adults (Choi, 2003) and meet their needs for nursing care (Michielin & Mulder, 2007; Isengard, 2013). Deteriorating health reduces older adults' sense of control and autonomy which are vital to their mental well-being (Bamonti, Price, & Fiske, 2013). Furthermore, older adults who receive care from family commonly perceive themselves as a burden (McPherson, Wilson, Chyurlia, & Leclerc, 2010). This feeling of dependence and burdensomeness may be more salient and common among older adults who live with family and receive daily support than those live independently from family. For example, a qualitative research on older adults in intergenerational household finds that older adults felt the need to prove their worthiness within the household and that they have lost

autonomy as they received constant care and attention from coresidential children (Treas & Mazumdar, 2002). This further isolated older adults from the rest of the family which exacerbated their feeling of isolation.

Older families also form intergenerational households with family members who experience personal issues such as a lack of financial resources, unemployment, and divorce (Isengard 2013; Choi 2003; Newman, 2012). Personal struggles of an individual are closely tied to the well-being of other family members because families tend to experience and cope with them together. For example, Greenfield and Marks (2006) finds that parents who reported having adult children with more personal and financial problems have poorer levels of well-being than those with children with fewer problems. Adult children's personal issues and the need for instrumental support have become a common reason to form intergenerational households among older families in the U.S., due to changing economic climate that threatens working-age adults' ability to achieve independence (Newman, 2012). In addition to having children who struggle with personal issues, providing for coresidential children can be a stressful experience. In a qualitative research, Sassler, Ciambrone and Benway (2008) find that adult children who live with parents do not make financial contribution to the household. Non-reciprocal transfer of resource can be a significant source of stress for older adults (Chang & Weisman, 2005; Davey & Eggebeen. 1998). Furthermore, children's failure to meet older adult's expectations about independence may negatively influence older adult's well-being (Fingerman, 2017; Fingerman et al., 2012).

For foreign-born older adults, their traditional values and expectations about family and living arrangements may become an additional cause of family conflict and depressive symptoms. Many foreign-born older adults come from Asian and Hispanic countries where

there is a stronger emphasis on family ties and filial obligations than in the U.S. characterized by individualistic culture (Kritz, Gurak & Chen, 2000; Diwan, Lee, & Sen, 2011; Perez, & Cruess, 2014; Ruiz, 2007). Due to the cultural values, older adults in these countries have a greater amount of emotional and instrumental support from family (Mui, 2001), and are more likely to live with adult children (Van Hook & Glick, 2007; Yi & Yang; 2003). Research suggests that the expectations about the family that foreign-born older adults carry from their home countries explain a higher rate of intergenerational household among foreign-born older adults than native-born older adults (Kritz, Gurak & Chen, 2000; Gurak & Kritz, 2010). Because not having family support and living apart from family is uncommon in both home countries and among ethnic communities in the U.S., deviating from this traditional norm may increase the sense of isolation and lead to poorer mental health (Gelfand & Yee, 1991; Wilmoth & Chen, 2003). Living alone can be especially isolating for recent immigrants who leave behind established social networks and adjust to a new environment. Family may be the only meaningful social connection whom they can rely on for emotional and instrumental support (Barrio et al., 2008; Treas & Mazumdar, 2002). For instance, foreign-born older adults rely on family members to access mental healthcare due to services that inadequately address cultural distance and language barrier between foreign-born patients and service providers (Treas & Mazumdar, 2002). Therefore, living alone may be an isolating experience for foreign-born older adults not only because it signals a breakdown of traditional values, but also because it places significant challenges to seeking care and support that can mitigate the effect of lack of family support.

Living with family may facilitate a formation of meaningful support system that can ease the transition to a new life and be beneficial to foreign-born older adults. However, their

expectations and needs for family support may also become a source of conflicts with family members. Because foreign-born adults and children who immigrate at a younger age acculturate at a faster rate than those who immigrate when they are older (Portez, 1997), foreign-born older adults may experience cultural gap with younger generations. Intergenerational conflict may arise due to older adults' expectations on their children to abide by the cultural values from home countries and the individualistic values of children who are more acculturated to the U.S. (Lee & Liu, 2001; Dennis, Basanez, & Farahmand, 2010), which can become a serious source of stress. For example, Lim, Yeh, Liang, Lau and McCabe (2009) find a significant association between mother-child acculturation gap and youth distress. Jang, Kim and Chiriboga (2005) also suggest that Korean-American older adults are more likely to experience depressive symptoms if they are surrounded by people whom they perceive as more acculturated.

