INTERGENERATIONAL COMMUNITIES:

THE ROLE OF NEIGHBORHOOD ENVIRONMENTS IN OLDER ADULTS'

SOCIAL INTERACTIONS AND WALKING BEHAVIOR

A Dissertation

by

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ABSTRACT

Background: Demographic aging has brought serious economic and health challenges. The population aged 65 and over in the US is estimated to almost double from 47.6 million in 2015 to 86.5 million in 2050. Aging in place is an increasingly popular concept being proposed in response to these challenges and trends. As aging takes place within one's physical and social contexts, interdependence and intergenerational solidarity are particularly important for supporting aging in place, promoting active lifestyles in old age, and reducing ageism, loneliness, and social isolation. Walking is one of the most popular and accessible forms of physical activity that can bring significant physical and psychosocial health benefits to older adults.

Aims: This research aims to explore social and environmental approaches to creating intergenerational communities with the goal of promoting social interactions and walking among older adults.

Methods: The cross-sectional study recruited 455 adults aged 65 or older in Austin, Texas to investigate the associations among intergenerational communities, intergenerational interactions, and walking among older adults. A paper or online survey taking approximately 30 minutes was used to capture personal, social, and perceived environmental variables. The Geographic Information System was used to measure objective environmental variables utilizing existing geo-spatial data. Descriptive and inferential statistical analyses were performed to examine the relationships among the study variables.

Results: The study identified measurable features of an intergenerational community in terms of its neighborhood attributes related to social environments, physical environments, and neighborhood age composition. Further, it illustrated significant environmental correlates of intergenerational interactions and walking as well as the significant associations between intergenerational interactions and walking among older adults.

Conclusion: This dissertation research provides empirical evidence and strategies toward developing policy and environmental interventions that can be applied to designing intergenerational communities and to retrofitting existing communities to become more age-friendly. Given the significant health benefits of social and physical activities for older adults and other generations, continued efforts by policymakers, researchers, and practitioners are needed to investigate the full range of environmental facilitators as well as barriers to creating intergenerational communities that can support active and healthy living for all generations.

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Contributors

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The paper survey data were entered in part by Xi Chen of the Department of Landscape Architecture and Urban Planning. The Geographic Information System based objective measures of the physical environmental variables were collected as part of the Active Living Austin research project sponsored by NIH (R01CA197761; PIs: Chanam Lee, Xuemei Zhu, Marcia Ory).

All other work conducted for the dissertation was completed by the student independently.

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NOMENCLATURE

GIS	Geographic Information System
ICC	Interclass Correlation Coefficient
OR	Odds Ratio

TABLE OF CONTENTS

Page

LIST OF FIGURES

Page

LIST OF TABLES

Page

1. INTRODUCTION

1.1. Background

Demographic aging, as a result of the decline in fertility rates and the increase in life expectancy, has brought serious economic and health challenges. The population aged 65 and over in the US is estimated to almost double from 47.6 million in 2015 to 86.5 million in 2050, corresponding to an increasing share from 14.8% to 22.2% (United Nations, 2015). Aging in place refers to "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level" (Centers for Disease Control and Prevention, 2009). It is an increasingly popular concept being proposed in response to these challenges and trends. As aging takes place within one's physical and social contexts, interdependence and intergenerational solidarity are particularly important for supporting aging in place; promoting active lifestyles in old age; and reducing negative aging stereotypes (i.e. ageism), loneliness, and social isolation.

An intergenerational community with corresponding social and environmental supports is the key to facilitating interactions across different generations and promoting healthy aging in place. Defining such a community is not an easy task. Most recent investigations related to age-friendly or intergenerational communities refer to the eight domains of age-friendliness proposed by the World Health Organization, including (1) outdoor spaces and buildings, (2) transportation, (3) housing, (4) social participation, (5) respect and social inclusion, (6) civic participation and employment, (7) communication

and information, and (8) community and health services (World Health Organization, 2007). The Generations United (2016) has defined an intergenerational community as a place with policies, programs, practices, and settings that can support the basic necessities/needs (e.g. health, education) of all residents; promote interaction, exchange, and cooperation among different generations; and provide opportunities for all generations to share their talents and support each other. Despite the growing interests, the concept of intergenerational community has not been fully specified. Defining this multi-faceted concept is a necessary step toward furthering the empirical knowledge about strategies to promote intergenerational communities.

1.2. Research Aims

Many researchers, practitioners, and policymakers have explored ways of promoting active and healthy aging in place. Although the impacts of the physical environments and the program-based intergenerational interactions on health among older adults have been well documented, few studies have addressed community-level support to promote intergenerational interactions. This research explores the social and environmental approaches of creating intergenerational communities to promote active aging and enhance the physical and mental health of aging populations. Our research design, data collection, and data analysis are driven by the following research questions:

- What is an intergenerational community?
- How does an intergenerational community promote or inhibit older adults' intergenerational interactions?

- How does an intergenerational community affect older adults' walking?

This study has two primary aims and two secondary aims. Primary Aim 1 is to explore ways of measuring intergenerational communities in terms of social environments, physical environments, and neighborhood age composition; and to investigate associations between intergenerational communities and intergenerational interactions. Primary Aim 2 is to test correlations between community-level routine intergenerational interactions and older adults' walking behavior, including transportation and recreational walking; and to examine effects of intergenerational communities (with social and physical environmental supports) on transportation and recreational walking among older adults. Potential mediation effects of intergenerational interactions on the associations between physical environments and older adults' walking, as well as those of older adults' walking activities between physical environments and intergenerational interactions, are also explored.

Secondary Aim 1 is to explore ways of calculating neighborhood age composition at the ½-mile buffer around each participant's home and at the Census Block Group level. Secondary Aim 2 is to translate findings of this study into a user-friendly guide, the Intergenerational Community Assessment Tool – Preliminary Version (iCat.p), to assist in the selection of essential components and measures of physical environmental characteristics of intergenerational communities. Findings regarding environmental correlates of intergenerational interactions among older adults can support future research on measuring intergenerational communities and examining influences of intergenerational communities on active and healthy aging.

2. LITERATURE REVIEW

As described above, intergenerational communities hold strong potential for promoting social interactions across different generations and supporting healthy aging in place. This section provides more detailed examinations of the existing literature on age-friendly or intergenerational communities and relevant topics, which can provide a more comprehensive understanding of the existing theoretical basis, empirical evidence, and knowledge gaps.

The following literature review is divided into six parts. The first part provides a brief introduction to age stereotypes and the guiding theories focusing on environments and aging. The second part is to describe specific empirical studies documenting the associations of neighborhood environments with older adults' walking and physical activity, health and quality of life, and social interactions. The third part is to describe the range of significant health benefits of physical activity, especially walking, for older adults. The fourth part is to bring attention to the issues of loneliness and social isolation as significant health risk factors for older adults. The fifth part is to show the strong potential for intergenerational interactions to help reduce ageism and social isolation and promote healthy aging in place. This part is directly tied with the specific aims of this study. A more comprehensive and systematic review has been conducted, which has been submitted to a peer-reviewed journal (manuscript titled "Intergenerational Communities: A Systematic Literature Review of Intergenerational Interactions and Older Adults' Health-Related Outcomes"). The last part is to summarize the significant

gaps identified in the literature reviewed, which guided the development of the conceptual framework and research hypotheses for this dissertation research.

2.1. Background

2.1.1. Age Stereotypes

The concept of ageism, first proposed by Robert Butler, refers to a typically negative age stereotype that includes prejudicial attitudes or discriminatory practices against older populations (Butler, 1980). Originating from a fear of being older, little knowledge regarding aging, and limited close interactions with the elderly, ageism may lead to intergenerational warfare (Ory, Kinney Hoffman, Hawkins, Sanner, & Mockenhaupt, 2003). Ageist stereotypes usually come from overestimating negative characteristics and sociological attributes of a specific age group based upon simplistic generalizations, while ignoring individual characteristics (Ory et al., 2003).

Many empirical studies demonstrate the significance of positive age stereotypes on the physical and mental health of older adults. Levy (1996) carried out studies examining associations of self-stereotyping with memory improvement in old age and found that positive self-stereotypes of aging improved memory and cognitive performance, while negative age stereotypes worsened memory performance. Levy, Hausdorff, Hencke, and Wei (2000) suggested that positive stereotypes of aging reduced cardiovascular stress, while negative stereotypes of aging increased cardiovascular stress. Levy, Slade, Kunkel, and Kasl (2002) indicated that the average lifespan among aging populations with more positive age stereotypes was 7.5 years longer compared to

those with less positive age stereotypes. More empirical studies on improvements in physical function among older populations through aging stereotype intervention demonstrated that positive stereotypes of aging could significantly enhance physical function among the elderly (Hausdorff, Levy, & Wei, 1999; Levy, Pilver, Chung, & Slade, 2014).

Given the significant health benefits of positive age stereotypes, engaging in intergenerational activities has been increasingly recognized as a promising, yet underutilized, means to reduce ageism and promote healthy lifestyles in old age. An intergenerational community with supportive physical and social environments is important to bring opportunities for intergenerational activities into people's daily routine and support active and healthy aging in place.

2.1.2. Guiding Theories

Three overarching theoretical frameworks serve as the foundation of this dissertation research. First, based upon the ecological theory of the aging process proposed by Lawton and Nahemow (1973), aging includes a process of continual adaptation: adaption to one's environments and one's internal functions and capabilities throughout the lifespan. Dr. M. Powell Lawton's seminal work (1983) on environments and aging (e.g. environmental psychology) provides a theoretical foundation for current empirical studies and practice on environments and healthy aging in place. Lawton (1983) also suggested that our environments included five distinctive aspects: (1) physical environments, (2) personal environments (i.e. individuals related to the subject),

(3) small-group environments (i.e. an aggregate of individuals related to the subject), (4) suprapersonal environments (i.e. sociodemographic characteristics of the aggregated individuals physically near the subject), and (5) social environments.

Second, driven by Dr. M. Powell Lawton's environmental psychological perspective of aging, environmental gerontology has emerged as a multidisciplinary subfield of gerontology that emphasizes the significance of environmental context in understanding aging populations (Kendig, 2003; Wahl & Weisman, 2003). More specifically, environmental gerontology has focused on the understanding and optimization of the associations between older adults and their surrounding social and physical environments (Wahl & Weisman, 2003).

Third, using Urie Bronfenbrenner's ecological theory (i.e. human development emerging from interactions with individuals and contexts) (Rosa & Tudge, 2013) as the conceptual framework, McLeroy, Bibeau, Steckler, and Glanz (1988) has developed a social ecological model of health promotion emphasizing five levels of determinants of human's health behaviors and health outcomes. These levels include (1) intrapersonal factors, (2) interpersonal processes, (3) institutional factors, (4) community factors, and (5) public policy (McLeroy et al., 1988).

As a summary of the widely accepted theoretical frameworks mentioned above, this dissertation investigates three major aspects that can influence older adults' intergenerational interactions and walking behavior, including (1) personal factors, (2) social environments, and (3) physical environments. Personal factors refer to demographic and socioeconomic characteristics (e.g. age, gender, race or ethnicity,

marital status, education, income, and general health conditions) and residential self-selection factors (e.g. diversity of age groups). Social environments involve social support from relatives, friends, or neighbors, social cohesion and trust, social networks, social interaction resources, and city/neighborhood policies, programs, and services. Physical environments encompass neighborhood-level features at the "macro' scale (e.g. walkability) addressing general and destination land uses, green infrastructure, land covers, terrains, transportation systems, aesthetics, and safety.

2.2. Neighborhood Environments and Older Adults' Health-Related Outcomes

2.2.1. Neighborhood Environments and Physical Activity/Walking

Older adults in highly walkable neighborhoods are more physically active (i.e. higher levels of walking and physical activity) compared to those living in auto-oriented neighborhoods. Attributes of walkable neighborhoods, such as safety (Wang & Lee, 2010), mixed land use and density (Carlson et al., 2012; Frank, Kerr, Rosenberg, & King, 2010; King et al., 2011; Li et al., 2008; Wang & Lee, 2010), well-connected street networks for pedestrians (Frank et al., 2010; Li et al., 2008; Wang & Lee, 2010), easy access to commercial establishments (Nagel, Carlson, Bosworth, & Michael, 2008) and green infrastructure (Li, Fisher, Brownson, & Bosworth, 2005; Li et al., 2008; Nagel et al., 2008), supportive public transportation facilities/services (Li et al., 2008), and high visual quality/attractiveness (Wang & Lee, 2010), are important for promoting walking and/or physical activity among older adults.

