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Giving Back and Staying Put: Volunteering as a Stabilizing Force in Relocation

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Abstract

Relocation in older adulthood has been shown to have health-related and environmental triggering factors. This study explores the relationship between volunteering in a community and relocation. Using data from 2008 and 2010 Health and Retirement Study, which included 9,220 community-dwelling older individuals who were 65 years and older, our findings show that volunteering significantly reduces the likelihood of relocating out of the area, and such relationship is partially mediated by having friends nearby. This study is innovative because it identifies a stabilizing mechanism important for understanding “protective” factors, such as volunteering, as a way communities can retain older adults.

Keywords

Productive Aging; Volunteering; Social Ties; Housing transitions

Introduction

Older adults may continually assess whether their residences meet their physical and cognitive needs, trying to meet their needs through home modifications (Wahl and Oswald, 2010) and services. In recent years, many initiatives have been developed to help older adults stay in their current residences as these persons frequently prefer to remain there (Scharlach, Graham, & Lehning, 2011). Many older adults anticipate changing residences only when remaining in one's home becomes unsafe or unmanageable.

Between 2011 and 2012, 3.4% of older adults (65+) relocated, which represents roughly 1.4 million older people in the US (U.S. Census Bureau, 2012). There are also many costs associated with relocation, compounded by even higher costs if the relocation is into a long-term care facility. Relocation in older adulthood has implications for the older adult, their family members and their community. For example, relocation itself may be a stressful process, which may, in turn, generate negative physical and psychological reactions (Bekhet, Zauszniewski, & Nakhla, 2009).

Reasons for relocation vary. Sometimes relocation is due to changes in their marital status responding to a death of a spouse, or their health status where their current home is not easy to navigate (Wiseman, 1980; Bekhet, Zauszniewski, & Nakhla, 2009; Perry, 2012). The proximity to family has been cited as a factor influencing relocation and the types of moves older persons make (Litwak & Longino, 1987; Sergeant & Ekerdt, 2008). It is both a pull factor to keep one in the community or push factor to relocate near kin. Silverstein and Zablotsky found that those who live near their children are less likely to move (1996). Other scholars have analyzed the theme of not wanting to be a burden as a reason to voluntarily relocate (Jungers, 2010; Jennings & Perry, under review), rather than relying on solely on family for health and social support.

Researchers continue to analyze the triggers or factors that lead to relocation. Changes in their functional abilities or death of a spouse are often key reasons older adults consider moving (Wiseman, 1980; Caro et al., 2012). A better understanding of the triggers helps scholars understand when older adults may tend to consider and plan moves. Another important component in understanding relocation is whether the relocation is to a new residence within their own community or in a different community.

While research on triggering mechanisms provides insights to predictors of relocation, there are other ways to understand the precursors. Examined in a different manner, mechanisms that stabilize older adults to remain in their residences help us understand better how to retain older people in their neighborhoods, if they prefer to stay. This paper investigates volunteering as an activity of community engagement and productive aging that significantly influences moving and explores the mediation effects of social ties in that context.

Background

This study draws on theoretical models of relocation from the perspective of the older adult's experiences. Wiseman (1980) offers a model of relocation beginning with triggering mechanisms. His model suggests that triggering mechanisms lead to the decision to relocate or not, as well as affecting the type of moves that older adults make. These triggering mechanisms have also been described as push and pull factors, with a push factor being a reason to leave a community and a pull factor drawing one to a new community. We can more precisely understand this process by examining triggering mechanisms. And that understanding can better inform researchers, policy makers and practitioners.

Haas and Serow (2003) further identified push factors such as a lack of family members in the area, and the existence of problems in the community such as crime, congestion and pollution often found in urban environments. Pull factors include such reasons as the desire to be near family and friends and nostalgia for places where older adults had connections earlier in their lives. Longino et al. (2008) also examined geographical push and pull factors. Relocating to a new residence within a community is often a different experience than moving to a more distant place which possibly may entail finding new friends, doctors, and churches. Research has found that ties to one's community and personal relationships are deterrents to these types of moves. Many scholars have drawn upon Longino's work to further understand the decision making process among older adults (Weeks et al., 2012;

Sergeant & Ekerdt, 2008). The present study extends the interest by including social ties through volunteering and local friends and family.