To date, little attention has been paid to how the link between living arrangements, family relations and depressive symptoms among older adults may differ for foreign-born and native-born older families. Wilmoth and Chen (2003) examine this link using 1992 and 1994 data from the Health and Retirement Study. Their analysis shows that the foreign-born older adults who live alone or live with others experience more depressive symptoms than their native-born counterparts. However, the study is limited to middle-aged adults between the age of 50 to 60. Furthermore, those who live alone with and without family members living in proximity are grouped together, ignoring social and instrumental support from family members outside the household. Because the amount and quality of family contact are closely tied to residential distance (Hank 2007; Bordone, 2009; Lawton, Silverstein &

Bengtson, 1994), those who live near family may not experience social isolation even if they live alone.

This paper aims to understand how the availability of family members within and without household are associated with depressive symptoms among older adults in the U.S. First, I analyze the extent to which native-born and foreign-born older adults differ in the propensity for types of living arrangements. Next, I examine how types of living arrangements are associated with depressive symptoms among older adults. Because previous research shows that foreign-born and native-born older adults may experience different family dynamics in particular types of living arrangements, I focus on a moderating effect of nativity.

Data

The Health and Retirement Study (HRS) is a longitudinal survey of adults over the age of 50 in the U.S. Since 1992, respondents were interviewed every two years, and five cohorts were added. I use data from the 2010 wave when the youngest cohort, Mid Baby Boomer, was first included. Thus, it is the latest year the sample included a representative sample of older adults aged 50 or older. The HRS collects detailed information on respondents' demographic and socioeconomic status. Most importantly, it asks respondents whether they live within 10 miles from a child or a parent, allowing the study to distinguish those who live alone with and without kin living nearby. Of 20,012 respondents who were interviewed in 2010, I exclude 2,657 respondents due to missing values for key variables.

Key Variables

In order to examine the association between living arrangements and depression, I use the short version for the Center for Epidemiologic Studies Depression Scale (CES-D) to

measure depressive symptoms. The HRS asks the respondents eight yes/no questions about their experiences with the following depressive symptoms in the past week: (1) felt depressed, (2) felt lonely, (3) enjoyed life, (4) felt sad, (5) felt unmotivated, (6) felt activities were efforts, (7) felt happy (8) had restless sleep. Responses are summarized into a single score with a high score indicating a high risk of depression. Because the score is highly skewed towards zero, I use a cut-off score of 4 to indicate low and high depressive symptoms. The cut-off method is commonly used in previous research and equivalent to the cut-off score of 16 in the full version of CES-D (Grip, Lindeboom, & Montizaan, 2012; Reyes-Gibby, Aday, & Cleeland, 2002).

Living arrangements are the dependent variable in the first analysis and the key explanatory variable in the second analysis. Based on information about the number of household members, marital status and residential distance to children and parents, I group living arrangements into the following categories: living alone, living alone within 10 miles from at least one child or a parent, living with spouse only, and living with others. Having a child or parent living nearby may facilitate greater social involvement, even if older adults live alone. Therefore, I separate those who live alone but near at least one child or a parent and are residentially isolated from family members.

Another key independent variable is respondent's nativity. The HRS asks the respondents whether they were born in the U.S. and the year or the age at which foreign-born older adults arrived in the U.S. Based on the information, I indicate the nativity and immigration characteristics of older adults as native-born, foreign-born arrived more than 30 years ago, and foreign-born arrived less than 29 years ago. In the second part of the study that analyzes the link between living arrangements and depression, I control for the nativity

and immigration characteristics separately. Nativity is coded dichotomously indicating whether the respondents are native-born or foreign-born. A variable indicates the number of years foreign-born older adults have been in the U.S.

Other Variables

Two variables indicate respondents' economic resources. Respondents' highest level of educational attainment describes their socioeconomic status and includes the following categories: (1) less than high school, (2) high school, (3) some college, and (4) college and above. Older adults who obtained the General Educational Development (GED) is grouped with high school graduates. I also code whether respondents receive pension benefits.