For walking activity among older adults, Nagel et al. (2008) suggested that the number of commercial establishments and automobile traffic volumes were positively associated with walking time although neighborhood environments were not correlated with the likelihood of walking. Christman, Wilson-Genderson, Heid, and Pruchno (2019) demonstrated that walking for purpose was significantly connected with sidewalk characteristics, land use (i.e. presence of commercial business, multifamily dwellings, and parking lots), and single-family detached homes, while walking for leisure was significantly linked with the presence of gardens/flowers and sidewalk characteristics. Van Cauwenberg et al. (2012) conducted a qualitative study on neighborhood environments and older adults' walking for transportation, and the results indicated that major environmental facilitators included (1) easy access to facilities (e.g. shops and services), (2) well-designed and well-maintained walking facilities, (3) neighborhood aesthetics, (4) safety from traffic and crime, and (5) places for social interaction.

2.2.2. Neighborhood Environments and Health/Quality of Life

Many empirical investigations have indicated that neighborhood environments have significant associations with older adults' physical health, mental health (e.g. lower level of depression), and quality of life. Neighborhoods with high walkability, mixed land use, street connectivity, and/or pleasant street characteristics (e.g. more street trees) tend to be associated with lower levels of obesity (Berke, Koepsell, Moudon, Hoskins, & Larson, 2007; Frank et al., 2010; King et al., 2011), blood pressure (Li, Harmer, Cardinal, & Vongjaturapat, 2009), depression (Berke, Gottlieb, Moudon, & Larson,

2007) and physical disability/limitations (Beard et al., 2009; Freedman, Grafova, Schoeni, & Rogowski, 2008) among the elderly. Moreover, neighborhood environment attributes, including safety and green infrastructure, play important roles in promoting older adults' quality of life (Parra et al., 2010; Sugiyama, Thompson, & Alves, 2009).

2.2.3. Neighborhood Environments and Social Interactions

Neighborhoods with high walkability play essential roles in promoting social interactions or participation among aging populations. Richard, Gauvin, Gosselin, and Laforest (2009) evaluated relationships between neighborhood environments and social participation among older adults, and demonstrated that social participation levels were significantly higher among those with positive perceptions of a walking-friendly environment. Richard et al. (2013) described that proximity to neighborhood resources, such as public libraries, shopping centers, and community centers, was significantly associated with older adults' social participation. Another study investigated associations of neighborhood environments with performance-oriented and togetherness-oriented participation among older adults, which indicated that togetherness-oriented participation was significantly negatively correlated with housing accessibility problems but positively related to having good public transport (Haak, Fange, Horstmann, & Iwarsson, 2008).

Furthermore, Berke, Gottlieb, et al. (2007) pointed out the possibility of using walkability as a proxy measure of social connectedness. Tinsley, Tinsley, and Croskeys (2010) explored benefits of park usage on older adults and reported that the social

interaction opportunity was one of the salient psychosocial benefits of using urban parks. Environmental correlates of park usage among older adults and other generations included proximity, sizes, amenities/facilities (e.g. trails), safety, and aesthetics (Kaczynski et al., 2014; Kaczynski, Potwarka, & Saelens, 2008; McCormack, Rock, Toohey, & Hignell, 2010).

2.3. Physical Activity and Walking for Older Adults

Physical activity has been recognized by many empirical studies as a way of protecting, developing, and restoring health in aging populations (e.g. preventing, managing, and recovering from chronic disabilities and diseases). Nelson et al. (2007) demonstrated that physical activity played an essential role in reducing symptoms of depression and anxiety, and preventing/treating physical diseases (e.g. type 2 diabetes, osteoporosis, hypertension, cardiovascular disease, obesity, and some cancers). More studies on physical activity and cognitive functions reported the significant roles of physical activity in promoting older adults' cognitive and brain functions (Bherer, Erickson, & Liu-Ambrose, 2013; Lautenschlager et al., 2008).

However, physical inactivity, a major public health risk that many older adults are facing, is prevalent in the US. According to the 2018 Behavioral Risk Factor Surveillance System data (Centers for Disease Control and Prevention, 2018), approximately 30.3% of the US populations aged 65 years or over reported no physical activity after work. The prevalence of physical inactivity among the US older populations increased significantly with age. Specifically, approximately 35.1% of the

US populations aged 75 years or over reported no leisure time physical activity compared to 26.9% among those aged 65 to 74 years (Centers for Disease Control and Prevention, 2018). The high inactivity prevalence among older adults in the US has brought the growing attention and interest to understand how diverse scales and domains of community environments can influence a range of older adults' physical activity and walking.

Walking is one of the most popular and accessible forms of physical activity among older adults even though there are a variety of ways to stay physically active (Mobily, Rubenstein, Lemke, O'Hara, & Wallace, 1996; Ory, Towne, Won, Forjuoh, & Lee, 2016). Many empirical studies have identified the significant physical and psychosocial health benefits of walking for aging populations. In terms of physical health, walking was significantly positively associated with reduced risks of cardiovascular diseases (Hakim et al., 1999) and hospitalizations for cardiovascular diseases (LaCroix, Leveille, Hecht, Grothaus, & Wagner, 1996) among older adults. Lee, Arthur, and Avis (2007) reported that a community-based intervention of walking was important for lowering older adults' systolic blood pressure. Simonsick, Guralnik, Volpato, Balfour, and Fried (2005) demonstrated the significant role that walking had in improving functional capacity or performance (e.g. gait speed, walking speed, lung function) in older women.

As for psychosocial health, several studies on walking and depression demonstrated the positive associations between walking and reduced depressive symptoms among older adults (Heesch, Burton, & Brown, 2011; Julien, Gauvin,

Richard, Kestens, & Payette, 2013; Mobily et al., 1996). More evidence also showed that walking was important for improving older adults' memory and cognitive functions. Specifically, Ravaglia et al. (2008) indicated that walking was significantly positively correlated with reduced risks of vascular dementia among aging populations; Another study described significant positive correlations between walking and cognitive functions among older adults (Prohaska et al., 2009).

Furthermore, empirical investigations demonstrated that walking was important for reducing mortality rates among older adults. Hakim et al. (1998) indicated that regular walking (i.e. miles walked per day) was significantly positively related to a lower overall mortality rate among nonsmoking retired men. Landi et al. (2008) suggested that walking at least one hour a day was associated with lower mortality rates among older adults. Another study illustrated that walking one mile or more per day was associated with a significant decrease in mortality rates among older adults with diabetes (Smith, Wingard, Smith, Kritz-Silverstein, & Barrett-Connor, 2007).

2.4. Loneliness and Social Isolation

According to the widely accepted human motivation theory (Maslow, 1943), social relationship/interaction represents one of the universal human needs. Human beings are social creatures and search for social interactions with others across lifespans. In most cases, social networks or relationships decrease as people age, making aging populations more vulnerable to loneliness and social isolation. Older adults living alone are more probable to be socially isolated. As of 2018, approximately 28% (14.3 million)

of community-dwelling older adults of 65 years or older lived alone in the US, including 34% (9.5 million) of older females and 21% (4.8 million) of older males (Administration for Community Living, 2018). Further, the percentage of aging populations living alone increases with age (e.g. females of 75 years or older living alone accounted for 44% in 2018) (Administration for Community Living, 2018).

Increasing empirical evidence demonstrates that loneliness and social isolation are significant risk factors for poor health and premature mortality in old age (Ong, Uchino, & Wethington, 2016). Steptoe, Shankar, Demakakos, and Wardle (2013) reported that loneliness and social isolation were positively correlated with mortality among the older participants. Coyle and Dugan (2012) indicated that social isolation was correlated with a higher likelihood of reporting a lower level of perceived health condition, and loneliness had a positive association with the odds of reporting a mental health problem. Theeke (2010) revealed that loneliness was linked to decreased exercise as well as increased chronic illnesses, depression, and nursing home stays among older adults.

2.5. Intergenerational Interactions

Many empirical investigations have recognized the significant roles of intergenerational interactions in promoting older adults' health behaviors and outcomes, including reduced social isolation. Figure 1 summarizes a review of 24 empirical studies in the US published from 2002 to 2019. Findings from these studies indicated that program-based intergenerational activities were positively correlated with older adults'

physical health (Barron et al., 2009; Dorgo, King, Bader, & Limon, 2011, 2013; Fried et al., 2004; Hong & Morrow-Howell, 2010; Seeman, Merkin, Goldwater, & Cole, 2019), psychosocial health (e.g. reduced depression) (Carlson et al., 2009; Carlson et al., 2015; Carlson et al., 2008; Chippendale & Boltz, 2015; Gruenewald et al., 2016; Herrmann, Sipsas-Herrmann, Stafford, & Herrmann, 2005; Hong & Morrow-Howell, 2010), self-reported quality of life/well-being (Park, Lee, & Dabelko-Schoeny, 2016; Yuen, Huang, Burik, & Smith, 2008), and social relationships (e.g. reduced social isolation) (Fried et al., 2004; Nicholson & Shellman, 2013; Rook & Sorkin, 2003). Additionally, participation in intergenerational programs was linked with physical activity (Fried et al., 2004; Morrow-Howell, Hong, McCrary, & Blinne, 2012; Parisi et al., 2015; Strand, Francis, Margrett, Franke, & Peterson, 2014; Tan et al., 2009; Tan, Xue, Li, Carlson, & Fried, 2006; Varma et al., 2016) and social activity (Morrow-Howell et al., 2012) among older adults.

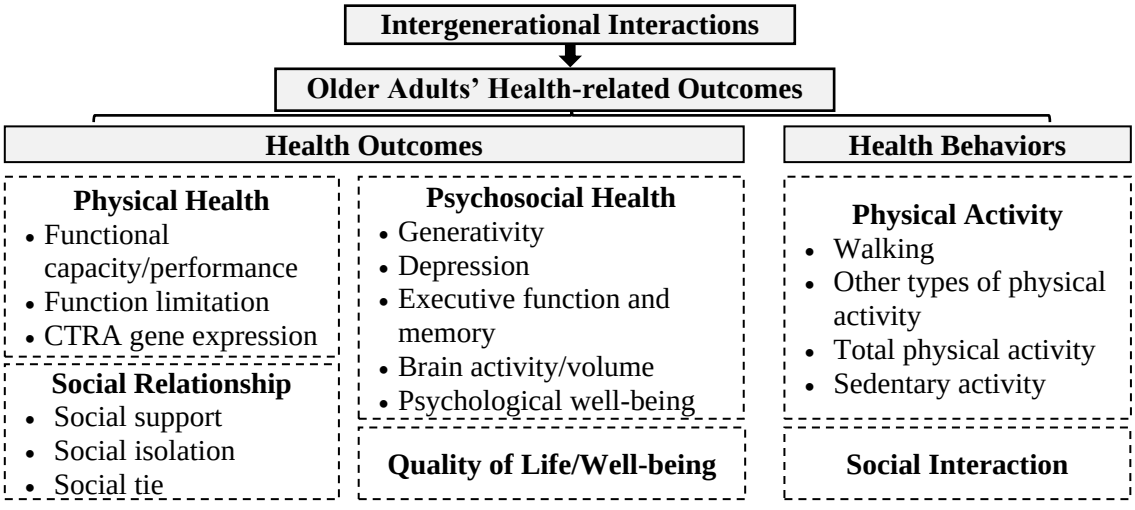


Figure 1 Health benefits of intergenerational interactions.

2.6. Literature Gaps

Overall, studies on intergenerational communities are extremely limited. Although Generations United has developed a conceptual definition of an intergenerational community, there is little empirical evidence for a measurable definition of an intergenerational community, or the impacts of intergenerational communities on the elderly. The four major knowledge gaps on this topic can be summarized as:

1) Limited empirical research has investigated neighborhood environmental facilitators and barriers of older adults' engagement in intergenerational and other social activities;
2) The influences of personal factors, including demographic and socioeconomic characteristics and residential self-selection factors, on older adults' intergenerational interactions are unclear;
3) The relationships between community-level routine intergenerational interactions and older adults' walking are unclear, even though many qualitative and quantitative studies have verified significant health benefits of program-based intergenerational interactions; and
4) Relatively few studies have explored ways of calculating neighborhood age composition and evaluated its influences on active and healthy aging in place.

Thus, my dissertation research aims to first propose a measurable definition of an intergenerational community, in terms of social environments, physical environments, and neighborhood age composition. The ultimate goal of this study is to justify the

proposed definition of the intergenerational community through examining influences of the three main components of an intergenerational community on older adults' social interactions and walking.

3. RESEARCH METHODOLOGY

3.1. Conceptual Framework and Hypotheses

On the basis of relevant theories and literature described above, this cross-sectional study proposes a conceptual framework with hypothesized relationships among intergenerational communities, intergenerational interactions, older adults' health outcomes, and their demographic and socioeconomic characteristics and residential self-selection factors (Figure 2). The conceptual framework is developed to guide the data collection and analysis process for achieving the two primary aims described in 1.2. Research Aims.

An intergenerational community for this study is defined as "an age friendly community with (1) social environment, (2) physical environment, and (3) an age mix that can support healthy living of all generations". Based on the main features of this conceptual framework, four research hypotheses are proposed for this dissertation study:

1) Intergenerational communities (with social and physical environmental supports and age integration) are positively correlated with older adult's intergenerational interactions (Hypothesis 1 for Primary Aim 1);
2) Intergenerational interactions are positively associated with transportation and recreational walking among older adults (Hypothesis 2 for Primary Aim 2);

3) Intergenerational communities are associated with higher levels of transportation and recreational walking among older adults (Hypothesis 3 for Primary Aim 2); and
4) Intergenerational interactions mediate the associations between physical environments and walking among older adults, or walking is a mediator of the correlations between physical environments and intergenerational interactions (Hypothesis 4 for Primary Aim 2).