Factors Associated With Relocation

Building on these theoretical frameworks, we have reviewed the literature to identify factors associated with relocation to include in our model. The environment may serve as a push factor when considering moving. Silverstein and Zablotsky found that those who live alone are more likely to move (1996). Older adults have been shown to have different experiences depending on whether they undertake local or longer distance moves (Longino et al., 2008). In their study of those who had moved within a three year period, Oswald et al. (2002) found that environment served as the primary motivation for relocation. Involuntarily remaining in a current residence is also a permutation in the relocation spectrum being addressed by current scholars (Golant, 2011).

Sergeant and Ekerdt (2008) suggest that health, including functional limitations and safety concerns, is a motivator or push factor for relocation. In other words, as health challenges of seniors increase, they may relocate (Jungers, 2010; Silverstein & Zablotsky, 1996). However, the relationship between health and relocation is not necessarily linear. It is also found that those with severe health concerns may not relocate (Silverstein & Zablotsky, 1996). Recent scholarship considering chronic health conditions, Activities of Daily Living (ADL) limitations, changes in health status, and driving impairments as indicators of health, found that driving problems were the only health indicator that significantly reduced older people's relocation (Weeks et al., 2012).

Studies have found that gender does not affect long-distance moves (Longino et al., 2008). However, other works have shown that men are less likely to consider relocation than are women (Weeks, Keefe, & Macdonald, 2012). Age inversely predicted non-local relocation (Longino et al., 2008). Weeks and her colleagues (2012) also found that those defined as “young-old” (e.g. 65-79) were more likely to consider relocation, compared to those 85 and above. Researchers have also found that those who were married/partnered were less likely to move than those who were “formerly married.” Those who were recently widowed, defined as widowed within six months or less, were twice as likely to make a long-distance move. In terms of financial well-being, research has found that those with lower incomes are less likely to consider relocation than wealthier individuals (Weeks et al., 2012).

As relocation occurs for various reasons, better understanding of the mechanisms behind this transformation enables gerontological professionals to identify older adults who consider moving and to provide necessary supports for them (Weeks, Keefe, & Macdonald, 2012).

Another approach that professionals may take to help older adults remain in their original location is by encouraging social engagement, such as volunteering. This cohort highly values social connections in the neighborhood (Yen, Shim, Martinez, & Barker, 2012). Volunteering serves as a way to connect seniors with their communities, because volunteers tend to have more supportive social networks (Pilkington, Windsor, & Crisp, 2012) and stronger social connections (Brown, Hoyer, & Nicholson, 2012). Using a national probability sample of Americans, Choi and Chou uncovered the positive association between social

connectedness and entering volunteering as well as stability in volunteering (Choi & Chou, 2010). These researchers found positive social exchange and available networks of friends and family for those engaged in volunteering. The influence of volunteering on relocation may be better understood further by a closer examination of the social ties of these persons.

The importance of social ties to elders has been shown in the literature. Social connectedness in older adulthood is dynamic, as the role of family and friends may change over time and contact with friends may decrease (Shaw, Krause, Liang, & Bennett, 2007). While a strict decline in social connectedness may be expected as one ages, recent scholarship also finds that social connections do not always decline linearly. Using the data from the National Social Life, Health and Aging Project (NSHAP) Cornwell and colleagues (2008) argue that social connections may change depending on the circumstances, and that transitions may actually foster social connections (Cornwell, Laumann, & Schumm, 2008). Relocation may be one such transition.

As persons contemplate a move, the role of family can vary. Sometimes, family members become part of the decision making process (Caro et al., 2012). In other cases, the location of family members may influence whether older adults move (Van Diepen & Mulder, 2009). However, the strength and quality of intergenerational relationships may affect these decisions, given new knowledge on perceptions of intergenerational support (Ha, Carr, Utz, & Nesse, 2006).

