TITLE

Where do Older Adults with Disabilities Live?
Distribution of Disability by Household Composition and Housing Type in the U.S.

RUNNING HEAD

Older Adults' Disability and Living Arrangements

DRAFT

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ABSTRACT

There is a paucity of research on the living arrangements of older adults with disabilities, especially research that combines household composition and housing characteristics. This paper addresses that gap by describing the frequency of disability in various living arrangements and by assessing the odds of disability by household composition and housing type. Data come from the 2012 American Community Survey (N=476,931 respondents age 65 and older). Living alone, with children, or with others is associated with higher odds of disability, compared with living with a spouse only. Living in a temporary structure or large apartment building was also associated with higher odds of disability, while living in a small or midsize apartment building was associated with lower odds of disability than living in a single family home. This information will be critical to allocating limited state and federal resources toward providing care for a growing population of older adults.

KEYWORDS

Demography – Older adults – Living arrangements – Disability

INTRODUCTION

The past several decades have seen an aging population and a shift from institutional to home and community-based settings for individuals with long-term care needs. As a result, there has been an increase in the number of individuals, especially older adults, living in the community with disabilities. Yet, research on the living arrangements of older adults with disabilities is scarce. In particular, there is a dearth of research that combines information on household composition and housing characteristics, despite the fact that such information is of key importance to policy-makers, planners, and service providers. This paper seeks to address that gap by describing the frequency of disability by type of living arrangement for older adults and by identifying some of the characteristics of living arrangements most strongly associated with having a disability.

Living arrangements, including one's household composition and housing type, are examples of resources that influence the disablement process (Mor et al., 1989). Living arrangements are strongly influenced by one's life course, accumulated advantage/disadvantage, and available choices. Living arrangements may reflect one's current disability status; for example, living in a nursing home because of an inability to live independently (Latham, 2011). Living arrangements may also shape future disability through the resources that they provide (or not). For instance, an older adult with mobility impairments may successfully live independently in a single-story home with an accessible entrance and bathroom, but may struggle in a multi-level setting with stairs or narrow passageways. Similarly, household composition can have significant effects on older adults' health and well-being; for example, older adults living alone or with family members other than their spouses exhibit more depressive symptoms and worse psychological well-being than older adults living with their spouses (Henning-Smith, 2014;

Wilmoth, 2001). The majority of older adults want to age-in-place, but not all living arrangements will provide them with appropriate settings to accommodate disabilities. Still, other older adults may be living in settings that do not support their functional needs, but without the means to move. Before we can develop a full understanding of these processes, it is necessary to have a basic picture of the current living arrangements of older adults with and without disabilities.

Policy changes over the past several decades (including those following the Olmstead Act, the Americans with Disabilities Act, and the implementation of Medicaid waiver and community-based long-term services and supports programs, such as *Money Follows the Person*) have impacted living arrangements for older adults with disabilities, by decreasing the use of institutional long-term care and increasing access to home and community-based services (HCBS) for people with disabilities. This has resulted in a greater number of older adults with functional impairments living in the community (as opposed to nursing homes). Still, the vast majority of care received by community-dwelling older adults with disabilities is provided by unpaid family members (Kaye, Harrington, & LaPlante, 2010), often within the same household, rather than by formal caregiving systems, making the home context that much more important for older adults who might otherwise have difficulty living independently (Talley & Crews, 2007). Home and community environments are not created equally, however, and one's context can have a profound impact on one's disablement process, mental health and quality of life, and risk of relocation. Yet, there is limited research on the demography of living arrangements for individuals with disabilities (Altman & Blackwell, 2014).

Household Composition

Who one lives with will influence his or her patterns of everyday social interactions (or lack thereof), as well as immediately available resources (social and otherwise). While living with a spouse remains the most common arrangement for older adults (The Federal Interagency Forum on Aging-Related Statistics, 2010), throughout the twentieth century, there was an increase in the proportion of older adults, especially older widows, living alone (Kramarow, 1995). The last few decades saw particular increases in households comprised of people living alone and non-family households (Teachman, Tedrow, & Crowder, 2000; Taylor et al., 2010). In a recent paper on the prevalence of disability in U.S. households using the National Health Interview Survey, older adults living alone made up more than 40 percent of all households containing someone age 65 and older with a disability (Altman & Blackwell, 2014).

Living alone, especially for older adults who are socially isolated and lack access to appropriate resources, can lead to poor health outcomes. These include functional decline (Mor et al., 1989), onset of activities of daily living (ADL) limitations (Shih, Song, Chang, & Dunlop, 2005), onset of mobility disability (Avlund, Damsgaard, Sakari-Rantala, Laukkanen, & Schroll, 2002), increased risk of poor mental health outcomes (Dean, Kolody, Wood, & Matt, 1992; Mui, 1999; Mui, 1999; Sun, Lucas, Meng, & Zhang, 2011), and increased risk of mortality (Klinenberg, 2003; Klinenberg, 2012). These outcomes are not universal, however, and differ by gender (Klinenberg, 2003) and age (Gurley, Lum, Sande, Lo, & Katz, 1996). In fact, for certain populations, living alone is associated with better outcomes than living with a spouse or others (Li, 2005; Michael, Berkman, Colditz, & Kawachi, 2001; Sarwari, Fredman, Langenberg, & Magaziner, 1998).