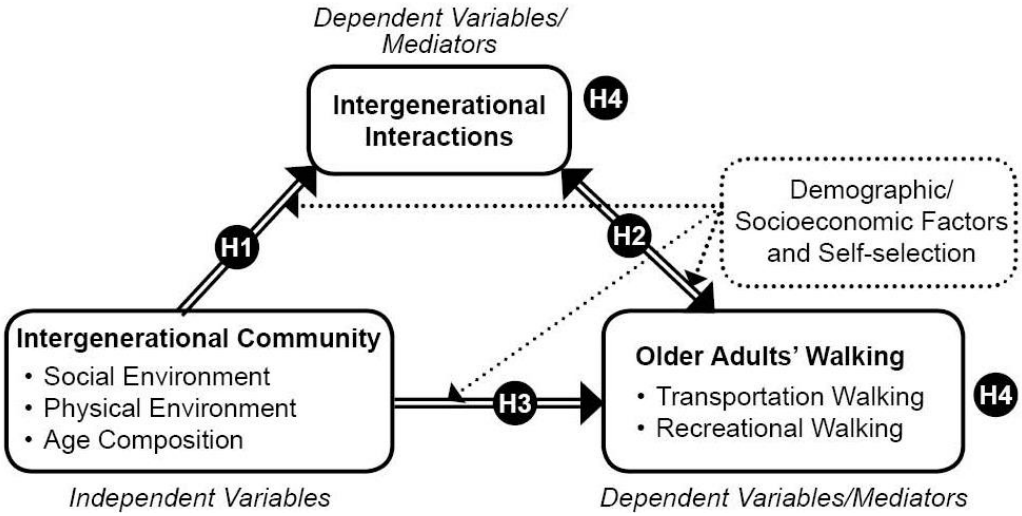


Figure 2 Conceptual framework for environmental correlates of intergenerational interactions and walking among older adults.

3.2. Data Collection

Data for this dissertation were collected from the self-report survey of eligible older adults (subjective data) and from GIS capturing the neighborhood environment around each survey participant's home (objective data). The following sections provide

detailed information as to how both methods are used to capture the necessary data for this research.

3.2.1. Study Area and Population

This dissertation research is carried out in the City of Austin, Texas, US, which features a wide range of services and programs supporting older adults; diverse physical environmental characteristics; and a diverse mix of different age groups. Although Austin has a relatively lower percentage of older residents 65 years and older (9.4%) compared to Texas (12.0%) and the US (15.2%) as of 2018 (U.S. Census Bureau, 2018), its aging population is growing at a rate faster than most other cities in the US. The Austin area has the nation's second fastest-growing population of people 65 and over (AustinUp, 2018).

The target population is community-dwelling Austin residents 65 years and over. The age limit of 65 years is the most used threshold for defining aging population in the US (Sabharwal, Wilson, Reilly, & Gupte, 2015). This study controls for age in all final regression models because age is an important correlate of social interactions and walking.

3.2.2. Unit of Analysis and Measurement

The unit of analysis is the individual older adult respondent. The physical environment, including subjective and objective measures, is captured within a 10- to 15-minute walk from each respondent's home. Since walking speeds for healthy older

adults range from 0.9 to 1.3 meters per second (Bohannon, 1997; Graham, Fisher, Berges, Kuo, & Ostir, 2010; Studenski et al., 2011), 10- minute walking distances for the healthy aging population vary from 540 to 780 meters (approximately 1/3 to 1/2 mile), and 15-minute walking distances range from 810 to 1,170 meters (approximately 1/2 to 3/4 mile). Thus, the study will use a ½-mile buffer around each older adult's home as the unit of measurement, which corresponds to a 10- to 15-minute walking distance for the healthy aging population.

3.2.3. Survey Process

All primary data of this study were collected through a 30-minute online or paper survey (see the complete survey instrument in APPENDIX I), covering information related to (1) physical activities and walking, (2) quality of life and mental health (i.e. depression), (3) intergenerational and other social activities, (4) neighborhood environments, (5) supportive services or programs, and (6) demographic and socioeconomic characteristics. The survey was only available in English due to feasibility issues (i.e. expense and complications of translation), which may undermine the representativeness of the study sample. However, the majority (approximately 91.8%) of Austin residents 65 years and over can at least speak English well (i.e. speak only English, speak English very well, and speak English well) (U.S. Census Bureau, 2018).

The survey and the corresponding recruitment were conducted in four phases, starting from a three-phase process to develop and test the survey instrument, which was

critical to ensure the validity of the data collected for this dissertation. The process included (1) a pilot study to solicit inputs on the design and content of the paper survey via focus groups (Phase 1: May – June 2018); (2) a pre-test of the online and paper survey among a small number of participants (Phase 2: August – October 2018); and (3) a test-retest reliability assessment of the survey instrument (Phase 3: January 2019 – June 2019). The last phase (Phase 4: October 2018 – June 2019) was to collect the main study survey data for the purpose of answering the research questions and testing the research hypotheses proposed in this dissertation. All study protocols and materials were approved by the Texas A&M University Institutional Review Board (APPENDIX K).

3.2.3.1. Phase 1 Pilot Study

The pilot study was conducted among 10 participants recruited from the Southwood Community Center in College Station, Texas (APPENDIX A). The participants were asked to complete the paper survey and join 1.5-hour focus group discussions at the Southwood Community Center on June 12, 2018. To be eligible to participate, respondents should be residents of Bryan or College Station, Texas who (1) are 65 years or older, (2) live in communities not in assisted living facilities, and (3) have the basic English language skills.

Following the protocols, this pilot study was conducted through facilitated focus group discussions around 14 questions to solicit inputs on the survey in terms of the overall length, clarity, content, organization, etc. The survey instrument was revised based on the findings from the completed surveys and the focus group discussions.

Major revisions included (1) using categorical responses for the questions that are difficult/cognitively challenging, (2) adding questions related to overall neighborhood characteristics and social interactions outside the neighborhood, (3) separating teenagers from children and taking out the age range for each group, and (4) separating social interactions from seeing others doing activities.

3.2.3.2. Phase 2 Pretest

The pretest was then carried out with the revised survey instrument primarily using the online version of the survey instrument, which further tested technical and formatting aspects of the survey specific to the online version (APPENDIX B). The pretest started from one-on-one in-depth discussions with 10 residents of Bryan or College Station, Texas (aged 60 or over) recruited from local senior serving organizations and individual/personal solicitation. Further, eight residents (including six respondents aged 65 or over) in Austin, Texas, recruited from the AustinUp 50+ in ATX Job Fair on September 12, 2018, were invited to complete the pilot online survey. Based on the respondents' feedback, the survey was further improved by making minor wording and formatting edits and adding questions related to significant life events and neighborhood definitions at the end.

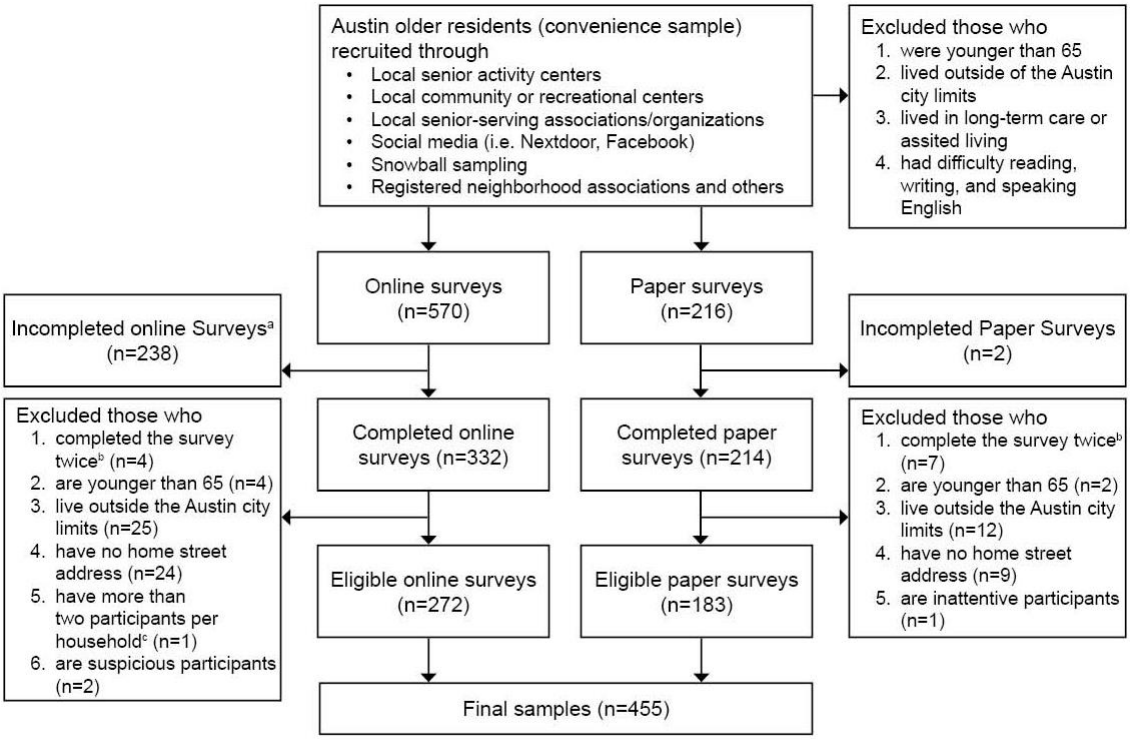
3.2.3.3. Phase 3 Test-retest Reliability Assessment

A subset of 36 respondents from the main study and an additional two participants from Sun City, Texas were recruited to complete their survey one more time

within one to four weeks after their first completion. Their data were utilized to evaluate the test-retest reliability of the instrument. The reliability test results by sections and items are reported in the "RESULTS," which have been used to guide the full study's inferential statistics. The descriptive statistics of the test-retest reliability assessment are attached as the APPENDIX C.

3.2.3.4. Phase 4 Main Survey

The main survey recruited a total of 455 eligible older adult respondents between October 2018 and June 2019, after excluding 91 complete surveys that failed to meet the eligibility criteria (Figure 3). To be eligible, the respondents had to be residents of Austin, Texas who (1) are 65 years or older, (2) live in the ordinary communities instead of long-term care or assisted living facilities, and (3) have basic English language skills (limited to two participants per household). Convenience sampling strategy was used to ensure cost and feasibility of this dissertation research, given the typically low response and eligibility rates from random sampling for studies like this. The sample characteristics were closely monitored throughout the survey to ensure spatial and sociodemographic diversity and representativeness of the samples. The full survey descriptive statistics are attached as the APPENDIX D.



Note: [a] Among 238 online survey responses in progress, 166 responses (approximately 70%) were less than 10% completed, and 220 responses (approximately 92%) were less than 50% completed.
[b] The second survey was excluded for those who completed the survey twice.
[c] The third participant was excluded.

Figure 3 Survey data collection and selection process.

Recruitment efforts targeted the senior participants/members at local senior-serving centers, including (1) three senior activity centers (i.e. Lamar, South Austin, and Conley Guerrero senior activity centers) and several community or recreational centers managed by the City of Austin Parks and Recreation Department (PARD), (2) WellMed Charitable Foundation Senior Community Center, and (3) Oak Hill Senior Center managed by the Meals on Wheels. Additionally, study flyers were distributed by various other senior-serving associations/organizations and registered neighborhood associations in Austin, via email, newsletter, and social media (e.g. Nextdoor, Facebook). The

primary senior-serving associations/organizations that assisted in this effort included AustinUp, Aging is Cool, Austin2.0 Austin, American Association of Retired Persons (AARP), AGE of Central Texas, Capital City Village, and Austin Retired Teachers Association. Finally, a snowball sampling was applied to recruit more study participants by asking existing participants to share the study information with their families, friends, and neighbors. Table 1 shows the number and the percentage of study participants recruited from each recruitment channel.

Table 1 Recruitment Channels and Corresponding Participants.