The analysis includes demographic characteristics such as health, age, gender and race, and ethnicity. The HRS collects self-reported information about the respondent's health status. I divide the response into two categories: (1) excellent, great and good, and (2) fair and poor. Respondents' age in years is included in the survey. Based on information about race and Hispanic status, I code race and ethnicity into the following categories: Non-Hispanic Whites, Hispanic, Black and other.

Methods

I examine how the nativity and immigration characteristics are associated with living arrangements, accounting for demographic and socioeconomic characteristics. I run sets of two multinomial logistic regressions for native-born, foreign-born and the total sample each. The first regressions include key independent variables including the nativity and immigration characteristics, age and gender. I run the second regressions with all variables. Adding a set of variables at the time uncovers how much differences in the propensity for

each living arrangements stems from group differences in the compositions of added variables.

The second part of the study analyzes how the risk of depression varies across the types of living arrangements. I conduct the analysis among the total sample, and native-born and foreign-born older adults separately. Similar to the first part of the study, I run sets of two logistic regression for each subgroup, with the first set accounting for key independent variables such as the nativity, living arrangements, age, and gender only, and the second one controlling for all variables. To highlight how the link between living arrangements and risk of depression differ among foreign-born and native-born older adults, I test for an interaction term between the nativity and living arrangements in the analysis for the total sample. The analysis for foreign-born older adults includes an additional variable indicating the years of residency in the U.S.

Results

Table 1 presents the sample characteristics of older adults over the age of 50 by nativity. It reveals that the composition of living arrangements differs substantially by nativity. Living with others was more common among foreign-born older adults. More than half (53.7%) of foreign-born older adults lived with others, compare to slightly more than a third (36.2%) of native-born older adults. The most common form of living arrangements among native-born older adults was living with spouse only. Compared to almost 40% of native-born older adults in this form of living arrangement, only 28.4% of foreign-born older adults lived with spouse only. A considerable share of foreign-born (24.5%) and native-born (17.9%) older adults lived alone with or without a child or a parent living within 10 miles. The high depressive symptom is more prevalent among foreign-born older adults with one in

five reporting 4 or more depressive symptoms compared to 13.6% of native-born older adults.

For both groups, the sample included more female than male. Although the mean age for foreign-born and native-born older adults are comparable, more foreign-born older adults experienced fair or poor health than the native-born. 18.5% of foreign-born older adults received pension benefits compared to only one in ten foreign-born older adults. More than a third of foreign-born older adults did not complete high school. Older adults who attained a high school diploma but did not go to college represented 18.8% and 34% of foreign-born and native-born older adults respectively. Approximately a quarter of foreign-born and native-born older adults had more than a college degree. A majority of native-born older adults are non-Hispanic white while they represented less than a third of foreign-born older adults. A considerable share of foreign-born older adults was Hispanic or other race and ethnicity. Black older adults represented approximately one in ten older adults. Foreign-born older adults typically have lived in the U.S. for 38 years.

In multinomial logistic regression estimates of the type of living arrangement (Table 2), the reference group is living with spouse only, with odd ratios representing the odds of living in respective living arrangements versus living with spouse only. The first column indicates that native-born and foreign-born older adults are as likely to live alone versus live with spouse only. Women are more likely to live alone than men. The odds of living with spouse only decreases with age. In model 2, which includes all independent variables, there is no noticeable change in the estimates for the nativity and immigrant characteristics, gender, and age. Older adults who report fair or poor health are more likely to live alone versus live with spouse only. In addition, receiving pension benefits also increases the

likelihood of living alone without any child or parent living within 10 miles. The level of education is not significantly associated with the odds of living alone versus living with spouse only. Black older adults are more likely to live alone than the non-Hispanic white.