It may be that, for those who experience diminished health from living alone, the cause is as much insufficient resources as it is social isolation. Older adults living alone are more likely to

live in poverty than their counterparts living with a spouse (The Federal Interagency Forum on Aging-Related Statistics, 2010). Living alone is a risk factor for nursing home admission (Greene & Ondrich, 1990), indicating a gap in access to HCBS and support for this population and a particular risk for those living alone with disabilities that make living independently difficult. This is partly attributable to the fact that older adults living alone with disabilities do not have ready access to family and other in-home support systems that can provide care, resulting in higher unmet need (LaPlante, Harrington, & Kang, 2002).

Older adults who live with others, usually family, are a less well-understood population, despite the increase in multigenerational households in the past three decades (Taylor et al., 2010). While these include situations where adult children provide caregiving to older parents, it is just as common for adult children to move in with their parents to receive help, as in the case of a divorce, widowhood, single parenthood, and long-term disability (Smits, Van Gaalen, & Mulder, 2010). Like older adults living alone, older adults living with others tend to be a vulnerable population. Co-residence, especially between adult children and their aging parents, is most likely when one or both parties have fewer economic resources (Smits et al., 2010). Some research indicates that this group has the lowest functional status of any household composition (Waite & Hughes, 1999). Further, multigenerational households are particularly vulnerable to poor health outcomes, including diminished mental health and loneliness, especially when compared with older adults living with a spouse only (Greenfield & Russell, 2011). Yet, this is a diverse, and understudied population (Altman & Blackwell, 2014), and for some sub-groups, outcomes are better than older adults living with a spouse only (Silverstein, Cong, & Li, 2006).

Housing Type and Household Physical Environment

Closely related to the social composition of one's household, one's housing type and physical environment play a large role in an older adult's ability to age-in-place successfully. Homeownership is one important characteristic of housing. Research finds that homeowners move less than renters (Dietz, 2003), are less likely to be admitted to a nursing home (Rouwendal & Thomese, 2013), and have a higher likelihood of exiting a nursing home once admitted (Greene & Ondrich, 1990). However, not everyone has had an equal opportunity to buy a home (Hirsch, 1998; Satter, 2009). Those families who were able to buy houses decades ago may have since been able to pass housing or accumulated wealth down through generations. Other families, who were systematically denied access to decent, affordable housing, have had far fewer opportunities to develop lasting bonds (financial and emotional) with a home (Hirsch, 1998; Satter, 2009). Despite these differences, there is a dearth of research on the relationship between current homeownership and health outcomes (Dietz, 2003).

Approximately 80 percent of older adults are homeowners and housing equity constitutes the main source of wealth for the majority of older adults (Research Institute for Housing America, 2013). Of the 20 percent of older adults who rent, nearly half of them (44 percent) spend more than a third of their income on rent, making it difficult for this already vulnerable population to accrue wealth to pay for long-term services and supports, should they develop a disability. Yet, functional limitations are nearly twice as common among renters as among homeowners (Research Institute for Housing America, 2013). Renting is associated with an increased risk of mortality and disability, even after adjusting for socioeconomic status, age, and health (Arber & Ginn, 1993; Avlund, Damsgaard, & Osler, 2004; Goldman, Korenman, & Weinstein, 1995). This relationship may be bidirectional, with disability leading individuals to leave their homes to rent smaller or more accessible living spaces (Arber & Ginn, 1993).

The type of housing structure also matters. A home or apartment building with many levels, stairs, and narrow hallways may make it increasingly difficult for someone with mobility impairments to navigate their own environment. Further, the accessibility of one's home environment will determine whether or not it is possible for others with functional impairments to visit, affecting access to social resources. While policy provides some support for making home modifications, currently, the majority of home modifications are paid for privately (Eriksen, Greenhalgh-Stanley, & Engelhardt, 2013). The availability of such services for low-income older adults differs by geographic location. States vary widely in their eligibility criteria, provided services, and cost limits for Medicaid HCBS, leading to disparities between states in services provided to support low-income adults in aging-in-place (LeBlanc, Tonner, & Harrington, 2000).

For older adults who age in their homes, there is a trend toward increasing disability and functional limitations over time, which causes the magnitude of accessibility issues within the home to increase (Iwarsson & Wilson, 2006). Housing quality, even perceived dissatisfaction with housing quality, is associated with later cognitive decline (James & Sweany, 2010). Therefore, while there has been a push toward supporting aging-in-place, those homeowners with the greatest need for home modifications may also have the most limited resources to keeping up an aging home. Living with a spouse or others may help to distribute some of the cost of home modifications, while older adults living alone may face more barriers to home maintenance and adaptations.