The role that friends play in older people's lives has been less developed in the relocation literature. However, literature shows that social ties to friends in a community can promote aging in place (Andrews, Gavin, Begley & Brodie, 2003). Friendships have also been found to offer feelings of security and opportunities for older adults to support each other after relocation (Dupuis-Blanchard, Neufeld, & Strang, 2009). Friendships are also “pull” factors for relocation, (Bekhet, Zauszniewski, & Nakhla, 2009) which may be related to loneliness, which these scholars have found is a “push” factors. Since it has been found that social ties increase after life transitions (Cornwell, Laumann, & Schumm, 2008), relocation may open possibilities for developing different types of friendships. The unique nature of social ties must be considered in understanding the effects of volunteering on relocation.

Limitation of the existing literature

Contemporary aging research has focused on understanding the aging process to better help older people age in place. Some of these studies highlight the important influence of triggering mechanisms, such as the deteriorating health. However, studies investigating the effects from stabilizing mechanisms, such as volunteering, are relatively scarce. While volunteering is related to social ties (e.g. connectedness to family members and friends), and social ties are associated with relocation, sorting out the dynamics will make it possible to retain older people in their homes.

In addition, with the exception of two recent studies on falls and expectations to move, (Stoeckel, & Porell, 2010; Sergeant, Ekerdt, & Chapin, 2010), most relocation literature uses local data, which limits the generalizability of their findings. To better understand whether and how social ties are associated with older Americans' relocation, this study uses two

waves of a nationally representative data. Three hypotheses are raised: (1) **Hypothesis 1:** Older people who volunteer are less likely to move, (2) **Hypothesis 2:** Having relatives living nearby mediates the relationship between volunteering and moving, and (3) **Hypothesis 3:** Having nearby friends mediates the relationship between volunteering and moving.

Methods

Data and sample

We used data from the 2008 and 2010 Health and Retirement Study (HRS). HRS collects nationally representative data from people aged 50 and older, or their spouses and partners (see Servais, 2010). The collection of HRS data started in 1992, using a multi-stage area probability sample design that oversampled African-Americans, Hispanics and Floridians. The same respondents were followed up every two years, and additional cohorts were periodically added to insure that the ongoing surveys are continually representative of the complete United States.

This study used a subsample from 15,031 people who participated in both 2008 and 2010 HRS. Limiting our sample to community-dwelling people who were 65 and older at year 2008 and included data from all study variables described below, the final sample consisted of 9,220 older individuals.

Measures

Dependent variable

Relocation: Relocation in 2010 was the dependent variable. The present study included those who lived in community in 2008, and their move in 2010 could be to either a community-based setting or an institutional-based setting. Relocation in 2010 included “no move since 2008” (coded 0), “moved out of area” (coded 1), and “moved within area” (coded 2). The relocation variable was constructed by HRS, using several interview questions. In 2010, categories included those who stayed in the same residence (no move), moved to a place not in or near their 2008 residence (moved out of area), or changed residence but not area (move within area).

Independent variables

Volunteering: Volunteering was defined as unpaid work done for religious, educational, health-related or other charitable organizations. People who self-reported spending any time in the past 12 month doing volunteer work (coded 1) were compared to those who did not do so (coded 0).

Mediating variables

Social ties: Two indicators of social ties were used as mediating variables. *Relatives nearby* was coded 1 if an older adult reported that he or she had relatives living in the neighborhood, and was coded 0 otherwise. *Friends nearby* was also dichotomously coded. Older people who reported having good friends living in the neighborhood (coded 1) were compared to those who did not (coded 0).

Control variables

Financial resources: We used two measures to measure participants' financial resources, household income and home ownership. Household income was grouped into five ordered categories: “\$0-20,000”, “\$20,001-40,000”, “\$40,001-60,001”, “\$60,001-100,000” and “100,001+”. Home ownership was dichotomously coded to specify whether respondents did not own their homes or lived on a farm (coded 0), or owned/was buying home (coded 1).

Environment: Home environment had two indicators: accessible home and neighborhood safety. The variable “accessible home” indicated whether a participant's house was disability accessible. Those living in a house that was accessible (coded 1) were compared to those whose house was not (coded 0). Neighborhood safety was respondents' self-report on the safety of their neighborhood. It was measured with five levels: “excellent”, “very good”, “good”, “fair”, and “poor”.