The third and fourth column show the estimates of the odds of living alone with at least one child or a parent living within 10 miles versus living with spouse only. They show that foreign-born older adults who have been in the U.S. for less than 30 years are more likely to live alone within 10 miles from a child or a parent than native-born older adults. Age and being female are associated with higher odds of living alone near kin versus living with spouse only. Older adults with fair or poor health or receive pension benefits have increased odds of living alone within 10 miles from a child or a parent versus living with spouse only. The level of education is a significant predictor of living alone near spouse only. The results suggest that older adults who did not complete high school have higher odds of living alone within 10 miles from a child or a parent than those with a high school degree or above. Non-Hispanic white older adults are less likely to live alone near kin than black older adults.

The results show that foreign-born older adults have higher odds of living with others versus living with spouse only. Recent immigrants are more likely to live with others than those who have been in the U.S for more than 30 years. Additionally, the odds are higher among younger and female older adults. When all independent variables are accounted for, the estimates for the nativity and immigration characteristics decreases substantially while that for age and gender stays about the same. Having fair or poor health is associated with higher odds of living with others. Older adults who a high school degree or above are less likely to live with others versus live with spouse only compared to those who did not

complete high school. Older adults who are non-Hispanic white are less likely to live with others versus live with spouse only compared to all other race and ethnic groups.

Table 3 presents results from logistic regressions which estimate the log odds of having high depressive symptoms and answers the second question. To determine whether the association between living arrangements and high depressive symptoms differ by nativity, model 1 and 2 include interaction term between living arrangements and nativity. The results indicate that the risk of high depressive symptoms varies across the types of living arrangements and the associations depend on the nativity. Overall, foreign-born older adults are more likely to report four or more depressive symptoms than native-born older adults. Living with spouse only are associated with reduced odds of having high depressive symptoms among both foreign-born and native-born older adults. However, the association is more salient among older adults who are foreign-born. Having a child or a parent living within 10 miles is not significantly associated with having depressive symptoms among foreign-born older adults who live alone. Model 1 shows that living alone within 10 miles from a child or a parent increases the risk of high depressive symptoms among native-born older adults. However, the association drops out of significance when health, pension benefits, education and race, and ethnicity are accounted for (model 2). While native-born older adults who live with others are as likely to experience four or more depressive symptoms as those who live alone, living with others is associated with reduced risk of high depressive symptoms among foreign-born older adults.

Consistent with previous results, separate analyses by nativity show that the risk of high depressive symptoms varies across the types of living arrangements. Regardless of the nativity, living with spouse only is associated with lower odds of reporting high depressive

symptoms than living alone. The differences in the odds of high depressive symptoms between the two types of living arrangements are twice as large among foreign-born older adults than the native-born (model 4 & 6). Native-born and foreign-born older adults who live alone within 10 miles from a child or a parent are more likely to experience four or more depressive symptoms compared to those who live alone further than 10 miles of them. However, the association disappears when all independent variables are accounted for. Native-born older adults who live with others are as likely to report at least four depressive symptoms as those who live alone. In contrast, foreign-born older adults in the same form of living arrangement are significantly less likely to experience high depressive symptoms.

The risk of high depressive symptoms decreases with age among native-born older adults. However, age is not significantly associated with the level of depressive symptoms among the foreign-born. Female older adults are more likely to report high depressive symptoms than male counterparts regardless of the nativity. However, the difference is more pronounced among the foreign-born sample. Native-born older adults who did not complete high school have higher odds of high depressive symptoms than those with a high school diploma or more. In contrast, the level of education is not a significant predictor of high depressive symptoms among foreign-born older adults. Black native-born older adults are more likely to report four or more depressive symptoms than non-Hispanic white, native-born older adults, while other race and ethnic groups are as likely to report high depressive symptoms (model 4). For foreign-born older adults, race and ethnicity are not significantly associated with having high depressive symptoms (model 6). In addition, the risk of high depressive symptoms does not depend on the length of residency in the U.S.

Figure 1 presents the predicted probability of high depressive symptoms by nativity and living arrangements. Native-born older adults who live with spouse and/or others are at a higher risk of high depressive symptoms compared to the foreign-born. However, the group difference is not significant. The predicted probability of high depressive symptoms among native-born older adults who live with spouse only is 10.13% and is significantly lower than that for other types of living arrangements. Native-born older adults who live alone within 10 miles from a child or a parent have 19.31% chance of having four or more depressive symptoms. Foreign-born older adults in the same type of living arrangement have 21.51% chance of high depressive symptoms, however the difference is not significant at 95% confidence level. The difference in predicted probability of risk of high depressive symptoms is most pronounced among those who live alone more than 10 miles from child or parent. In contrast to the predicted probability of 16.61% among native-born older adults, foreign-born older adults have significantly higher chance of chance of having high depressive by almost 10%.