While there is persuasive research on the relationship between housing characteristics and functional limitations for older adults, there is a need for research that integrates household composition and housing characteristics to better understand patterns of living arrangements and

disability for older adults. This paper will produce a more detailed understanding of the living arrangements of older adults with disabilities than anything that is currently available. Such information will be critical to allocating limited state and federal resources toward providing care for a growing population of older adults.

METHODS

Data for this study come from the Integrated Public Use Microdata Series (IPUMS), a harmonized version of the American Community Survey (ACS) (Ruggles et al., 2010). The ACS is an annual cross-sectional survey of the U.S. population, administered by the U.S. Census Bureau. It surveys people of all ages and includes institutional settings, although it does not distinguish between types of institutions. Respondents are surveyed within households and variables are available on both the person- and household-level. The data make it possible to identify persons within households and to ascribe household characteristics to the individual level. The ACS includes measures of disability and various measures of housing type and household composition, as well as information on demographic characteristics (N=537,548 respondents aged 65 and older in 2012).

In order to assess living arrangements of community-dwelling older adults with disabilities, I excluded all respondents living in institutional settings, which include correctional institutions, nursing homes, and mental institutions (six percent of adults 65 and older in 2012). Following U.S. Census procedure in studying housing units (Renwick, 2011), I also used a quality filter to exclude respondents living in homes without complete bathroom and kitchen facilities (N=775 respondents age 65 and older in 2012). For the final analytic sample, I used all respondents ages 65-95 who were not missing on any key variables (N=476,931).

Outcome Measures

Questions on disability were added to the ACS in 1990 and have been revised since then to bring the ACS disability measures into concordance with other commonly used measures (U.S. Census Bureau, 2012). Currently, the ACS includes six commonly cited measures of disability: cognitive (serious difficulty concentrating, remembering, or making decisions), ambulatory (serious difficulty walking or climbing stairs), independent living (difficulty doing errands alone, such as visiting a doctor's office or shopping), self-care (difficulty dressing or bathing), vision (blind or serious difficulty seeing, even when wearing glasses), and hearing (deaf or serious difficulty hearing). Similar to other studies measuring disability in the ACS (Fujiura, 2010), I constructed a binary measure of disability with "1" indicating disability in one or more of the above categories; "0" otherwise. Researchers and survey developers with the Census Bureau have made an effort to insure that disability measures in the ACS are concordant with disability measures in other surveys (Brault, 2009). The self-care measure assesses limitations in activities of daily living (ADL) and the independent living measure assesses limitations in instrumental activities of daily living (IADL), both commonly-used measures to assess disability among older adults (Freedman, Martin, & Schoeni, 2002).

Key Independent Variables

I have constructed measures of household composition and housing characteristics to understand how they are both related to disability in older adults. Studies of household composition have used various constructions, including three categories, with spouse, alone, and with others (Administration on Aging, 2012) and four categories, with spouse only, alone, with spouse and others, and with others (Hughes & Waite, 2002; Lau & Kirby, 2009). However, the large sample size and detailed measures of household relationships allow for a more nuanced study of household composition and I have constructed a five-category variable: lives with

spouse only, lives alone, lives with a spouse and others (including children), lives with children (but no spouse), and lives with others (no children or spouse). Children include biological, step, and adopted children, of any age or marital status.

Following literature on meaningful housing characteristics (Ellen & O'Flaherty, 2010; Research Institute for Housing America, 2013), I constructed variables for several housing characteristics. First, I use a measure of type of housing structure: single family home, mobile home or other portable structure (e.g., van, tent, boat, or RV), unit in a small apartment building (2-9 units), unit in a midsize apartment building (10-49 units), or unit in a large apartment building (50 or more units). Ownership status is coded as "1" if the respondent lives in a home that is owned (either outright, or is paying off a mortgage), and "0" if the respondent lives in a rented home. Following other research on housing quality (Gentry, Grzywacz, Quandt, Davis, & Arcury, 2007), I use a measure of ratio of rooms to people living in the household (rooms divided by people). Finally, I constructed a variable that is ratio of total household income to monthly housing costs (monthly rent for renters and a composite variable of monthly mortgage, taxes, insurance, and utilities for owners).

I use a standard set of covariates to adjust for individual demographic characteristics in all models. These include gender, age (categorical: 65-74; 75-84; 85-95); educational attainment (less than high school, high school degree, some college, college degree or more); household income; and race/ethnicity.

Empirical Strategy

I began assessing bivariate differences in demographic characteristics and living arrangements by disability status, using chi-squared tests of significance. Next, I assessed prevalence of disability by household composition and housing type in order to detect the living

arrangements where disability is most commonly found. Next, I used nested logistic regression models to assess the odds of disability, first controlling only for living arrangement characteristics and then adding in the full set of covariates. Finally, I conducted sub-group analyses on the odds of disability by gender and age because of the known associations between living arrangements and gender and age. For all analyses, I used the "svy" family of commands in Stata, which employ survey weights to provided adjusted standard errors and nationally-representative estimates.