Recruitment Channels	Participants (n)	Participants (%)
Local Senior-Serving Centers	**225**	**49.6%**
South Austin Senior Activity Center (managed by Austin PARD)	55	12.1%
Lamar Senior Activity Center (managed by Austin PARD)	54	11.9%
Conley-Guerrero Senior Activity Center (managed by Austin PARD)	46	10.1%
WellMed Charitable Foundation Senior Community Center	45	9.9%
Lorraine “Grandma” Camacho Activity Center (managed by Austin PARD)	9	2.0%
Virginia L. Brown Recreation Center (managed by Austin PARD)	9	2.0%
Alamo Recreation Center (managed by Austin PARD)	8	1.8%
Oak Hill Senior Center (managed by the Meals on Wheels)	6	1.3%
Gustavo "Gus" L. Garcia Recreation Center (managed by Austin PARD)	2	0.4%
Local Senior-Serving Associations/Organizations	**40**	**8.8%**
AustinUp	19	4.2%
Aging is Cool	8	1.8%
AGE of Central Texas	5	1.1%
American Association of Retired Persons	4	0.9%
Capital City Village	3	0.7%
Austin Retired Teachers Association	3	0.7%
Aging2.0 Austin	2	0.4%
Social Media	**78**	**17.2%**
Nextdoor	73	16.1%
Facebook	5	1.1%
Snowball Sampling	**79**	**17.4%**
Families or Friends	79	17.4%
Registered Neighborhood Associations and Others	**38**	**8.4%**
Registered Neighborhood Associations	16	3.5%
Email from Sinan Zhong	14	3.1%
Church	4	0.9%
Sunshine Community Gardens	1	0.2%
Austin Community Village	1	0.2%
Healthy Aging	1	0.2%
More Than One Channel	1	0.2%

Note: The percentage of study participants was calculated based on 454 valid participants (excluding one missing participant)

3.3. Data Entry, Cleaning, and Recoding

3.3.1. Subjective Data

Paper survey responses from 183 participants were entered into the digital format using Qualtrics and combined with the online survey responses. The data were then imported into the IBM SPSS Statistics 25.0 for quality checks and analyses. Potential data entry errors that resulted from entering the paper survey responses into the digital format were thoroughly checked among the initial 50 surveys, and errors were found for less than 1% of the records and corrected. For the remaining 133 paper surveys, more than 70% of the survey items were thoroughly checked, focusing more on those questions/sections identified with errors in the initial step.

After finishing data error detection and correction, paper and online survey responses were combined to further clean and recode variables, preparing for the full study statistical analyses. Descriptive statistics were generated to check the distribution and missing values of the survey data. Missing data were imputed in three steps. First, for those who completed the survey twice, this dissertation research used their first responses while replacing missing values in the first responses with corresponding answers in the second responses. Second, mean imputation was applied only to the neighborhood environment related variables in the Section 4 (i.e. Q25, Q27-35). Third, missing items were replaced with “no” or “0 days” if the questions with a list of similar items (i.e. Q11, Q15, Q19-24) were partially answered.

Recoding variables followed four major criteria. First, continuous variables were recoded as categorical or binary variables if they were not normally distributed (e.g.

transportation and recreational walking). Second, unevenly distributed ordinal variables were recoded as binary variables (e.g. interactions with children in a typical week). Third, binary variables were combined to represent a composite attribute (e.g. intergenerational interactions in a typical week combining three individual interaction variables that include social interactions with children, teenagers, and adults in a typical week). Fourth, principal component analyses were conducted among ordinal variables to generate fewer factors capturing social interactions with neighbors, residential self-selection, neighborhood environments, and neighborhood satisfaction (see 4.1.3. Factor Analysis for more details). All binary variables with one value that was less than 10% were excluded from inferential statistics.

3.3.2. Objective Data

As mentioned in the contributors and funding sources section, the raw data used for the GIS-based objective measures of the physical environment variables were collected as part of the Active Living Austin (ALA) research project sponsored by NIH (R01CA197761; PIs: Chanam Lee, Xuemei Zhu, Marcia Ory). My dissertation research used these existing GIS data to generate objective environmental variables. Those variables were captured within a sausage buffer (Forsyth, Van Riper, Larson, Wall, & Neumark-Sztainer, 2012) and measured within a shortest network distance from each participant's home. GIS variables covered the domains of transportation, general land use, destination land use, land cover (i.e. tree canopy), terrain (i.e. slopes), safety, and economic development, which were shown or hypothesized to be important for older

adults' walking/physical activity and social/intergenerational activities (see more details in 3.4.2.2.2 Objectively Measured Physical Environments). Additionally, objective data evaluating walk, transit, and bike scores of the participants' neighborhoods were collected through the 2019 Walk Score (walkscore.com), given their wide availability and ease of use and interpretation. Empirical studies investigated that Walk Score was a validated measure of neighborhood walkability (Carr, Dunsiger, & Marcus, 2010; Duncan, Aldstadt, Whalen, Melly, & Gortmaker, 2011) and was important for promoting mobility and walking among older adults (Chudyk, McKay, Winters, Sims-Gould, & Ashe, 2017; Hirsch, Winters, Clarke, Ste-Marie, & McKay, 2017).

Two participants living near the administrate boundary of Austin, who had less than 50% of the buffer area within the Austin city limit, were excluded from the analyses requiring objective variables. After checking the distribution of each variable, most GIS data were recoded as categorical or binary variables based on the following criteria.

- Remain as continuous variable if the data were not too skewed.
- Use natural logarithm transformation to keep as continuous variables if there were not too many "0" values.
- Recode as binary variables if there were more than or equal to 60% of "0" values.
- Recode as categorical variables with three to four categories if there are less than 60% of "0" values.

There were five special cases with less than 60% of "0" values that were recoded as binary variables. These variables included the presence or absence of commercial land

use (variable name: L_com_ars_S), the locally undesirable land use (variable name: L_Lulu_ars_S), and facilities in the parks (variable name: D_para_cts_S); development permits issued in 2019 (variable name: E_Per_cts_S); and the density of transit stops (variable name: T_Ptst_S2). To test the potential bias in estimates resulting from variable recoding, OR and p-values between two different regression models with either the binary or categorical variables added were compared and the results were very similar with no significant differences in the direction or significance of the results. Thus, the binary variables remained in all final models for easy interpretations.

3.4. Measures

Table 2 summarizes all study variables. Dependent variables or mediators included four types of social activities (i.e. interactions with children, intergenerational interactions, peer interactions, and all social interactions) and transportation and recreational walking among older adults. Independent variables were the three components of an intergenerational community, including social environments, physical environments, and neighborhood age composition. Confounding variables included demographic and socioeconomic characteristics, residential self-selection factors, and the recruitment channel. Additionally, other data collected through the survey that were not used in the dissertation included (1) physical activity (i.e. light, moderate, vigorous physical activity, sedentary activity), (2) depression, and (3) quality of life, utilizing survey questions adapted from the International Physical Activity Questionnaire (2015), the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), and the

WHOQOL-BREF (World Health Organization, 2004) respectively. These data were collected for post-doctoral research in the future.

Table 2 Dependent/Mediator, Independent, and Control Variables.

Domains	Variables		Values	Types
Dependent Variables/Mediators: Walking and Social Activities				
Walking	Transportation walking		No or yes in a typical week (0/1)	Binary
	Recreational walking		No or yes in a typical week (0/1)	Binary
Intergenerational and Other Social Activities in the Neighborhood	Interactions with children		No or yes in a typical week (0/1)	Binary
	Intergenerational interactions (i.e. children, teenagers, or adults)		No or yes in a typical week (0/1)	Binary
	Peer interactions (i.e. older adults)		No or yes in a typical week (0/1)	Binary
	All social interactions (i.e. children, teenagers, adults, or older adults)		No or yes in a typical week (0/1)	Binary
Independent Variables: Environments				
Social Environments	Supportive services or programs	All services or programs	No or yes in a typical week (0/1)	Binary
		Health-related services or programs	No or yes in a typical week (0/1)	Binary
		Meal-related services or programs	No or yes in a typical week (0/1)	Binary
		Transportation-related services or programs	No or yes in a typical week (0/1)	Binary
		Social-related services or programs	No or yes in a typical week (0/1)	Binary
		Intergenerational programs	No or yes in a typical week (0/1)	Binary
	Social cohesion and trust	Neighborhood cohesion and support	5-item composite scores (-3.27-1.33)	Continuous
		Neighborhood social cohesion	2-item composite scores (-3.61-1.12)	Continuous
	Digital communications	Communications with children	No or yes in a typical week (0/1)	Binary
		Communications with teenagers	No or yes in a typical week (0/1)	Binary
		Communications with children or teenagers	No or yes in a typical week (0/1)	Binary
		Communications with adult	0-4 days or 5-7 days (0/1)	Binary
		Communications with older adults	No or yes in a typical week (0/1)	Binary
	Social networks: people of different ages you know in the neighborhood	Number of children	0 or 1+ (0/1)	Binary
		Number of teenagers	0 or 1+ (0/1)	Binary
		Number of adults	0-5 or 6+ (0/1)	Binary
		Number of older adults	0, 1-2, 3-5, 6-10, or 11+ (1-5)	Ordinal
		Number of children or teenagers	0 or 1+ (0/1)	Binary
	Social support: people of different ages you watch doing activities in the neighborhood	Children	No or yes in a typical week (0/1)	Binary
		Teenagers	No or yes in a typical week (0/1)	Binary
		Adults	No or yes in a typical week (0/1)	Binary
		Older adults	No or yes in a typical week (0/1)	Binary
		Children or teenagers	No or yes in a typical week (0/1)	Binary
		Children, teenagers, or adults	No or yes in a typical week (0/1)	Binary
		Children, teenagers, adults, or older adults	No or yes in a typical week (0/1)	Binary
	Social support: people of different ages you see doing activities in the neighborhood	Children: walk, bike, play, or socialize	No or yes at least once a week (0/1)	Binary
		Teenagers: walk, bike, play, or socialize	No or yes at least once a week (0/1)	Binary
		Adults: walk, bike, play, sit, work, or socialize	No or yes at least once a week (0/1)	Binary
		Older adults: walk, bike, sit, work, or socialize	No or yes at least once a week (0/1)	Binary
		Children or teenagers: walk, bike, play, or socialize	No or yes at least once a week (0/1)	Binary
		Children, teenagers, or adults: walk, bike, play, sit, work, or socialize	No or yes at least once a week (0/1)	Binary
		Children, teenagers, adults, or older adults: bike, play, sit, work, or socialize	No or yes at least once a week (0/1)	Binary
	Resources for social interactions	Volunteer work	No or yes (0/1)	Binary
		Neighborhoods that have many seniors	No or yes (0/1)	Binary
		Number of social places in the neighborhood	Half to all or less than half (1/0)	Binary
		Social interactions with neighbors in a typical month	4-item composite scores (-2.11-2.49)	Continuous

Table 2 Continued.

Domains	Variables		Values	Types
Physical Environments	Subjectively measured physical environments	Places for peer interactions at least once a week	Number of places (0-21)	Continuous
		Places for social interactions at least once a week	Number of places (0-21)	Continuous
		Newly built neighborhood (10-15 years)	No or yes (0/1)	Binary
		Neighborhood with mixed land uses	No or yes (0/1)	Binary
		Shopping at local stores	Strongly agree or others (1/0)	Binary
		Difficult parking in local shopping areas	Strongly agree or others (1/0)	Binary
		Neighborhood walkability	4-item composite scores (-1.50-1.94)	Continuous
		Topographic barriers/terrains/slopes	2-item composite scores (-2.69-1.01)	Continuous
		Neighborhood street connectivity	4-item composite scores (-2.49-1.78)	Continuous
		Benches on most of the sidewalks	Strongly disagree or others (0/1)	Binary
		Walking/cycling facilities	5-item composite scores (-2.11-1.59)	Continuous
		Neighborhood aesthetics	4-item composite scores (-3.22-1.31)	Continuous
		Neighborhood street trees	2-item composite scores (-3.31-1.09)	Continuous
		Traffic safety	4-item composite scores (-2.47-1.61)	Continuous
		Crossing safety	2-item composite scores (-1.73-1.82)	Continuous
		Safe traffic speed	2-item composite scores (-2.31-1.44)	Continuous
		Neighborhood crime rate	3-item composite scores (-3.47-0.94)	Continuous
		Neighborhood surveillance	3-item composite scores (-3.09-1.80)	Continuous
	Objectively measured physical environments (see Table 3 for details)			
Neighborhood Age Composition (see Table 4 for details)				
Confounding Variables: Demographics and Socioeconomic Characteristics and Residential Self-Selection				
Demographics and Socioeconomic Characteristics	Key variables[a]	Age (years), gender (male vs. female), race and ethnicity (non-Hispanic White vs. others), marital status (married or unmarried couples vs. others), education level (9 levels from less than high school to doctorate degree), income (i.e. low, lower-middle, upper middle, high, don't know or prefer not to answer), and general health conditions (i.e. excellent, very good, good, fair, poor).		
	Significant variables[b]	Housing type (one-family detached house vs. others), dog in the household (yes vs. no), employment status (employed vs. not employed), sleep time per day (hours), heart related diseases (yes vs. no), difficulty walking (yes vs. no), mobility aids (yes vs. no), life event regarding personal illness (yes vs. no) and illness of a family member or friend (yes vs. no), and alcoholic drink (yes vs. no)		
	Insignificant variables	Body mass index, home ownership, cat in the household, living arrangement (except living with spouse that was highly correlated with marital status), caregiving, other diseases (e.g. anxiety, depression, cancer), difficulty hearing or seeing, falling, and other life events (i.e. death of a spouse/family member/friend, non-medical events)		
Residential self-selection	Affordability		Very important or others (1/0)	Binary
	Close to public transportation		Not at all important or others (1/0)	Binary
	Diversity of age groups		Four-point Likert scale from not at all important to very important (1-4)	Ordinal
	Neighborhood environments		8-item composite scores (-2.71-1.54)	Continuous
	Social cohesion and support		4-item composite scores (-1.74-2.40)	Continuous
Recruitment channel	Local Senior-Serving Centers		No or yes (0/1)	Binary
	Social media (i.e. Nextdoor, Facebook)		No or yes (0/1)	Binary
	Snowball sampling (i.e. families or friends)		No or yes (0/1)	Binary

Note: a: variables kept in all final regression models; b: variables kept in some regression models

3.4.1. Dependent Variables/Mediators

3.4.1.1. Intergenerational and Other Social Activities in the Neighborhood

Due to limited empirical evidence, the survey questions measuring intergenerational and other social activities in the neighborhood were developed and improved through several rounds of pilot studies/pretests. The question with four response choices (i.e. 0 days, 1-2 days, 3-4 days, and 5-7 days): "in your neighborhood, how many days in a typical week do you spend at least 10 minutes interacting (talking, spending time together) with others of different ages?" was used to measure study participants' social interactions with children, teenagers, adults, and older adults. After checking the distributions of the original data, four binary outcome variables were ultimately generated to capture whether study participants interacted with (1) children, (2) younger generations (i.e. children, teenagers, or adults), (3) other older adults, and (4) any of the other age groups (i.e. children, teenagers, adults, or older adults) in a typical week in their neighborhoods.