Discussions

In the U.S., where social isolation among older adults has become a serious public health and policy concern (KFF, 2018), how family relations exacerbate and mitigate the experience of social isolation is key to understanding the issue. An important dimension of family relation is the living arrangements which is closely linked with the amount and quality of family interaction (Cornwell & Wait, 2009; Gierveld, Groenou, Hoogendoorn & Smith, 2009). The paper advances current understanding of the complex links between family relations, living arrangements and mental health of older adults by taking household compositions and distance to close family members into account. Given the unique family

relations among foreign-born older adults, I conduct separate analysis by nativity and analyze the predictors of living arrangements and the associations between living arrangements and risk of high depressive symptoms.

The findings suggest that nativity and immigration characteristics are significant predictors of living arrangements. Foreign-born older adults, especially those who recently arrived in the U.S., tend to maintain close residential proximity to family members. Consistent with previous results, the analysis confirms that foreign-born older adults are more likely to live with others than native-born older adults. Even after controlling for demographic and socioeconomic characteristics, the foreign-born status remains a significant predictor of living with others. The findings also suggest that recent immigrants who live alone are also more likely to have at least one source of family support from a child or a parent who live within 10 miles. This may result from the cultural emphasis on family ties and filial obligation which manifest in living arrangements of foreign-born older adults (De Vos, 1990; Yi & Yang; 2003; Gurak & Kritz, 2010). Furthermore, language and cultural barrier increase the need for social and instrumental support from family (Barrio et al., 2008; Treas & Mazumdar, 2002) which may factor into the decisions about living arrangements.

Older adults who live alone, regardless of their distance to child or parent experience a higher risk of high depressive symptoms compared to those who live with a spouse and/or others. The differences in the predicted probability are more noticeable among foreign-born older adults than the native-born. Because living alone in older age is uncommon among in source countries and within their ethnic communities in the U.S., they may not have expected to find themselves in the living arrangement. Deviating from this norm and expectation may contribute to the feeling of isolation (Wilmoth & Chen, 2003). Furthermore, foreign-born

older adults may experience significant barriers to seeking the necessary help to cope with poor mental health due to the lack of family support needed to access mental healthcare (Treas & Mazumdar, 2002). Therefore, having immediate family support may be more important for foreign-born older adults who have poor English skills and lack social ties in the U.S. than native-born older adults (Barrio et al., 2008). Indeed, the findings indicate that living with others is associated with a reduced risk of high depressive symptoms for foreign-born older adults but not for native-born older adults.

There are several limitations to the analysis. First, the data does not allow the analysis to account for the country of origin. Previous research shows that living arrangements and their association with mental well-being of foreign-born older adults vary across foreign-born groups (Gurak & Kritz, 2010; Wilmoth 2001), suggesting the context in which they migrate and adapt to the host country may influence the propensity and preference for living arrangements. Future research should consider whether it also has implications for residential proximity to kin among foreign-born families. Furthermore, it should account for the characteristics of neighborhood or region older adults reside in to examine how the housing cost, the size of local ethnic communities, and the availability of public services such as transportation attenuates the need for family support. Finally, the HRS does not provide information about the nativity of family members. Nativity may indicate the extent to which family members share the values about family relations which older adults. Future work should analyze whether it results in different levels of mental well-being among older adults.

Despite the limitations, the findings from the analysis contribute to the understanding of the complex ties between family dynamics, living arrangements and mental health of older adults. Whether the implication of living arrangements on mental health differ among native-

born and foreign-born older adults, who may have different needs and expectation for family support, has received little attention despite the growing share of the foreign-born population in the older age (U.S. Census Bureau, 2015). The findings suggest that living with family members signals a reduced risk of high depressive symptoms among foreign-born older adults, while frequent interaction with family members other than a spouse may indicate a heightened risk for native-born older adults. Regardless of nativity, living alone can be an isolating experience and put older adults at a serious risk of depression. The results suggest that emotional support from family members living in proximity may not be adequate to mitigate the sense of isolation living alone entails. This is in line with previous results that identifies living alone as a key predictor of depression in older age. Therefore, the analysis highlights the importance of using living arrangements to guide developments of programs to reduce the level of social isolation among older adults.