RESULTS

Table 1 displays sample characteristics by disability status. Individuals with disabilities were more likely to be female, older, non-White, and have less than a high school degree. They also had lower annual household incomes, on average, than individuals with disabilities ($53,400 vs. $70,500). In addition to variation by socio-demographic characteristics, there were significant differences by disability status in living arrangement. Individuals with disabilities were less likely to live with a spouse and were more likely to live alone, with children, or with others. Individuals with disabilities were less likely to live in single family homes and were more likely to live in temporary structures or apartment buildings. Homeownership rates, ratio of rooms to people, and ratio of income to housing costs were all lower among individuals with disabilities.

<INSERT TABLE 1 ABOUT HERE>

To better understand the frequency of disability by type of living arrangement, Table 2 shows disability frequency by household composition and selected housing characteristics. Twenty-seven percent of all individuals living with a spouse only had a disability, the lowest frequency of any household composition, compared with 54 percent of individuals living with children (without a spouse), the highest frequency of any household composition. Thirty-three

percent of all older adults living in a single family home had a disability, the lowest frequency of any housing characteristic, compared with nearly 49 percent of all older adults living in a large apartment building. Looking at household composition and housing structure type in combination, the lowest frequency of disability was among those living with a spouse only in a single family home (26 percent), followed by those living with a spouse only in a small apartment building (30 percent). The highest frequency of disability was among those living with children (without a spouse) in a temporary structure (60 percent), followed by those living alone in a large apartment building (54 percent) and those living with children in a single family home (54 percent). Disability frequency was higher in all household compositions for older adults who lived in rented homes, with the exception of older adults living with children.

<INSERT TABLE 2 ABOUT HERE>

Table 3 presents odds ratios for having any disability. Model 1 adjusts for living arrangement and finds that living alone, with a spouse and others, with children, and with others are all associated with higher odds of disability, compared with living with a spouse only. Living in a temporary structure or large apartment building are both associated with higher odds of disability, while living in a small or midsize apartment building, owning one's home, and having a higher ratio of rooms to people are all associated with lower odds of disability. Model 2 adjusts for socio-demographic characteristics. The association of living arrangements with disability remains relatively consistent in direction, size, and significance. However, the odds of disability for older adults living alone decreased from 2.00 to 1.36. Among socio-demographic characteristics, being older, Black, "other" race, and having less than a college degree were all associated with higher odds of disability, while being female, Hispanic, and Asian were associated with lower odds of disability.

<INSERT TABLE 3 ABOUT HERE>

Figure 1 illustrates odds of disability by household composition separately by gender and age category. In each group, living with anyone other than a spouse only was significantly associated with higher odds of disability. However, the size of the association differed by sub-population. Women living with children (without a spouse) had nearly 60 percent higher odds of disability than men living in the same situation. Women also had higher odds of disability, compared to men, if they lived alone and with others. For all age groups, living with children (without a spouse), was associated with the highest odds of disability. However, the size of this association was greatest among older adults ages 85-95. Older adults living alone had the highest odds of disability in the 65-74 age group, compared with individuals ages 75 and older.

<INSERT FIGURE 1 ABOUT HERE>

Finally, Figure 2 displays differences by gender and age category in the association between housing structure type and disability. For women, living in a large apartment building was associated with higher odds of disability. For men, living in a large apartment building was not associated with higher odds of disability, compared with living in a single-family home. For individuals ages 65-74 and 75-84, living in a temporary structure was associated with higher odds of disability, while this was not significant for individuals ages 85-95. Similarly, living in a small or midsize apartment building was associated with lower odds of disability for individuals younger than 85, but there were no significant differences for the oldest old. For individuals ages 85-95, only living in a large apartment building was associated with higher odds of disability, compared with living in a single family home.

<INSERT FIGURE 2 ABOUT HERE>

DISCUSSION

This paper sought to provide a better understanding of the living arrangements of non-institutionalized older adults with disabilities than is currently available. Thirty-six percent of the total sample had a disability, as defined by having one or more of the six disabilities asked about in the ACS, consistent with other estimates of disability among older adults using the ACS (Brault, 2008; Erickson, Lee, & von Schrader, 2012). Individuals with disabilities were less likely to live with a spouse and were more likely to live alone, with children, or with others than their counterparts without disabilities. They were also more likely to live in apartment buildings and temporary structures, to live in rented homes, and to have lower income relative to housing expenses than older adults without disabilities. Comparing various combinations of housing type and household composition, disability was most commonly found among older adults living with their children in single-family homes or temporary structures and among older adults living alone in large apartment buildings. Because the ACS is unable to specifically identify assisted living facilities, the latter may be a facet of older adults with disabilities moving into larger, supportive apartment buildings for the services they provide. Disability was least common among older adults living with a spouse only in single family homes or midsize apartment units. This may be largely related to age; married older adults tend to be younger and have fewer disabilities. Disability was less common among older adults who lived in owned homes for all household compositions except living with children, when disability was more common in rented homes.