Health: Five health-related variables were included, as these factors were expected to be associated with relocation decisions. First, we defined *number of Instrumental Activities of Daily Living (IADL) limitations* a respondent had as numbers of tasks that respondents reported not being able to perform without help or of not doing a task for health reasons. The four IADL tasks were: preparing a hot meal, shopping for groceries, making a telephone call, and taking medications. Second, respondents' *number of ADL limitations* was measured by the numbers of ADL tasks that an older person reported getting help, did not do, or had difficulty performing. The six ADL tasks included dressing, bathing, eating, toileting, walking, and getting in and out of bed. Third, *number of chronic health conditions* indicates the number of nine current health problems that an older adult reported including diabetes, heart condition, stroke, lung disease, cancer, arthritis, psychiatric problems, urine control, and legal blindness or very poor eyesight. Fourth, severe *cognitive problems* a person had was dichotomously coded. A person was identified as having a cognitive problem (coded 1) if he or she fails to answer correctly half or more questions in the Telephone Interview for Cognitive Status (TICS). Finally, a *spouse with care needs* is a dichotomous variable. An older adult was coded as having a spouse with care needs (coded 1) if the spouse has any ADL or IADL limitations, any chronic health conditions, or severe cognitive problems as defined above.

Demographics: Five demographic characteristics were considered in the presents study. *Gender* was female (coded 0) or male (coded 1). *Race* was a categorical variable and comparisons were made among White (coded 0), Black (coded 1) and Others (coded 2). *Education* was measured by the actual years of education a respondent reported, ranging from 0 to 17 years. *Age* was respondent's age in 2008, ranging from 65 to 107 years old. Age square (Age^2) was included to capture a possible non-linear relationship between age and relocation. *Change of marital status* was dichotomously coded. A respondent was identified as changing his/her marital status if his/her marital status differed between 2008 and 2010 (e.g. from being married to being divorced) (coded 1).

Analytical strategies

As a first step, we conducted non-weighted uni-variate and bi-variate statistics for each predictor variable and the dependent variable. Next, to obtain accurate statistics and standard errors, all bi-variate analyses used SVY commands in Stata's statistical package to take into account HRS's complex multistage sample design (StataCorp, 2011). These commands adjusted for sampling weights, clustering and stratification of the sample by geographic location and size of place. To test differences among three groups of the dependent variable (e.g., no move, moved out of area, and moved within area), the Chi-Square test was used for categorical predictor variables. For continuous predictor variables, regression procedures were used since there is no stat procedure analogous to analysis of variance (ANOVA) when SVY commands are applied.

Third, we used multinomial and binomial logistic regression models to investigate the direct and indirect effects of volunteering on older people's relocations, while taking into account influences from possible mediators (relatives and friends living nearby). To determine whether relatives/friends living nearby mediate the relationship between volunteering and relocation we employed Baron and Kenny's (1986) four-step method with multiple regression models. Step one tested whether volunteering (predictor) was associated with relocation (outcome), and step two identified the relationship between volunteering (predictor) and relatives/friends living nearby (outcome). The third step controlled for the effects of volunteering and determined whether relatives/friends living nearby were correlated with relocation. The final step checked whether having relatives/friends nearby completely mediated the relationship between volunteering and relocation. SVY commands in Stata were also utilized in all regression models, however, applying such commands prevents us from obtaining typical goodness of fit information (e.g. pseudo R^2). Multicollinearity was tested using SAS 9.3, and the results were all at acceptable levels.

Results

Descriptive Findings

Uni-variate findings—Among 9,220 older individuals, 8,277 (90%) did not move in 2010, 558 (6%) moved out of area, and 385 (4%) moved within area (see Table 1). With respect to the financial resources among older adults studied, more than 72% had an annual income greater than \$20,001 (2010 poverty threshold for a family of one person 65 years and over was \$10,458), and more than 77% of them own their homes. In terms of living environment, about 15% reported their houses were accessible and nearly 70% of them rated neighborhood safety as very good or excellent. Respondents all were relatively healthy. On average, their numbers of ADL limitations, IADL limitations, and chronic health conditions were 0.2, 0.5 and 1.7 respectively. In addition, more than 96% of them do not have any cognitive problems, and about 48.6% had a spouse who needed care. When looking at older adults' demographics, they averaged 12 years of education and their average age was 74 years. Most of them were female (58%), White (77%), and did not change marital status between 2008 and 2010 (95%).