Table 1. Sample Characteristics of Older Adults over the Age of 50 in the U.S., 2010

	Total	Native-born	Foreign-born	t-test/chi[2]
Total	100	90.38	9.62	
Living arrangements (%)				**
Living alone more than 10 miles from child/parent	12.54	12.86	9.56	
Live alone within 10 miles from a child/parent	11.3	11.62	8.29	
Live with spouse only	38.24	39.28	28.44	
Live with others	37.92	36.23	53.71	
% High CESD	14.17	13.55	20.05	**
Age (mean/standard deviation)	54.64 (0.25)	54.67 (0.27)	54.31 (0.49)	
% Female	64.35	64.44	63.46	
% Fair/poor health	24.29	23.03	36.07	**
% Receiving pension	17.66	18.46	10.13	**
Education (%)				**
Less than high school	13.72	11.31	36.39	
High school	32.49	33.95	18.76	
Some college	25.92	26.7	18.6	
College or above	27.87	28.05	26.25	
Race/Ethnicity (%)				**
Non-Hispanic White	78.57	83.57	31.63	
Hispanic	5.07	2.49	29.33	
Black	10.25	10.48	8.02	
Other	6.11	3.45	31.02	
Years of Residency in the U.S.[a] (mean/standard deviation)			37.65 (0.76)	*
N	20,012	17,355	2,657	

Starts show *p<0.05 **p<0.01 test results from chi-square test (proportions) and t-test result testing the difference from the total sample (means)

[a] tests for difference from zero

Table2. Log Odds from Multinomial Logistic Regression Analysis of Type of Living Arrangements among Older Adults over the Age of 50 in the U.S., 2010

	Living alone more than 10 miles from child/parent vs living with spouse only		Living alone within 10 miles from a child/parent vs living with spouse only		Living with others vs living with spouse only	
	β	β	β	β	β	β
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Nativity *(native-born)*						
Foreign-born (arrived more than 30 years ago)	-0.0139	-0.0462	0.105	-0.0914	0.6172***	0.2174*
Foreign-born (arrived less than 29 years ago)	0.1636	0.0689	-0.8942*	-1.2168**	0.9605***	0.4448*
Age	0.0134**	0.0121**	0.0284**	0.021***	-0.0528***	-0.0547***
Female	0.2939***	0.2964***	0.7635**	0.7409***	0.1376***	0.1251***
Fair/Poor Health		0.4208***		0.4006***		0.338***
Receiving pension		0.1362*		0.3152***		-0.0044
Education *(Less than high school)*						
High School		-0.1543		-0.2748**		-0.5817***
Some College		-0.0123		-0.4546***		-0.544***
College and Above		-0.1209		-0.9915***		-0.6305***
Race/Ethnicity *(Non-Hispanic white)*						
Hispanic		-0.1434		0.2266		0.4963***
Black		0.9421***		1.0801***		1.0116***
Other		0.1417		0.3699		0.5459***