3.4.1.2. Walking Activities

Walking activity (i.e. transportation and recreational walking) was captured by four survey questions adapted from the International Physical Activity Questionnaires (2015). We used two questions: "in a typical week, how many days do you walk for transportation/recreation?' and "how much time do you usually spend walking for transportation/recreation on one of those days?" to measure each of the two walking types. Transportation and recreation walking were finally recoded as binary variables

(i.e. walk or not walk in a typical week) after confirming that a considerable proportion of the study participants reported that they did not walk for transportation (56.2%) or recreation (26.7%) in a typical week.

3.4.2. Independent Variables

3.4.2.1. Social Environments

Social environments in this study contained (1) supportive services or programs, (2) social cohesion and trust, (3) digital communications, (4) social networks (i.e. people of different ages you know in the neighborhood), (5) social support (i.e. people of different ages you watch or see doing activities in the neighborhood), and (6) resources for social interactions (i.e. volunteer work, neighborhoods that have many seniors, number of social places in the neighborhood, social interactions with neighbors in a typical month). Data on social interactions (i.e. people of different ages you interact with or watch doing activities) outside the neighborhood were collected using the same questions as those for social interactions in the neighborhood. However, the variables about social interactions outside the neighborhood were not included in the multiple regression analyses because they were highly correlated with other neighborhood social environment variables, leading to the multicollinearity problem in the model.

3.4.2.1.1. Supportive Services or Programs

The supportive services or programs in the neighborhood were measured through two survey questions. One multiple-choice question: “do you use or participate in any of

the following services/programs in your neighborhood at least once a month?" was adapted from a survey instrument developed by the AdvantAge Initiative, Center for Home Care Policy & Research, Visiting Nurse Service of New York (VNSNY). Participating in intergenerational programs was measured by the other question: "do any of the services/programs you use or participate in involve social interaction (talking, spending time together) with younger generations?"

3.4.2.1.2. Social Cohesion and Trust

Neighborhood social cohesion and trust were measured through seven conceptually related items adapted from previously validated survey questionnaires (Sampson, Raudenbush, & Earls, 1997; Zhu, Yu, Lee, & Lu, 2020). On a four-point Likert scale from strongly disagree to strongly agree, the study participants were asked about their degree of agreement with the following statements: "I see many people being physically active (e.g. walking, jogging, cycling, or playing sports) in my neighborhood," "my neighbors could be counted on to help in case of need," "this is a close-knit neighborhood," "people in my neighborhood are willing to help their neighbors," "people in my neighborhood can be trusted," "people in my neighborhood generally do not get along with each other," and "people in my neighborhood do not share the same values." The principal component analysis was conducted to extract two factor variables (see details in 4.1.3.3. Social Cohesion and Trust).

3.4.2.1.3. Digital Communications

For digital communications, the study participants were asked about: "how many days in a typical week do you spend at least 10 minutes communicating with others of different ages using digital media, such as smartphone, computer, and tablet?" with four response choices regarding days (i.e. 0 days, 1-2 days, 3-4 days, and 5-7 days) in a typical week by four response options for others of different ages (i.e. children, teenagers, adults, and older adults). Based on the descriptive statistics of the original survey data, five binary variables were generated to evaluate digital communications with children (yes versus no), teenagers (yes versus no), children or teenagers (yes versus no), adults (0-4 days versus 5-7 days), and older adults (yes versus no) in a typical week.

3.4.2.1.4. Social Networks

For social networks in the neighborhood, the participants were asked to answer the following question with five response choices (i.e. 0, 1-2, 3-5, 6-10, 11 or over): "how many people of different ages do you know in your neighborhood?" for four different age groups (i.e. children, teenagers, adults, and older adults). Based on the distribution of the original survey data, five study variables were generated to represent the number of children (0 versus 1+), teenagers (0 versus 1+), adults (0-5 versus 6+), older adults (i.e. 0, 1-2, 3-5, 6-10, 11 or over), and children or teenagers (0 versus 1+) the participants know in their neighborhood.

3.4.2.1.5. Social support

Neighborhood social support included watching and seeing others doing activities in the neighborhood. Data related to watching activities were collected through the question with four response choices (i.e. 0 days, 1-2 days, 3-4 days, and 5-7 days): "in your neighborhood, how many days in a typical week do you spend at least 10 minutes watching others of different ages doing activities?" for four age groups (i.e. children, teenagers, adults, and older adults). Seeing activities were measured through the question: "what types of outdoor activities in your neighborhood do you see others of different ages doing at least once a week?" for six various types of activities, including walking, biking, playing, sitting (e.g. reading), working (e.g. yardwork), and socializing/talking. All original survey data were finally recoded as binary variables (e.g. watching children doing activities versus not watching).

3.4.2.1.6. Resources for Social Interactions

Resources for social interactions included (1) volunteer work, (2) neighborhoods that have many seniors, (3) number of social places in the neighborhood, and (4) social interactions with neighbors in a typical month. Volunteer work was measured with the question adapted from the survey instrument developed by the AdvantAge Initiative, Center for Home Care Policy & Research, VNSNY: "do you do any volunteer work (spend your time helping a person or organization without being paid for it)?" One multiple-choice question: "do you currently live in a …?" was used to identify if they lived in a neighborhood with many senior residents (e.g. naturally occurring retirement

community). The number of social places in the neighborhood was measured by one question (on a five-point Likert scale from all to none): “about how many of the places where you usually socialize with others are located in your neighborhood?” and recoded as one binary variable (half to all versus less than half). The questions (on a seven-point Likert scale from more than once a day to seldom/never) about social interactions with neighbors were adapted from the Twin Cities Walking Survey (Forsyth, Oakes, & Schmitz, 2009; Zhu et al., 2020). Specifically, the participants were asked: in a typical month, how often they “say hello to a neighbor,” “stop and talk with a neighbor,” “socialize with a neighbor at your home, your neighbor’s home, or someplace else (e.g. restaurant, shopping, ball game),” and “ask for help, seek advice, or borrow things from, or exchange favors with a neighbor.” The principal component analysis was conducted among the four statements to generate one composite variable regarding social interactions with neighbors (see details in 4.1.3.1. Social Interactions with Neighbors).

3.4.2.2. Physical Environments

3.4.2.2.1. Subjectively Measured Physical Environments

The survey questions evaluating neighborhood environments were mostly extracted or adapted from the Neighborhood Environment Walkability Scale (Cerin, Saelens, Sallis, & Frank, 2006; Saelens & Sallis, 2002) except for four variables (i.e. number of places for peer interactions, number of places for social interactions, newly built neighborhood, and neighborhood with mixed land uses). The two variables, including number of places for peer interactions and number of places for social

interactions, were measured through the question: “where do you usually interact (talk, spend time together) with others of different ages at least once a week?” with response choices of different generations (i.e. children, teenagers, adults, and older adults) and places (e.g. street, park/trail, restaurant). Another two variables, involving newly built neighborhood (built in the last 10-15 years) and neighborhood with mixed land uses, were measured through a multiple-choice question: “do you currently live in…?” All other questions that were extracted or adapted from the Neighborhood Environment Walkability Scale evaluated neighborhood environments in terms of (1) access to services, (2) streets in the neighborhood, (3) walking/cycling facilities, (4) neighborhood surroundings, (5) safety from traffic, and (6) safety from crime. The principal component analyses were conducted among these questions, and detailed results can be found in 4.1.3 Factor Analysis.

3.4.2.2.2. Objectively Measured Physical Environments

This dissertation research incorporated three types of objectively environmental variables, including (1) those captured within the sausage buffers, (b) those measured within the shortest network distances, as well as (3) walk, transit, and bike scores from the 2019 Walk Score (walkscore.com). The sausage buffer refers to buffering all streets located within a ½-mile street distance from each participant’s home, and for a “radius” of 100 feet on both sides of the street center line (Figure 4).

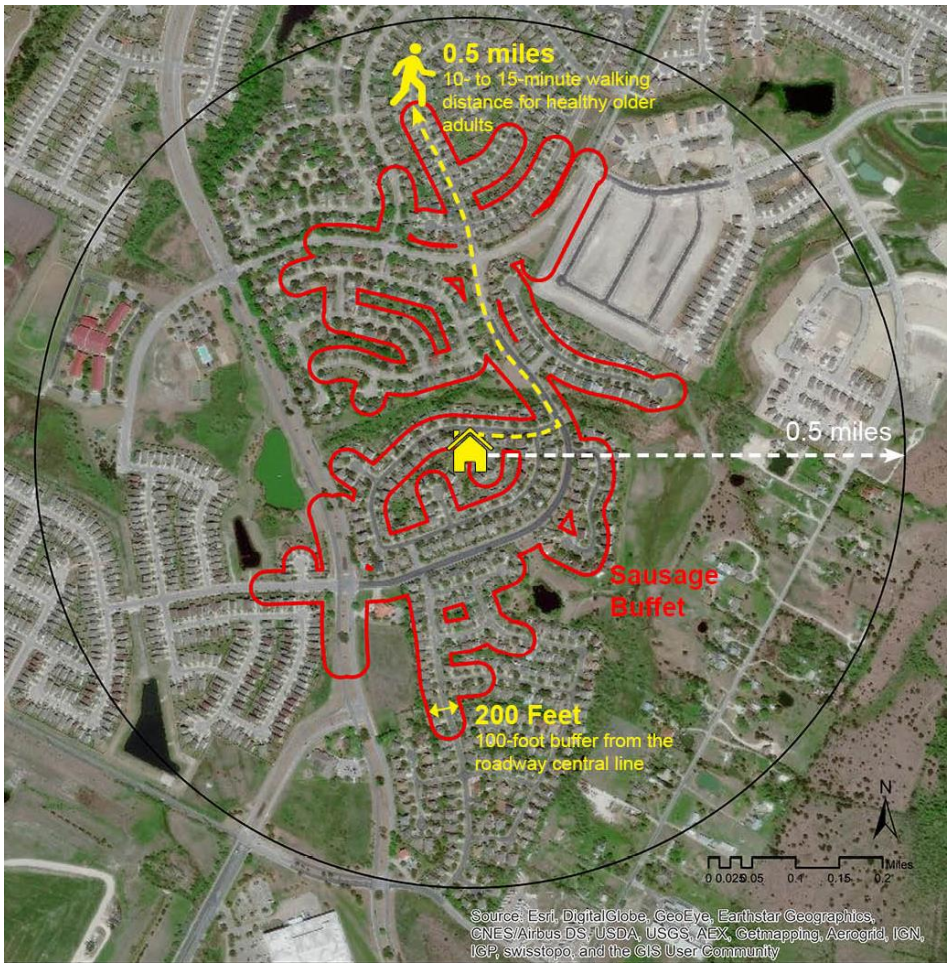


Figure 4 Sausage buffer of one study participant.

Table 3 provides a complete list of the objective variables and corresponding measures that were tested in the inferential analyses. The variables measured within the sausage buffers evaluated seven domains of neighborhood environments (i.e. transportation, general land use, destination land use, land cover, terrain, safety, and economic development), while those measured within the shortest network distances captured two domains (i.e. transportation and destination land uses).

Table 3 Objectively Measured Physical Environments.