We used two indicators to measure social ties. About 69% of them had friends living nearby, but only 30% had nearby relatives. Among older adults in this study, 34% were involved in volunteer work.

Bi-variate findings—The relationships between each individual predictor variable and dependent variable are illustrated in Table 1. In general, most of the assessed predictor variables differed significantly among the three types of relocation, except neighborhood safety, gender, any additional residents in the household and social visits. Older people are less likely to move if they (1) had less than \$20,000 household income, (2) owned a home, (3) did not have a disability accessible home, (4) had fewer IADL limitations, (5) had fewer ADL limitations, (6) had fewer health conditions, (7) had no cognitive problems, (8) had a spouse needing special care, (9) were younger, (10) did not change marital status, (11) had relatives living nearby, (12) had friends living nearby, and (13) were volunteers.

Multivariate Findings

To investigate the relationship between volunteering and relocation, we first used a multinomial logistic regression model. Table 2 shows that, except for home ownership and change of marital status, all other predictor variables (including volunteering status) were not associated with whether respondents moved within the area or did not move. Many predictor variables, however, are highly associated with older people's out-of-area moves, including volunteering. Detailed findings are presented in the next paragraph.

While no relationship was detected between volunteering and moving within area, mediation effects from social ties did not exist. Therefore, results of moving within area were not shown in Table 3. Utilizing Baron and Kenny's four-step method, Table 3 illustrates the mediating effect of social ties (relative nearby and friends nearby) on volunteering and relocation (moving out of area vs. no move). In the step-one model, relocations were regressed on predictor variables including volunteering status. Finding showed that older people who owned their homes, were black, and were older were less likely to move out of their area. They were more likely to move out of area if they had more ADL limitations, more health conditions, cognitive problems and changed marital status between 2008 and 2010. Those who volunteered in 2008 were less likely to move out of area in 2010, and the relative risk of moving out of area was only 0.67 times to the relative risks of not moving at all ($B = -0.4$, $\exp(B) = 0.67$, $p < .01$). To test the mediation effect from both relatives nearby and friends nearby, we performed two sets of analysis.

Relatives nearby as a mediator—The Step-two model regressed relatives nearby on volunteering, and found that volunteering status was associated with whether they had relatives living nearby ($p < .01$). In the Step-three model, relatives nearby and volunteering status were both used. Relatives nearby strongly reduced the risks of respondents moving out of their areas ($\exp(B) = 0.60$, $p < .001$), but the effects of volunteering status remains the same for both types of relocation ($\exp(B) = .68$, $p < .01$). The hypothesis that relatives nearby mediated the relationship between volunteering and relocation was not supported.

Friends nearby as a mediator—In the Step-two model, friends nearby was regressed on volunteering status when all other predictor variables were also taken into account. Older people who volunteered were more likely to have friends living nearby than those who did not volunteer ($p < .001$). However, when relocation was regressed on friends nearby, with volunteering status being controlled (Step-three model), comparing to those who did not move, the effects of volunteering status on moving out of area reduced (from $\exp(B) = 0.67$, $p < .01$ in Step-one model to $\exp(B) = .71$, $p < .05$ in Step-two model). This finding supported the hypothesis that having friends living nearby partially mediated the relationship between volunteering and relocation. In other words, the partial effect between volunteering and relocation (move out of area) can be explained by whether older people had friends living nearby.

Discussion

While much research has explored the triggering factors affecting why older people move, this study contributes to the relocation literature by offering an alternative explanation by examining a stabilizing mechanism, emphasizing the role that volunteering plays in older people's actual relocation decisions. Further, it examines the mediation effects of the social ties (relatives and friends nearby) on these relationships.