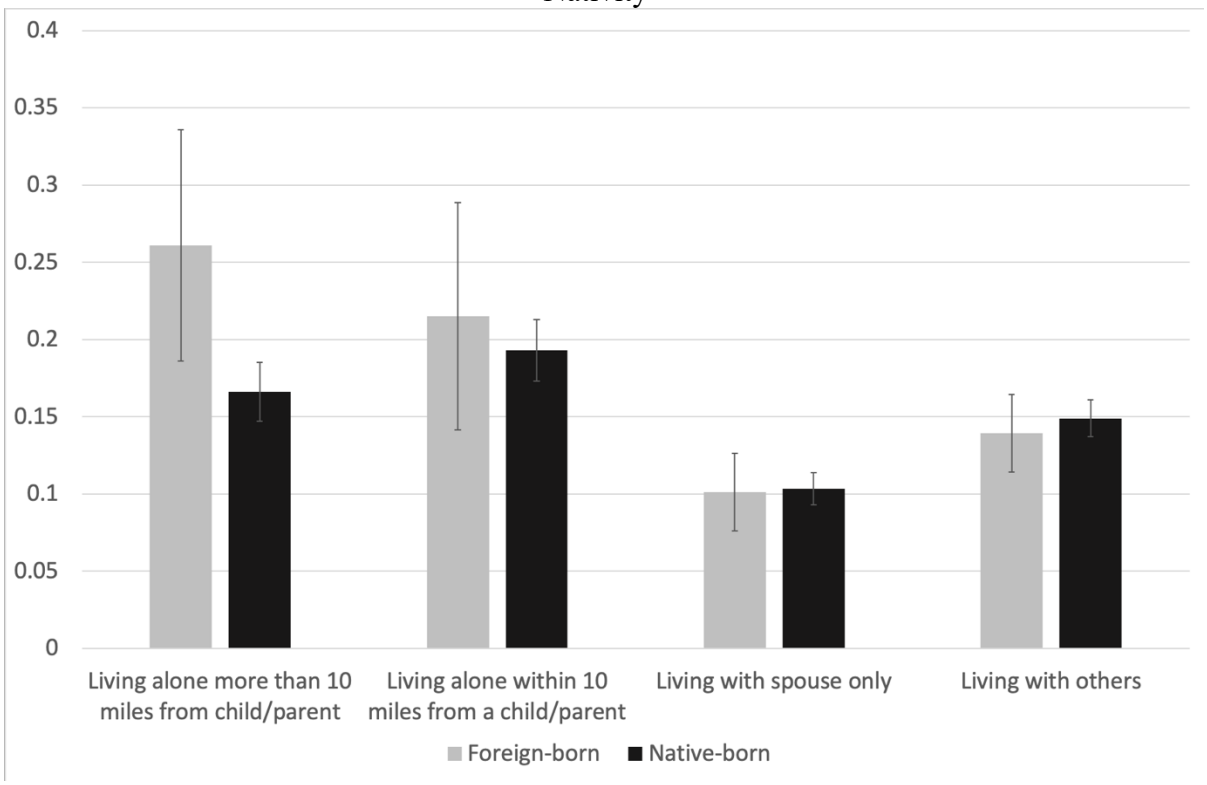
*p < 0.05 **p<0.01 ***p<0.001

Table 3. Log Odds from Logistic Regression Analysis of High Depressive Symptoms among Older Adults over the age of 50 in the U.S., 2010

	Total		Native-born		Foreign-born	
	β	β	β	β	β	β
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Foreign-born	0.9664***	0.6715**				
Living arrangements *(living alone more than 10 miles from child/parent)*						
Living alone within 10 miles from a child/parent	0.2909**	0.2128	0.3018**	0.2118	0.2336*	-0.2905
Living with spouse only	-0.7488***	-0.6181***	-0.7547***	-0.6239***	-0.8092***	-1.2332***
Living with others	-0.0862	-0.1487	-0.0984	-0.1676	-0.128	-0.7082**
Living arrangements x nativity *(living alone more than 10 miles from a child/parent x nativity)*						
Living alone within 10 miles from child/parent x foreign-born	-0.5396	-0.513				
Living with spouse only x foreign-born	-0.596*	-0.6961*				
Living with others x foreign-born	-0.6419**	-0.7602**				
Age	-0.0136***	-0.0208***	-0.0152***	-0.0233***	-0.0134***	-0.0045
Female	0.2922***	0.2994***	0.2195**	0.2541**	0.293***	0.7016***
Fair/poor health		1.7446***		1.7456		1.7843***
Receiving pension benefits		-0.1095		-0.0858**		-0.4553
Education						
High school		-0.232*		-0.32***		0.0718
Some college		-0.2960**		-0.4104***		0.3567
College degree or above		-0.5825***		-0.6946***		-0.135
Race/Ethnicity						
Hispanic		0.1226		0.3795		0.053
Black		-0.0514		-0.0745		0.0907
Other		0.084		-0.0283		0.2746
Years of residency in the U.S.						0

*p<0.5 **p<0.01 ***p<0.001

Figure 1. Predicted Probability of High Depressive Symptoms by Living Arrangements and Nativity*



*interval bars show 95% confidence intervals

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