Domains	Variables	Measures	Types	Sources
Sausage Buffers				
Transportation	Street segments	Length (miles) and density (miles/acre)	Continuous	COA (2019)
	High speed streets (>30mph)	Length (miles) and percentage (%)	Continuous	COA (2019)
	Sidewalks	Length (miles) and coverage (length of sidewalk/2*length of streets)	Continuous	COA (2019)
	Bike lanes	Length (miles) and coverage (length of bike lanes/length of streets)	Categorical	COA (2017)
	Transit stops	Number (n) and density (n/acre)	Categorical/ binary	CM (2019)
	Transit routes	Number (n)	Continuous	CM (2019)
	Marked crosswalks	Number (n) and density (n/acre)	Categorical	ATD (2017)
	Traffic signals	Number (n) and density (n/acre)	Categorical	COA (2019)
	Stop signs	Number (n) and density (n/acre)	Continuous	ATD (2017)
	Intersections with 3 or more ways	Number (n) and density (n/acre)	Continuous	COA (2019)
	Intersections with traffic signals	Number (n) and percentage (%)	Categorical	COA (2019)
	Intersections with marked crosswalks	Number (n) and percentage (%)	Categorical	COA (2019) ATD (2017)
	Intersections with stop signs	Number (n) and percentage (%)	Continuous	COA (2019) ATD (2017)
General Land Use	Residential unit	Number (n) and density (n/acre)	Continuous	COA (2018)
	Residential land use	Area (acres) and percentage (%)	Continuous	COA (2019)
	Net residential density	Number of residential units/residential land area (n/acre)	Continuous	COA (2018-2019)
	Commercial land use	Presence: no or yes (0/1)	Binary	COA (2019)
	Office	Area (acres) and percentage (%)	Categorical	COA (2019)
	Recreational land use	Area (acres) and percentage (%)	Categorical	COA (2019)
	Locally undesirable land use	Area (acres) and percentage (%)	Categorical	COA (2019)
	Land use mix	$-[P_{Resi} * \ln(P_{Resi}) + P_{Comm} * \ln(P_{Comm}) + P_{Offi} * \ln(P_{Offi}) + P_{Rec} * \ln(P_{Rec})]/\ln(4)$	Continuous	COA (2019)
Destination Land Use[1]	All destinations	Number (n) and density (n/acre)	Continuous	BA (2019)
	Commercial destinations	Number (n) and density (n/acre)	Categorical	BA (2019)
	Locally undesirable destinations	Number (n) and density (n/acre)	Categorical	BA (2019)
	Eating and drinking destinations	Number (n) and density (n/acre)	Categorical	BA (2019)
	Food stores	Presence: no or yes (0/1)	Binary	BA (2019)
	Small retail and commercial services	Number (n) and density (n/acre)	Categorical	BA (2019)
	Big box retails	Presence: no or yes (0/1)	Binary	BA (2019)
	Banks and post offices	Number (n) and density (n/acre)	Categorical	BA (2019)
	Educational and community destinations	Number (n) and density (n/acre)	Categorical	BA (2019)
	Religious destinations	Number (n) and density (n/acre)	Categorical	BA (2019)
	Other institutions[2]	Presence: no or yes (0/1)	Binary	BA (2019)
	Offices	Number (n) and density (n/acre)	Categorical	BA (2019)
	Sports and fitness destinations	Presence: no or yes (0/1)	Binary	BA (2019)
Destination Land Use[1]	Parks	Number (n), density (n/acre), area (acres), and percentage (%)	Categorical	PARD (2019)
	Facilities in the parks[3]	Presence: no or yes (0/1)	Binary	PARD (2019)
	Park trails	Length (miles)	Categorical	PARD (2019)
	4-category mixed use	$-[P_{Resi} * \ln(P_{Resi}) + P_{Comm} * \ln(P_{Comm}) + P_{Rec} * \ln(P_{Rec}) + P_{Others} * \ln(P_{Others})]/\ln(4)$	Continuous	BA (2019)
	3-category mixed use	$-[P_{Resi} * \ln(P_{Resi}) + P_{Comm+Rec} * \ln(P_{Comm+Rec}) + P_{Others} * \ln(P_{Others})]/\ln(3)$	Continuous	BA (2019)
Land Cover	Tree canopy	Area (acres) and percentage (%)	Continuous	TNRIS (NAIP Imagery 2016)
Terrain	Slope	Mean slope and mean street slope	Continuous	USGS (2014)
Safety	Average annual crimes[4]	Number (n) and density (n/acre)	Continuous	APD (2014-2017)
	Average annual violent crimes[4]	Number (n) and density (n/acre)	Continuous	APD (2014-2017)
	Average annual property crimes[4]	Number (n) and density (n/acre)	Continuous	APD (2014-2017)
	Average annual behavioral crimes[4]	Number (n) and density (n/acre)	Continuous	APD (2014-2017)
	Annual traffic crashes	Number (n) and density (n/acre)	Continuous	TXDOT (2017)
	Annual fatal crashes	Presence: no or yes (0/1)	Binary	TXDOT (2017)

Table 3 Continued.

Domains	Variables	Measures	Types	Sources
Economic Development	Residential parcel appraisal values	Total (dollars) and mean (dollars/acre)	Continuous	COA (2018)
	Employees	Total number (n), number in major employer (n), and density (n/acre)	Continuous	OnTheMap (2017)
	Development permits issued in 2019	Presence: no or yes (0/1)	Binary	COA (2019)
Shortest Network Distances to the Closest Destinations				
Transportation	Transit stop	Shortest network distance (miles)	Continuous	CM (2019)
	Rail station	Shortest network distance (miles)	Continuous	CM (2019)
	Transit routes at the closest stop	1 transit route or 2+ transit routes (0/1)	Binary	CM (2019)
Destination Land Use[1]	Commercial destination	Shortest network distance (miles)	Continuous	BA (2019)
	Locally undesirable destination	Shortest network distance (miles)	Continuous	BA (2019)
	Eating and drinking destination	Shortest network distance (miles)	Continuous	BA (2019)
	Food store	Shortest network distance (miles)	Continuous	BA (2019)
	Small retail and commercial services	Shortest network distance (miles)	Continuous	BA (2019)
	Big box retail	Shortest network distance (miles)	Continuous	BA (2019)
	Bank and post office	Shortest network distance (miles)	Continuous	BA (2019)
	Educational and community destination	Shortest network distance (miles)	Continuous	BA (2019)
	Religious destination	Shortest network distance (miles)	Continuous	BA (2019)
	Other institution[2]	Shortest network distance (miles)	Continuous	BA (2019)
	Office	Shortest network distance (miles)	Continuous	BA (2019)
	Sports and fitness destination	Shortest network distance (miles)	Continuous	BA (2019)
	Park	Shortest network distance (miles) and area (acres)	Continuous	PARD (2019)
	Park trails	Shortest network distance (miles)	Continuous	PARD (2019)
	Park with/next to the water feature	Shortest network distance (miles)	Continuous	COA (2016)
Walkability Scores				
Walk scores: walkability of a place estimating distances to nearby facilities and pedestrian friendliness (0-100)			Continuous	WS (2019)
Transit scores: how well of a place served by public transits (i.e. distances and types of nearby transit lines) (0-100)			Continuous	WS (2019)
Bike scores: bikeability of a place estimating bike lanes, street connectivity, terrains, and destinations (0-100)			Continuous	WS (2019)

Note: 1: Detailed information can be found in Appendix G.
2: Other institutions included legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).
3: Facilities in park included restrooms, picnic shelters, swimming pools, tennis courts, and playgrounds.
4: Average annual crimes were calculated based on data from 2014 to 2017.
5: APD: Austin Police Department; ATD: Austin Transportation Department; BA: Business Analyst (bao.arcgis.com); CM: Capital Metro (data.texas.gov); COA: City of Austin GIS Data on Open Data Portal (austintexas.gov/department/gis-data); OnTheMap (onthemap.ces.census.gov); PARD: Austin Parks and Recreation Department; TNRIS: Texas Natural Resources Information System (data.tnris.org); TXDOT: Texas Department of Transportation (txdot.gov/inside-txdot/division/traffic/data-access.html); USGS: United States Geological Survey (usgs.gov/products/maps/gis-data); WS: Walk Score (walkscore.com)

3.4.2.3. Neighborhood Age Composition

As there were no widely-accepted standards or recommendations for calculating neighborhood age composition, this dissertation research explored three different methods to calculate neighborhood age composition within a ½-mile airline buffer around each respondent's home, as well as at the census block group level. Table 4 shows the specific measures for each of the three methods.

Table 4 Neighborhood Age Mix Calculation Methods.

Domains	Methods/Measures
Method 1[a]	Age Mix $= -1(\sum_{i=1}^{n} Pi * \ln(Pi))/\ln(n)$; adapted from land use mix entropy (Brown et al., 2009)
Three age group	Children (age 0-17), adults (age 18-64), and older adults (age 65+)
Five age group 1	Children (age 0-17), adults (age 18-64), youngest-old adults (age 65-74), middle-old adults (age 75-84), oldest-old adults (age 85+)
Five age group 2	Children (age 0-17), emerging adults (age 18-24), young adults (age 25-44), middle-aged adults (age 45-64), older adults (age 65+)
Method 2[b]	Age Mix $= 1/2(\sum_{i=1}^{n} \lvert Ci - Pi \rvert)$; derived from the race-based neighborhood diversity index (Maly, 2000)
Three age group	Children (age 0-17), adults (age 18-64), and older adults (age 65+)
Five age group 1	Children (age 0-17), adults (age 18-64), youngest-old adults (age 65-74), middle-old adults (age 75-84), oldest-old adults (age 85+)
Five age group 2	Children (age 0-17), emerging adults (age 18-24), young adults (age 25-44), middle-aged adults (age 45-64), older adults (age 65+)
Method 3	
Children (age 0-4)	
Number	The number of children (age 0-4) within the ½-mile airline buffer or the census block group
Percent	The number of children (age 0-4) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of children (age 0-4) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of children (age 0-4) divided by the total area of the ½-mile airline buffer or the census block group
Children (age 5-9)	
Number	The number of children (age 5-9) within the ½-mile airline buffer or the census block group
Percent	The number of children (age 5-9) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of children (age 5-9) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of children (age 5-9) divided by the total area of the ½-mile airline buffer or the census block group
Children (age 10-14)	
Number	The number of children (age 10-14) within the ½-mile airline buffer or the census block group
Percent	The number of children (age 10-14) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of children (age 10-14) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of children (age 10-14) divided by the total area of the ½-mile airline buffer or the census block group
Children (age 15-17)	
Number	The number of children (age 15-17) within the ½-mile airline buffer or the census block group
Percent	The number of children (age 15-17) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of children (age 15-17) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of children (age 15-17) divided by the total area of the ½-mile airline buffer or the census block group
Children (age 0-17)	
Number	The number of children (age 0-17) within the ½-mile airline buffer or the census block group
Percent	The number of children (age 0-17) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of children (age 0-17) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of children (age 0-17) divided by the total area of the ½-mile airline buffer or the census block group
Adults (age 18-64)	
Number	The number of adults (age 18-64) within the ½-mile airline buffer or the census block group
Percent	The number of adults (age 18-64) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of adults (age 18-64) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of adults (age 18-64) divided by the total area of the ½-mile airline buffer or the census block group
Older adults (age 65+)	
Number	The number of older adults (age 65+) within the ½-mile airline buffer or the census block group
Percent	The number of older adults (age 65+) divided by the number of all populations within the ½-mile airline buffer or the census block group
Density 1	The number of older adults (age 65+) divided by the residential area within the ½-mile airline buffer or the census block group
Density 2	The number of older adults (age 65+) divided by the total area of the ½-mile airline buffer or the census block group

Note: a: Pi is the percentage of each age group with the ½-mile airline buffer or block group and n is the total number of age groups.
b: Ci is the percentage of each age group in Austin, Texas, Pi is the percentage of each age group within the ½-mile airline buffer or block group, and n is the total number of age groups

For each participant, the number of people in each individual age group (e.g. children, adults, older adults) within the ½-mile airline buffer was calculated based on the 2018 census block group population data (U.S. Census Bureau, 2018) using the following formula:

$$\mathrm{N} = \sum_{i=1}^{n} Ni\, Pi$$

where N is the number of people in each of the individual age groups within the ½-mile airline buffer, Ni is the number of people in each of the individual age groups within each census block group, Pi is the percentage of the residential land use located within the ½-mile airline buffer for each census block group; and n is the total number of census block groups within the ½-mile airline buffer.

Two of the three methods were adapted from previously developed methods that were commonly used to estimate the level of neighborhood mix/diversity based on land uses and races. The Method 1 formula was adapted from land use mix entropy (Brown et al., 2009). The Method 2 formula was derived from the race-based neighborhood diversity index (Maly, 2000). The Method 3 used the number, percent, and density of seven different age groups within the ½-mile airline buffer or the census block group, while current empirical studies investigated only the associations between the percentage of older adults in the neighborhood and older adults' health (Moorman, Stokes, & Morelock, 2017).