The first hypothesis was that older people who volunteer are less likely to move. This hypothesis was partially supported. Engagement in volunteering does not influence local moves, but volunteering significantly reduces chances of farther relocations. Relocation itself is a stressful process (Bekhet, Zauszniewski, & Nakhla, 2009), and, compared to moving to a nearby residence, moving out of an area is especially challenging as older adults must actively reconfigure their social networks (Waldron, Gitelson, Kelley, & Regalado, 2005). As the change to move out of an area involves many transitions such as residence, friendship and peer networks, volunteering may be used as a key for older people to remain in the neighborhood they have already familiar with, and for communities to retain older populations for social and economic reasons.

The second and the third hypotheses propose that two social-tie variables, relatives living nearby and friends living nearby, mediate the relationships between volunteering and relocation. One of these two hypotheses is supported, but the other one is not. Having any relatives living close is not a mediator, whereas having friends living nearby partially mediates the relationship between volunteering and moving out of area.

Volunteering is often a social activity, with one working alongside other volunteers, and/or interacting with others in social networks (Paik & Navarre-Jackson, 2011). Those with friends nearby may have more extensive social networks, including relationships made while volunteering. In addition, friendships with other volunteers may be another reason why “friends living nearby” mediates the relationship between volunteering and relocation, while “family living nearby” does not. Relationships with family members may include other types of personal connections, such as providing or receiving social, financial, or emotional support. This type of connection may not strengthen ties to one's local communities in the same way as friendships may.

Based on our research and others, it is still inconclusive whether health is a strong predictor of relocation. While some research does not find relationships between health and older people's consideration to relocate (e.g. Weeks et al., 2012; Sergeant, Ekerdt, & Chapin, 2010), this study asserts that health status is a triggering mechanism for older people to move outside of the area. It is possible that different types and degrees of health problems may influence older people's relocation in different ways. For example, having difficulty performing daily activities may not require relocation, as long as sufficient assistance is available in the home or from others in the community. However, those with both functional limitations and Alzheimer Disease may be in greater need to move to nursing facilities or to be closer to family members. Volunteering has been confirmed as bringing positive impacts to older individuals' physical health (Hong & Morrow-Howell, 2010; Lum & Lightfoot, 2005) and to their psychological well-being (Hao, 2008). Increasing volunteering opportunities for older people and encouraging them to become volunteers could promote better health, which would, in turn, retain older people in their communities. Future research is encouraged to uncover the relationships among volunteering, various health statuses, and relocation among seniors.

Volunteering in old age possibly reducing chances of moving out of area raises potential areas for intervention. Practitioners working in the aging fields are advised to introduce concepts of volunteering to older people, and encourage them to consider volunteering in various capacities. This includes connecting older people with other volunteers, and/or linking older people with the available volunteering opportunities in which they can share their life experiences, skills and talents. Furthermore, policy makers are also encouraged to consider the role volunteering plays in facilitating aging in place.

Several limitations to the present study should be noted. The present study is intended to understand older people's actual move in 2010 by using relevant factors from 2008. Due to the fact that HRS collects data biannually, we were only able to track the effects of interests between 2008 and 2010. Changes of relevant variables (e.g. volunteering status, friends and relative nearby) happening within that two-year period, however, could not be captured. Second, according to the questions asked in the HRS, the key mediating variables, relatives and friends nearby (social ties), refer to relatives and friends living in the neighborhood. This tight definition may exclude relatives or friends who do not live in respondents' immediate neighborhoods but were residing in adjacent communities, and is subject to the individual respondent's definition of neighborhood (e.g., living fifteen minutes away in a different neighborhood). This exclusion could influence the mediating effects of social ties on the relationships between volunteering and relocation. Third, the voluntariness of relocation can be considered on a continuum of choice (Lehning and Perry, 2013). However, relocation for many older people is not by choice. Due to limitations with the data collected, we were not able to distinguish between voluntary and involuntary moves. Without taking such factors into consideration, we may have over or under estimated the association between volunteering and relocation. Lastly, we know from the literature that there are different types of moves. Litwak and Longino's (1987) seminal work distinguishes between amenity moves, moves near kin and institutional moves. The data do not specifically interrogate where the older adult moved in two ways. While the HRS asks whether a move is out of area or nearby rather than the type of move, there are various relocation

permutations that are not clarified. For example, a move out of an area could be for an amenity—such as a place that one lived before, a move near kin, or a move to an institution in a place that one has always desired to live. Clarifying the type of residence an older adult moved into would be important information to distinguish among different move experiences and could be added to future study.