Multivariate analyses revealed significant differences in the odds of disability by living arrangement, even after adjusting for demographic characteristics such as gender, age, and socioeconomic status. Living alone, with children, or with others was associated with higher odds of disability, compared with living with a spouse only. Living in a temporary structure or

large apartment building was also associated with higher odds of disability, while living in a small or midsize apartment building was associated with lower odds of disability than living in a single family home. The relationships between disability and household composition remained consistent in sub-group analyses by gender and age category. However, type of housing structure was less significantly associated with disability for men and for adults 75 and older.

While some descriptive analyses have examined disability and living arrangements, these focus most on differences in disability prevalence between community and institutional settings and disparities in disability rates between states (Brault, 2008; Erickson et al., 2012) or do not include housing characteristics (Altman & Blackwell, 2014). As the older adult population is growing nationally and as more older adults live in the community than ever before, it is necessary to have a more nuanced picture of the living arrangements of those with disabilities. This is especially important in the wake of policy changes that have encouraged the movement of people out of institutions and into home and community-based settings (e.g., the 1999 Olmstead Act and Medicaid Home and Community-Based Services expansions under the Affordable Care Act) (Altman & Blackwell, 2014). State and federal agencies need more detail on where, and with whom, community-dwelling older adults with disabilities live in order to effectively assess demand for long-term services and supports (Altman & Blackwell, 2014). Further, it is important to understand how disability status varies by both household composition and housing characteristics, as they are intricately tied, but rarely studied in conjunction.

This paper offers a more detailed understanding of the relationships between living arrangements of older adults and disability status than anything that is currently available. Such information will be critical to allocating limited state and federal resources toward providing care for a growing population of older adults. Having a better understanding of where, and with

whom, older adults with disabilities live is crucial for designing policy around long-term services and supports. State policies targeting community-dwelling older adults with the goal of keeping them out of institutions need to be grounded in solid demographic evidence about the target population. Particular concern should be paid to the six percent of older adults (representing an estimated nearly 2,350,000 Americans age 65 and older) who live in temporary structures, such as mobile homes, boats, vans, and tents. Disability was more common in these structures than in many of the other structures studied. Yet, it is likely that such temporary structures were not built to accommodate disability and may lead to increased risk of further impairment.

The results of this paper should be considered in light of certain limitations. First, the cross-sectional nature of the data only allows for descriptive analyses and cannot address the endogeneity inherent in the relationship between living arrangements and disability. Many people may be living in their current arrangement *because* of disability, in order to receive care from co-resident caregivers or supportive housing units. However, we should not assume that all of the individuals in this study moved because of a disability. Many of them, instead, may be stuck in unsupportive housing situations, unable to move despite a desire to do so, because of constrained resources. Such constrained housing might lead to further diminished mental and physical health (Strohschein, 2012).

It is also entirely possible that one's housing led to disability, as in the case of stressful housing dynamics and inaccessible environments. In addition, because disability is a social process, moving from one living arrangement to another may lead to a change in disability status as a result of changes in the accessibility of one's surroundings. While this paper cannot ascertain the direction of causation, it was never intended to. Instead, it provides baseline descriptive research demonstrating the prevalence of disability by both household composition

and housing type. This information will be vital for tracking future trends in living arrangements and disability and offers a more detailed understanding the demography of disability in U.S. households than what is currently available. Future research may use longitudinal data to better understand the direction of effect between housing and disability.

This paper is also limited by its blunt measure of disability (a "yes" answer to any of the six ACS measures of disability). However, such a measure allows for comparison with other national-level research on disability prevalence (Brault, 2008; Erickson et al., 2012). The housing measures in this paper are also limited by what the ACS collects. Future research should make use of other data sources, including the Health and Retirement Study or the National Health and Aging Trends Study to add more nuances to the housing measures, including safety features and home modification measures. Finally, while the ACS distinguishes between institutional and non-institutional settings, it does not clearly identify assisted living facilities. Future research should attempt to better understand differences between types of apartment buildings and how disability prevalence varies by type. However, definitions of assisted living facilities vary widely in their structure and services offered (Hawes, Phillips, Rose, Holan, & Sherman, 2003; Kane, Chan, & Kane, 2007), so such research is not as simple as identifying whether older adults live in such facilities or not.

Additional directions for future research include in-depth analysis of differences by state. Age structure and disability prevalence vary by state, so we can expect that living arrangements of individuals with disabilities will vary, too. Smith et al. (2012) examined this, but did not go into detail on household composition or housing characteristics. Further, there is room for investigation among particular sub-populations, such as the Medicaid-eligible population, to see what role Medicaid HCBS play in living arrangements for older adults with disabilities. Finally,

there is a need for high-quality qualitative research in this area, as there is a dearth of research asking older adults themselves about their housing preferences (Wagner, Shubair, & Michalos, 2010).