3.4.3. Confounding Variables

3.4.3.1. Demographics and Socioeconomic Characteristics

All survey questions measuring participants' demographics and socioeconomic characteristics were extracted or adapted from the Behavioral Risk Factor Surveillance System (2018); two survey instruments developed by the AdvantAge Initiative, Center for Home Care Policy & Research, VNSNY; and the Neighborhood Quality of Life Survey for Seniors (King et al., 2011). This dissertation research controlled seven

variables in all final regression models, including age (years), gender (male versus female), race and ethnicity (non-Hispanic White versus others), marital status (married or unmarried couples versus others), education level (nine levels from less than high school to doctorate degree), income (i.e. low, lower-middle, upper-middle, high, don't know or prefer not to answer), and general health conditions (i.e. excellent, very good, good, fair, poor). More variables that were identified to be important for some regression models included housing type (one-family detached house versus others), dog in the household (yes versus no), employment status (employed versus not employed), sleep time per day (hours), heart related diseases (yes versus no), difficulty walking (yes versus no), mobility aids (yes versus no), life event regarding personal illness (yes versus no) and illness of a family member or friend (yes versus no), and alcoholic drink (yes versus no). Other variables that were tested but insignificant in the multiple regression analyses included body mass index, home ownership, cat in the household, living arrangement (except living with spouse that was highly correlated with marital status), caregiving, other diseases (e.g. anxiety, depression, cancer), difficulty hearing or seeing, falling, and other life events (i.e. death of a spouse, family member, or friend, non-medical events).

3.4.3.2. Residential Self-Selection

Residential self-selection factors are important to help address the common problem of self-selection bias inherent in studies like this. In this research, those factors were measured by asking to rate the importance of a series of reasons behind their

residential location choice: “how important are the following reasons for you to choose living in your current home?” with four-point Likert response options (i.e. not at all important, slightly important, moderately important, very important) (Frank, Saelens, Powell, & Chapman, 2007). The principal component analysis was conducted among the 16 items (e.g. affordability, close to park and natural open spaces) in the question and generated five self-selection factor variables. The variables were (1) affordability (very important versus others), (2) proximity to public transportation (not at all important versus others), (3) diversity of age groups (four-point Likert scale from not at all important to very important), (4) neighborhood environments (eight-item composite scores from -2.71 to 1.54), and (5) neighborhood social cohesion (four-item composite scores from -1.74 to 2.40). Detailed results of the principal component analysis can be found in 4.1.3.2 Residential Self-Selection.

3.4.3.3. Recruitment Channel

Data related to recruitment methods were collected through asking the participants to answer a multiple-choice question: “how did you hear about this study?” with options for different recruitment channels (e.g. families or friends, Nextdoor). Those binary variables capturing individual recruitment channels were tested for each of the four social activity outcomes and two walking variables. Only one variable, participants recruited from social media (yes versus no), was significant and controlled for recreational walking.

3.5. Data Analyses

3.5.1. Test-retest Reliability Assessment

The test-retest reliability assessment was performed among 38 online-survey participants using Stata/IC 15. The recorded data between test and retest were compared to check the reliability of each item in the survey using: (1) ICC for continuous variables, (2) Kappa for nominal variables, and (3) Weighted Kappa for ordinal variables. Both full and partial agreements were assessed for the survey questions in the sections 1 to 5. For the partial agreement assessment, the retest response was considered in agreement with the test response if it meets the following criteria:

- Continuous: The difference between test and retest is equal to or less than the standard deviation (i.e. Q1-7, 13.2, 17).
- Ordinal: The difference between test and retest is equal to or less than "1" (i.e. Q8-10, 12, 15, 16, 18-21, 23-24, 27-35, 39-40).
- Nominal: There are certain overlaps between the test and retest answers (i.e. Q11, 14, 22, 26, 36).

3.5.2. Full Study Data Analyses

3.5.2.1. Descriptive Statistics

This dissertation research used IBM SPSS Statistics 25.0 to generate most descriptive and inferential statistics and employed Stata/IC 15 to build the structural equation models. Descriptive statistics, including central tendency, dispersion or variation, and distribution, were reported to summarize and describe the basic features of

the variables. The basic demographic characteristics (e.g. age and gender) of the study participants were compared with the Austin and US senior population to assess the potential sample bias. Only those variables with appropriate levels of distribution were used for the bivariate and multiple regression analyses, or transformation was made as appropriate. Also, the number and pattern of missing data were examined and corresponding strategies of dealing with missing data, such as listwise deletion and mean imputation, were utilized.

3.5.2.2. Inferential Statistics

3.5.2.2.1. Correlates of Older Adults' Social Activities

Bivariate Analyses. Bivariate analyses (i.e. independent samples t-test or chi-square test) were conducted among individual demographic/socioeconomic and the residential self-selection variable, individual neighborhood social and physical environment variable, and each of the four outcome measures of intergenerational or other social interactions (see Appendix F for the bivariate analysis results). The variables, in terms of demographic/socioeconomic and residential self-selection factors as well as neighborhood social and physical environments that were significantly correlated with each intergenerational or other social interaction variable, were included in corresponding multiple regression analyses.

Multiple Regression Analyses. This dissertation research used binary logistic regression to evaluate correlates of older adults' intergenerational and other social interactions in four steps. First, a base model was built for each of the four outcomes by

regressing individual intergenerational or the other social interaction variable on the significant demographic/socioeconomic and residential self-selection variables identified from the previous bivariate analyses. Second, the significant perceived social and physical environment variables were added to the base model. Third, the perceived physical environments in the second step were replaced with the significant objective physical environments (i.e. GIS data or walk scores). Fourth, a final model was built with all significant perceived and objective environment variables for each of the four intergenerational or other social interaction variables, after controlling for demographic/socioeconomic characteristics and residential self-selection factors.

3.5.2.2.2. Intergenerational Interactions and Walking

Bivariate Analyses. A Chi-square test was conducted between each intergenerational interaction variable, including both direct and indirect intergenerational interactions (e.g. watching and seeing younger generations doing activities in the neighborhood), and older adults' transportation or recreational walking, respectively. The intergenerational interaction variables that were significantly correlated with older adults' walking were included in the multiple regression models.

Multiple Regression Analyses. As there is no widely-accepted evidence showing the causal relationships between intergenerational interactions and walking, this dissertation research explored two different ways of running binary logistic regression. One method considered walking activities as the independent variables to predict intergenerational interactions, while the other regressed transportation or recreational

walking on the significant intergenerational interaction variables. All multiple regression models controlled for demographic and socioeconomic characteristics, residential self-selection, and perceived and objective environments.

3.5.2.2.3. Correlates of Social Interactions Versus Walking

Following the same steps described in 3.5.2.2.1. Correlates of Older Adults' Social Activities, bivariate (i.e. independent samples t-test or chi-square test) and multiple regression analyses (i.e. binary logistic regression) were conducted to build two multiple regression models investigating correlates of older adults' transportation and recreational walking respectively. A summary table was utilized to incorporate the significant results of the six multiple regression models evaluating correlates of intergenerational and other social activities, as well as walking, for the variation and similarity comparisons.

3.5.2.2.4. Mediation Effects

This dissertation research first explored the four-step approach (Baron & Kenny, 1986; James & Brett, 1984; Judd & Kenny, 1981) using IBM SPSS Statistics 25.0 and then built a structural equation model (Cheung & Lau, 2007) using Stata/IC 15 to investigate the mediation effects of intergenerational interactions on physical environments and walking, as well as if/how walking mediated the associations between physical environments and intergenerational interactions. In terms of the four-step approach, the first step was to conduct binary logistic regression with physical

environments predicting older adults' walking after controlling for demographic and socioeconomic characteristics, residential self-selection factors, and social environments. The second step was to conduct binary logistic regression with physical environments predicting older adults' intergenerational interactions after controlling for demographic and socioeconomic characteristics, residential self-selection factors, and social environments. The third step was to test the associations between intergenerational interactions and walking, controlling for demographic and socioeconomic characteristics, residential self-selection factors, and social and physical environments. The fourth step was to regress walking on physical environments and intergenerational interactions (mediators), and regress intergenerational interactions on physical environments and walking (mediators), controlling for demographic and socioeconomic characteristics, residential self-selection factors, and social environments.

Based on the results from the four-step approach, the significance of mediation effects can be tested if (1) physical environments were significantly associated with older adults' walking in the first step, (2) physical environments were significantly related to intergenerational interactions in the second step, (3) intergenerational interactions were significantly correlated with walking among older adults in the third step, and (4) physical environments were not significantly associated with walking or intergenerational interactions in the fourth step. If the four-step approach suggests the mediation effects, the structural equation modeling will be applied to further investigate the significance of the indirect path.

4. RESULTS

4.1. Reliability and Descriptive Results

4.1.1. Test-Retest Reliability Assessment

4.1.1.1. Results by Items and Sections

The survey instrument is reliable with more than 80% (180 out of 217) and 100% of reliable items based upon the full and partial agreement assessment respectively. Table 5 summarizes the overall reliability test results by sections. Tables 6 to 13 include the detailed item-by-item reliability test results for each section.

Table 5 Overall Reliability Test Results by Sections.

Section	Statistical Methods	Full Agreement					Partial Agreement*		
		No. of Items	No. of Reliable Items#	Min	Max	Mean	Min	Max	Mean
1	ICC	8	8	0.608	0.922	0.772	0.631	0.926	0.801
2	Kap	2	2	0.488	0.787	0.637	1.000	1.000	1.000
	Wgt Kap	20	18	0.358	0.710	0.552	0.649	1.000	0.887
3_All	ICC	1	1	0.983	0.983	0.983	0.984	0.984	0.984
	Kap	27	23	0.017	0.721	0.539	0.568	1.000	0.786
	Wgt Kap	5	4	0.387	0.633	0.507	0.690	1.000	0.861
3_In	ICC	1	1	0.861	0.861	0.861	0.873	0.688	0.539
	Kap	6	6	0.554	0.750	0.637	0.873	0.917	1.000
	Wgt Kap	17	11	0.195	0.650	0.480	0.873	0.831	0.777
3_Out	Kap	n/a	n/a	n/a	n/a	n/a	0.934	0.934	0.934
	Wgt Kap	8	6	-0.117	0.710	0.439	0.713	0.950	0.841
4	ICC	1	1	0.995	0.995	0.995	n/a	n/a	n/a
	Kap	3	3	0.430	0.620	0.508	0.528	1.000	0.786
	Wgt Kap	75	54	0.006	0.770	0.489	0.463	1.000	0.829
5	Kap	1	1	0.650	0.650	0.650	0.746	0.746	0.746
	Wgt Kap	2	2	0.604	0.753	0.679	0.796	0.910	0.853
6	ICC	11	10	0.350	1.000	0.870	n/a	n/a	n/a
	Kap	25	25	0.467	1.000	0.789	n/a	n/a	n/a
	Wgt Kap	4	4	0.648	0.791	0.733	n/a	n/a	n/a

Note: # Items with the ICC values equal to or more than 0.6 or Kappa/Weighted Kappa value more than 0.4

* If the difference between test and retest is equal to or less than the standard deviation for the continuous variables (i.e. Q1-7, 13.2, 17) or "1" for the ordinal variables (i.e. Q8-10, 12, 15, 16, 18-21, 23-24, 27-35, 39-40), or if there are certain overlaps between the test and retest for the nominal variables (i.e. Q11, 14, 22, 26, 36), we recode the retest to be the same as the test results.

Table 6 Item-by-Item Reliability Test Results: Physical Activities and Walking.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC	Agreement Rate	ICC	Agreement Rate
1[1]	37	0.659	7.89%	0.695	83.78%
2	38	0.726	23.68%	0.768	81.58%
3	38	0.922	50.00%	0.925	68.42%
4	35	0.715	17.14%	0.781	88.57%
5	36	0.608	50.00%	0.631	91.67%
6	35	0.915	22.86%	0.921	71.43%
7.1	38	0.713	18.42%	0.757	86.84%
7.2	37	0.917	16.22%	0.926	59.46%

Note: 1. We exclude one participant with an answer of more than 24 hours per day in test, which is an obvious error.

* If the difference between test and retest is equal to or less than the standard deviation, we recode the retest to be the same as the test results.

Table 7 Item-by-Item Reliability Test Results: Quality of Life and Mental Health.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		Weighted Kappa	Agreement Rate	Weighted Kappa	Agreement Rate
8	38	0.604	71.05%	0.928	97.37%
9	38	0.710	65.79%	1.000	100.00%
10.1	38	0.358	76.32%	0.649	92.11%
10.2	38	0.578	86.84%	1.000	100.00%
10.3	38	0.488#	86.84%	1.000#	100.00%
10.4	38	0.559	73.68%	0.724	89.47%
10.5	38	0.454	65.79%	0.769	92.11%
10.6	38	0.689	84.21%	1.000	100.00%
10.7	38	0.558	60.53%	0.948	97.37%
10.8	38	0.444	60.53%	0.748	89.47%
10.9	37	0.694	89.19%	1.000	100.00%
10.10	38	0.428	68.42%	1.000	100.00%
10.11	37	0.470	59.46%	0.866	94.59%
10.12	37	0.640	72.97%	0.863	94.59%
10.13	38	0.370	71.05%	0.753	94.74%
10.14	38	0.657	76.32%	0.908	97.37%
10.15	38	0.565	84.21%	1.000	100.00%
10.16	37	0.545	67.57%	0.769	91.89%
10.17	38	0.787#	97.37%	1.000#	100.00%
10.18	38	0.453	71.05%	1.000	100.00%
10.19	38	0.661	86.84%	1.000#	100.00%
10.20	38	0.599	71.05%	0.934	97.37%

Note: # Use Kappa since Weighted Kappa is not available.