Volunteering brings many positive influences to older adults, and findings from this study add a new aspect of it. Volunteering is associated to greater social ties, which, in turn decreases relocation among older people. When older people are reluctant to relocate, the benefits of volunteering may be considerable, and encouraging older people to volunteer may indeed help older people age in place.

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Figure 1. Diagram of the proposed hypothesis

Table 1

Descriptive statistics for all variables (n=9220)

Variables	All % or Mean(SD) n=9,220	Type of Relocation in 2010			p
		No move n=8,277(90%)	Move within area n=385(4%)	Move out of area n=558(6%)	
Household Income					***
\$0-20,000	27.7%	26.7%	35.3%	37.5%	
20,001-40,000	29.5%	29.6%	28.1%	28.5%	
40,001-60,000	17.6%	18.0%	12.7%	14.9%	
60,001-100,000	13.9%	14.3%	13.8%	7.2%	
100,001+	11.4%	11.4%	10.1%	12.0%	
Own home					***
No	23.0%	20.2%	43.6%	48.9%	
Yes	77.0%	79.8%	56.4%	51.1%	
Accessible Home					***
No	84.8%	85.2%	81.6%	80.7%	
Yes	15.2%	14.8%	18.4%	19.4%	
Neighborhood Safety					
Excellent	37.2%	37.3%	38.2%	35.1%	
Very Good	32.6%	32.5%	30.9%	34.4%	
Good	21.3%	21.5%	17.4%	21.7%	
Fair	7.2%	7.2%	9.4%	7.0%	
Poor	1.6%	1.5%	4.2%	1.8%	
Number of IADL Limitations (0-4)	0.2 (0.6)	0.2 (0.6) ^a	0.3 (0.8) ^b	0.4 (0.9) ^c	***
Number of ADL Limitations (0-6)	0.5 (1.1)	0.4 (1.0) ^a	0.6 (1.3) ^b	0.8 (1.4) ^c	***
Number of Health Conditions (0-9)	1.7 (1.2)	1.6 (1.2) ^a	1.8 (1.3) ^b	1.9 (1.3) ^c	***
Any Cognitive Problem					***
No	96.7%	97.1%	94.3%	92.1%	

Variables	All % or Mean(SD) n=9,220	Type of Relocation in 2010			p
		No move n=8,277(90%) ^a	Move within area n=385(4%)	Move out of area n=558(6%)	
Yes	3.3%	2.9%	5.7%	7.9%	
Spouse with Care Needs					***
No	51.4%	50.3%	59.2%	61.3%	
Yes	48.6%	49.7%	40.8%	38.7%	
Gender					
Male	42.1%	42.5%	39.0	38.0%	
Female	57.9%	57.5%	61.0%	62.0%	
Race					**
White	77.2%	77.0%	76.1%	79.4%	
Black	13.2%	13.5%	14.6%	7.7%	
Others	9.6%	9.4%	9.4%	12.9%	
Years of Education (0-17)	12.3 (3.2)	12.3 (3.2) ^a	12.1 (3.3)	12.0 (3.4) ^b	
Age (65-106)	74.3 (6.8)	74.1 (6.7) ^a	75.0 (7.3) ^b	76.1 (8.2) ^c	***
Change of Marital Status					***
No	95.2%	95.8%	89.6%	91.2%	
Yes	4.8%	4.3%	10.4%	8.8%	
Any Relatives Nearby					***
No	70.2%	69.8%	68.1%	78.5%	
Yes	29.8%	30.2%	32.0%	21.5%	
Any Friends Nearby					***
No	31.1%	30.2%	35.3%	42.1%	
Yes	68.9%	69.8%	64.7%	57.9%	
Volunteer					***
No	65.9%	65.0%	68.3%	76.5%	
Yes	34.1%	35.0%	31.7%	23.5%	

Notes: Entries are means unless noted otherwise. Means and percentages are based on raw data. All significance tests take design effects into account by using the Stata software. Reported *p*-values indicated by asterisk test overall significant differences across all three groups (no move, move out of area, and move within area). When overall *p*-values were significant, additional tests testing the differences between any two of the three groups were performed; for each variable, groups that have different superscripts (a, b, and c) differed from one another at least at *p* .05.