Future studies of housing development and urban planning should take consider both the physical and social elements of people's living arrangements (Harrison, 2004). Disability is not uniformly experienced and is impacted by various elements of one's social and physical surroundings. In future years, the need for accessible and supportive housing will continue to grow as the population ages and policy-makers, developers, and planners should pay particular attention to designing homes that will accommodate multiple types of disability (Smith, Rayer, & Smith, 2008; Smith et al., 2012), as well as homes that can house multiple household compositions. Most senior housing (e.g., assisted living) is designed for one or two individuals. However, given the changing household and family structure in the U.S. and the increase in multigenerational household structures (Taylor et al., 2010), especially as cultural norms change with shifting demographics and immigration trends, it may be less appropriate to build units where older adults must live alone. This is especially important, as research demonstrates multiple adverse outcomes for older adults living alone, including poorer psychological well-being (Henning-Smith, 2014), greater unmet need for assistance (Desai, Lentzner, & Weeks, 2001), and less use of preventive services (Lau & Kirby, 2009).

Currently, there is a lack of accessible housing to accommodate individuals with disabilities (Smith et al., 2008). While this should be of concern for individuals living in inappropriate housing now, it should also serve as a call for new home building and remodeling to be universally accessible (Pynoos, Caraviello, & Cicero, 2009; Smith et al., 2008) and to take multiple family and household compositions into account. In order to support older adults in

aging in place and to increase the chances that they live in supportive environments, policy-makers and planners should take all types of housing and living arrangements into consideration, not just focus on the development of exclusively senior living facilities. In fact, there is evidence that older adults would prefer to remain in their homes, and that senior housing facilities are less appealing to most (Wagner et al., 2010). This paper provides a baseline from which to understand where older adults with disabilities live and to see where needs might be greatest.

TABLES AND FIGURES

Table 1: Sample Characteristics

	Overall	Without Disability (64%)	With Disability (36%)	P-Value
Socio-demographic characteristics				
Female	55.8%	55.2%	56.9%	<0.001
Age				<0.001
65-74	57.6%	66.7%	40.5%	
75-84	30.7%	27.4%	36.8%	
85-95	11.7%	5.9%	22.8%	
Race/ethnicity				<0.001
Non-Hispanic White	79.6%	81.1%	76.9%	
Hispanic	7.2%	6.5%	8.3%	
Non-Hispanic Black	8.3%	7.5%	9.9%	
Non-Hispanic Asian/Hawaiian/Pacific Islander	3.7%	3.9%	3.3%	
Non-Hispanic Other	1.3%	1.1%	1.6%	
Educational attainment				<0.001
Less than high school	16.7%	12.2%	25.1%	
High school degree	42.3%	41.5%	43.7%	
Some college	17.2%	18.3%	15.3%	
College degree or more	23.8%	28.0%	15.9%	
Household income (Mean, in thousands)	64.6	70.5	53.4	<0.001
Living arrangements				
Household composition				<0.001
With spouse only	46.0%	51.4%	35.7%	
Alone	26.2%	24.3%	29.8%	
With spouse and others	9.5%	9.7%	9.0%	
With children (no spouse)	10.9%	7.6%	17.0%	
With others (no spouse or children)	7.5%	6.9%	8.5%	
Type of Structure				<0.001
Single family home	79.8%	82.4%	74.9%	
Mobile home, van, tent, or boat	6.2%	5.5%	7.6%	
Small apartment building (2-9 units)	6.9%	6.3%	8.1%	
Midsize apartment building (10-49 units)	1.9%	1.7%	2.1%	
Large apartment building (50+ units)	5.2%	4.1%	7.3%	
Home ownership	85.2%	88.0%	80.0%	<0.001
Ratio of rooms to people (Mean)	3.5	3.6	3.3	<0.001
Ratio of household income to housing costs (Mean)	8.1	8.5	7.4	<0.001

Sample n=476,931; Population N=39,131,555

P-value denotes significant differences by disability status

Table 2: Frequency of Disability by Household Composition and Housing Characteristics

	Household composition					
Housing Characteristics	With spouse only	Alone	With spouse and others	With children (no spouse)	With others (no spouse or children)	**Total**
Single family home	25.6%	35.3%	32.2%	54.1%	39.4%	32.5%
Mobile home, van, tent, or boat	37.1%	42.4%	44.2%	59.5%	42.9%	42.2%
Small apartment building (2-9 units)	32.8%	43.2%	35.3%	51.3%	39.3%	40.7%
Midsize apartment building (10-49 units)	29.6%	42.9%	40.9%	51.9%	34.2%	39.7%
Large apartment building (50+ units)	38.6%	54.1%	29.6%	51.8%	40.6%	48.9%
Own home	26.0%	35.4%	32.3%	54.4%	38.3%	32.6%
Rent home	39.7%	50.0%	39.2%	52.9%	44.4%	46.9%
Total	27.0%	39.4%	33.0%	54.1%	39.6%	35.7%

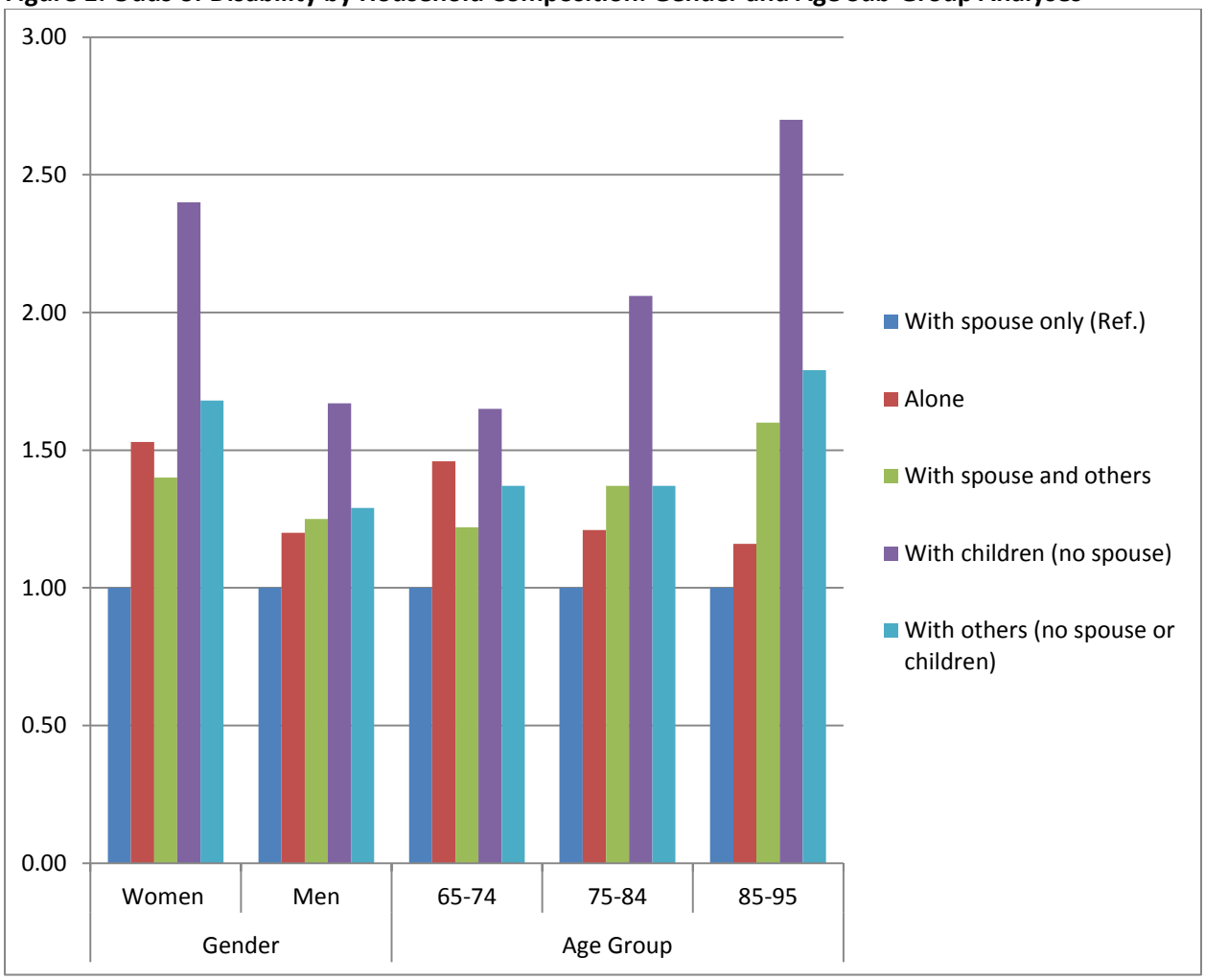
Table 3: Odds of Any Disability

	Model 1		Model 2	
	OR	**Std. Error**	**OR**	**Std. Error**
Living arrangements				
Household composition				
With spouse only (Ref.)	1.00	--	1.00	--
Alone	2.00***	0.26	1.36***	0.02
With spouse and others	1.15***	0.02	1.29***	0.02
With children (no spouse)	2.77***	0.04	2.16***	0.03
With others (no spouse or children)	1.56***	0.03	1.48***	0.03
Type of Structure				
Single family home (Ref.)	1.00	--	1.00	--
Mobile home, van, tent, or boat	1.35***	0.02	1.26***	0.02
Small apartment building (2-9 units)	0.92***	0.02	0.92***	0.02
Midsize apartment building (10-49 units)	0.83***	0.03	0.87***	0.03
Large apartment building (50+ units)	1.19***	0.03	1.13***	0.03
Home ownership	0.73***	0.01	0.72***	0.01
Ratio of rooms to people	0.90***	0.00	0.93***	0.00
Ratio of household income to housing costs	1.00***	0.00	1.00	0.00
Socio-demographic characteristics				
Female			0.81***	0.01
Age				
65-74 (Ref.)			1.00	--
75-84			2.05***	0.02
85-95			5.46***	0.07
Race/ethnicity				
Non-Hispanic White (Ref.)			1.00	--
Hispanic			0.88***	0.02
Non-Hispanic Black			1.08***	0.02
Non-Hispanic Asian/Hawaiian/Pacific Islander			0.74***	0.02
Non-Hispanic Other			1.52***	0.06
Educational attainment				
College degree or more (Ref.)			1.00	--
Less than high school			2.28***	0.03
High school degree			1.45***	0.02
Some college			1.33***	0.02
Household income			1.00***	0.00