* *p* .05
 ** *p* .01
 *** *p* .001

Table 2
Multinomial logistic Regression model (Move out of area vs. move within area vs. no move)

	Move out of area vs. No move			Move within area vs. No move		
	<i>B</i>	<i>exp(B)</i>	<i>p</i>	<i>B</i>	<i>exp(B)</i>	<i>p</i>
Household income	0.01	1.01		0.05	1.06	
Own home	-1.18	0.31	***	-1.06	0.35	***
Home accessibility	0.00	1.00		0.02	1.02	
Neighborhood safety	0.07	1.07		0.02	1.02	
Number of IADLs	-0.01	0.99		0.07	1.07	
Number of ADLs	0.14	1.15	*	0.00	1.00	
Number of conditions	0.09	1.09	*	0.05	1.05	
With cognitive problems	0.76	2.15	***	0.32	1.38	
Spouse with care needs	-0.12	0.89		-0.19	0.83	
Gender	0.04	1.04		0.02	1.02	
Black	-0.86	0.42	***	0.10	1.11	
Others	0.04	1.04		-0.18	0.84	
Education	0.04	1.04	*	0.02	1.02	
Age	-0.34	0.71	*	-0.11	0.90	
Age ²	0.00	1.00	*	0.00	1.00	
Change of marital status	0.93	2.52	***	1.24	3.45	***
Volunteering status	-0.41	0.67	**	-0.03	0.97	
Constant	9.44	12636.73		0.97	2.63	
Model statistics	<i>F</i> (34, 19) = 13.80; <i>p</i> 0.001					

*
p .05

**
p .01

p .001

Table 3
Multinomial logistic regression model mediation results (Move out of area vs. no move)

	Step 1 Relocation Regressed on volunteering		Relatives nearby as a mediator				Friends nearby as a mediator			
	exp(B)	p	Step 2 Relatives Nearby Regressed on Volunteering		Step 3 Relocation Regressed on Relatives Nearby with Volunteering		Step 2 Friends Nearby Regressed on Volunteering		Step 3 Relocation Regressed on Friends Nearby with Volunteering	
Household income	1.01		OR	p	exp(B)	p	OR	p	exp(B)	p
Own home	0.31	***	0.96		1.01		0.97		1.01	
Home accessibility			1.12		0.31	***	1.45	***	0.32	***
Neighborhood safety	1.00		1.09		1.01		0.98		1.00	
Number of IADLs	1.07		0.97		1.07		0.91	**	1.06	
Number of ADLs	0.99		0.97		0.99		0.86	**	0.97	
Number of conditions	1.15	*	1.00		1.15	*	1.00		1.15	*
With cognitive problems	1.09	*	1.04		1.10	*	1.00		1.09	*
Spouse with care needs	2.15	***	1.21		2.19	***	0.89		2.16	***
Gender	0.89		1.23	***	0.91		1.13	*	0.90	
Black	1.04		1.15	*	1.05		1.05		1.04	
Others	0.42	***	0.92		0.42	***	0.99		0.43	***
Education	1.04	*	0.81		1.01		0.76	*	1.00	
Age	0.71	*	0.91	***	1.04	*	0.97	***	1.04	*
Age ²			1.06		0.72	*	1.08		0.72	*
Change of marital status	1.00	*	1.00		1.00	*	1.00		1.00	*
Relatives nearby	2.52	***	0.92		2.51	***	1.05		2.56	***
Friends nearby					0.60	***				
Volunteering status	0.67	**	1.24	**	0.68	**	1.94	***	0.65	***
Constant	12636.73		0.07		12466.67		0.06		11923.30	
Model statistics	$F(34, 19) = 13.80$ $p < 0.001$		$F(17, 36) = 7.32$ $p < 0.001$		$F(40, 13) = 19.48$ $p < 0.001$		$F(17, 36) = 10.73$ $p < 0.001$		$F(36, 17) = 12.84$ $p < 0.001$	

* $p < .05$

100' *d*

10' *d*
**

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