Sample n=476,931; Population N=39,131,555

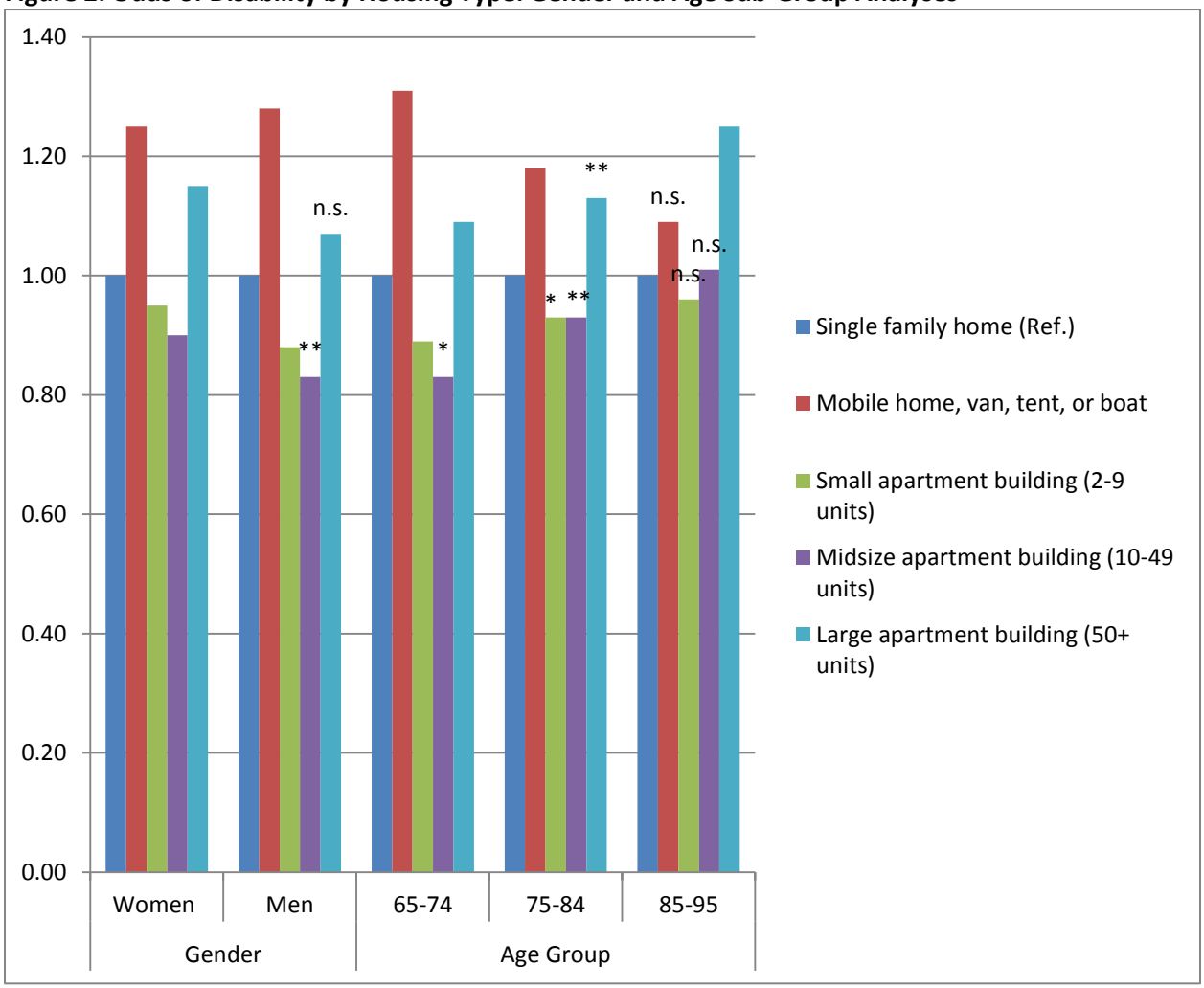
P-value denotes significant differences by disability status

Figure 1: Odds of Disability by Household Composition: Gender and Age Sub-Group Analyses



Note: Models adjust for type of housing structure, home ownership, rooms per person ratio, housing costs per household income ratio, race/ethnicity, education attainment, and household income. All results significant at p<0.001

Figure 2: Odds of Disability by Housing Type: Gender and Age Sub-Group Analyses



Note: Models adjust for household composition, home ownership, rooms per person ratio, housing costs per household income ratio, race/ethnicity, education attainment, and household income.

*All results significant at p<0.001 unless otherwise noted as: *p<0.01, **p<0.05, n.s.=not significant*

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