* If the difference between test and retest is equal to or less than "1", we recode the retest to be the same as the test results.

Table 8 Item-by-Item Reliability Test Results: Intergenerational and Other Social Activities.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate	ICC/ Kappa/ Weighted Kappa	Agreement Rate
11.1	37	0.396[k]	32.43%	0.616[k]	67.57%
11.2	35	0.545[k]	45.71%	0.727[k]	77.14%
11.3	36	0.518[k]	44.44%	0.733[k]	77.78%
11.4	35	0.398[k]	42.86%	0.705[k]	80.00%
11.5	35	0.558[k]	45.71%	0.684[k]	71.43%
11.6	35	0.444[k]	54.29%	0.568[k]	71.43%
11.7	37	0.677[k]	67.57%	0.860[k]	89.19%
11.8	36	0.721[k]	58.33%	0.974[k]	97.22%
11.9	35	0.672[k]	71.43%	1.000[k]	100.00%
11.10	35	0.545[k]	57.14%	0.823[k]	88.57%
11.11	34	0.388[k]	47.06%	0.715[k]	79.41%
11.12	35	0.584[k]	62.86%	0.759[k]	82.86%
11.13	35	0.708[k]	60.00%	0.872[k]	88.57%
11.14	36	0.479[k]	55.56%	0.833[k]	88.89%
11.15	35	0.407[k]	51.43%	0.735[k]	80.00%
11.16	35	0.515[k]	51.43%	0.727[k]	77.14%
11.17	35	0.618[k]	62.86%	0.736[k]	80.00%
11.18	35	0.535[k]	48.57%	0.763[k]	80.00%
11.19	34	0.493[k]	50.00%	0.738[k]	79.41%
11.20	35	0.508[k]	60.00%	0.810[k]	88.57%
11.21	36	0.615[k]	50.00%	0.882[k]	88.89%
12.1	36	0.659[k#]	83.33%	1.000[wk#]	100.00%
12.2	35	0.493[wk]	74.29%	0.901[wk]	97.14%
12.3	38	0.622[k#]	86.84%	1.000[wk#]	100.00%
12.4	38	0.633[wk]	86.84%	1.000[wk]	100.00%
13.1	38	0.649[k]	84.21%	n/a	n/a
13.2	38	0.983[i]	31.58%	0.984[i]	71.05%
14.1[1,2]	38	0.588[k]	63.16%	0.638[k]	73.68%
14.2[2]	36	0.700[k]	69.44%	0.807[k]	83.33%
15.1[3]	38	0.571[wk]	76.32%	0.919[wk]	97.37%
15.2[3]	38	0.017[k#]	71.05%	0.732[wk#]	92.11%
15.3	38	0.451[wk]	60.53%	0.795[wk]	92.11%
15.4	37	0.387[wk]	48.65%	0.690[wk]	83.78%

Note: 1. All missing answers are recoded as "None".

2. The answers for the participants who select "No" in question 13.1 are considered as the valid missing ones and recoded as "None".

3. All missing answers are recoded as "0 days".

i: ICC; k: Kappa; wk: Weighted Kappa; k#: Use Kappa since Weighted Kappa is not available.

* If the difference between test and retest is equal to or less than the standard deviation for the continuous variables (i.e. Q13.2) or "1" for the ordinal variables (i.e. Q12, 15), or if there are certain overlaps between the test and retest for the nominal variables (i.e. Q11, 14), we recode the retest to be the same as the test results.

Table 9 Item-by-Item Reliability Test Results: Intergenerational and Other Social Activities in the Neighborhood.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate	ICC/ Kappa/ Weighted Kappa	Agreement Rate
16	38	0.385[wk]	55.26%	0.704[wk]	86.84%
17	37	0.861[i]	27.03%	0.873[i]	72.97%
18.1	38	0.597[wk]	57.89%	0.763[wk]	86.84%
18.2	38	0.596[wk]	52.63%	0.823[wk]	89.47%
18.3	38	0.489[wk]	50.00%	0.575[wk]	68.42%
18.4	38	0.348[wk]	39.47%	0.630[wk]	81.58%
19.1	36	0.647[wk]	66.67%	0.899[wk]	94.44%
19.2	35	0.563[wk]	71.43%	0.889[wk#]	94.29%
19.3	38	0.585[wk]	57.89%	0.950[wk]	97.37%
19.4	36	0.530[wk]	47.22%	0.799[wk]	86.11%
20.1	36	0.508[wk]	80.56%	0.746[wk]	94.44%
20.2	34	0.553[wk]	85.29%	0.851[wk]	97.06%
20.3	38	0.195[wk]	42.11%	0.539[wk]	78.95%
20.4	34	0.299[wk]	55.88%	0.632[wk]	85.29%
21.1	35	0.583[wk]	74.29%	0.910[wk]	97.14%
21.2	33	0.241[wk]	78.79%	0.725[wk]	96.97%
21.3	38	0.384[wk]	44.74%	0.889[wk]	94.74%
21.4	35	0.650[wk]	68.57%	1.000[wk]	100.00%
22.1	38	0.652[k]	47.37%	0.810[k]	81.58%
22.2	36	0.601[k]	41.67%	0.893[k]	88.89%
22.3	35	0.599[k]	57.14%	0.688[k]	74.29%
22.4	34	0.663[k]	61.76%	0.775[k]	79.41%
22.5	35	0.750[k]	57.14%	0.917[k]	91.43%
22.6	37	0.554[k]	35.14%	0.841[k]	83.78%

Note: i: ICC; k: Kappa; wk: Weighted Kappa

* If the difference between test and retest is equal to or less than the standard deviation for the continuous variables (i.e. Q17) or "1" for the ordinal variables (i.e. Q16, 18-21), or if there are certain overlaps between the test and retest for the nominal variables (i.e. Q22), we recode the retest to be the same as the test results.

Table 10 Item-by-Item Reliability Test Results: Intergenerational and Other Social Activities outside the Neighborhood.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		Weighted Kappa	Agreement Rate	Weighted Kappa	Agreement Rate
23.1	35	0.502	77.14%	0.897	97.14%
23.2	34	-0.117	76.47%	0.726	97.06%
23.3	37	0.520	56.76%	0.846	91.89%
23.4	37	0.559	67.57%	0.830	91.89%
24.1	35	0.568	77.14%	0.934[#]	97.14%
24.2	34	0.231	79.41%	0.713	94.12%
24.3	37	0.534	51.35%	0.928	97.30%
24.4	37	0.710	70.27%	0.950	97.30%

Note: * If the difference between test and retest is equal to or less than "1", we recode the retest to be the same as the test results.

Table 11 Item-by-Item Reliability Test Results: Neighborhood Environment.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate	ICC/ Kappa/ Weighted Kappa	Agreement Rate
25_Y	34	0.995[i]	94.12%	n/a	n/a
25_M	32	0.620[k]	65.63%	n/a	n/a
26	38	0.474[k]	47.37%	0.528[k]	55.26%
27.1	36	0.586[wk]	75.00%	0.813[wk]	94.44%
27.2	38	0.476[wk]	57.89%	0.800[wk]	92.11%
27.3	38	0.281[wk]	34.21%	0.703[wk]	84.21%
27.4	37	0.470[wk]	62.16%	0.652[wk]	83.78%
27.5	38	0.556[wk]	65.79%	0.787[wk]	89.47%
27.6	37	0.770[wk]	70.27%	1.000[wk]	100.00%
27.7	38	0.653[wk]	65.79%	0.886[wk]	94.74%
27.8	38	0.319[wk]	44.74%	0.728[wk]	86.84%
27.9	38	0.500[wk]	55.26%	0.829[wk]	92.11%
27.10	38	0.589[wk]	63.16%	0.833[wk]	92.11%
27.11	38	0.479[wk]	65.79%	0.861[wk]	94.74%
27.12	36	0.577[wk]	61.11%	0.848[wk]	91.67%
27.13	38	0.510[wk]	60.53%	0.860[wk]	94.74%
27.14	38	0.610[wk]	65.79%	0.796[wk]	89.47%
27.15	38	0.602[wk]	63.16%	0.839[wk]	92.11%
27.16	36	0.329[wk]	58.33%	0.665[wk]	88.89%
28.1	38	0.715[wk]	78.95%	1.000[wk]	100.00%
28.2	38	0.691[wk]	76.32%	1.000[wk]	100.00%
28.3	38	0.548[wk]	60.53%	0.893[wk]	94.74%
28.4	36	0.566[wk]	75.00%	1.000[wk]	100.00%
28.5	37	0.494[wk]	70.27%	1.000[wk]	100.00%
28.6	37	0.266[wk]	64.86%	1.000[wk#]	100.00%
28.7	37	0.247[wk]	43.24%	0.709[wk]	86.49%
29.1	38	0.006[wk]	55.26%	0.799[wk]	94.74%
29.2	38	0.426[wk]	47.37%	0.757[wk]	86.84%
29.3	38	0.383[wk]	47.37%	0.819[wk]	92.11%
29.4	38	0.612[wk]	57.89%	0.954[wk]	97.37%
29.5	37	0.643[wk]	64.86%	0.852[wk]	91.89%
29.6	38	0.304[wk]	52.63%	0.669[wk]	86.84%
29.7	37	0.650[wk]	64.86%	0.950[wk]	97.30%
29.8	37	0.198[wk]	67.57%	0.552[wk]	89.19%
30.1	38	0.551[wk]	60.53%	0.764[wk]	86.84%
30.2	38	0.217[wk]	47.37%	0.494[wk]	76.32%
30.3	37	0.309[wk]	56.76%	0.590[wk]	83.78%
30.4	38	0.399[wk]	44.74%	0.782[wk]	89.47%
30.5	38	0.507[wk]	63.16%	0.880[wk]	94.74%

Note: i: ICC; k: Kappa; wk: Weighted Kappa

* If the difference between test and retest is equal to or less than "1" for the ordinal variables (i.e. Q27-30), or if there are certain overlaps between the test and retest for the nominal variables (i.e. Q26), we recode the retest to be the same as the test results.

Table 11 Continued.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate	ICC/ Kappa/ Weighted Kappa	Agreement Rate
31.1	38	0.747wk	68.42%	1.000wk	100.00%
31.2	38	0.504wk	63.16%	0.764wk	89.47%
31.3	38	0.328wk	55.26%	0.600wk	81.58%
31.4	38	0.501wk	52.63%	0.814wk	89.47%
31.5	37	0.440wk	51.35%	0.725wk	86.49%
31.6	37	0.212wk	75.68%	0.619wk	94.59%
32.1	38	0.244wk	65.79%	0.811wk	97.37%
32.2	38	0.599wk	68.42%	0.939wk	97.37%
32.3	38	0.554wk	65.79%	0.933wk	97.37%
32.4	38	0.487wk	63.16%	1.000wk	100.00%
32.5	38	0.530wk	63.16%	0.936wk	97.37%
32.6	38	0.547wk	71.05%	0.926wk	97.37%
33.1	38	0.585wk	68.42%	0.820wk	92.11%
33.2	38	0.488wk	63.16%	0.715wk	86.84%
33.3	38	0.120wk	47.37%	0.463wk	78.95%
33.4	38	0.281wk	47.37%	0.652wk	86.84%
33.5	38	0.506wk	57.89%	0.870wk	94.74%
33.6	37	0.510wk	59.46%	0.750wk	89.19%
33.7	35	0.285wk	45.71%	0.646wk	85.71%
33.8	38	0.607wk	73.68%	0.816wk	92.11%
34.1	38	0.510wk	63.16%	0.853wk	94.74%
34.2	38	0.395wk	60.53%	0.869wk	94.74%
34.3	38	0.649wk	71.05%	0.939wk	97.37%
34.4	38	0.738wk	81.58%	1.000wk	100.00%
34.5	38	0.430k#	84.21%	0.830wk#	94.74%
34.6	38	0.626wk	71.05%	0.914wk	97.37%
35.1	38	0.707wk	84.21%	1.000wk	100.00%
35.2	35	0.647wk	71.43%	0.860wk	94.29%
35.3	37	0.427wk	56.76%	0.864wk	94.59%
35.4	38	0.451wk	63.16%	0.793wk	92.11%
35.5	37	0.502wk	67.57%	0.899wk	97.30%
35.6	37	0.718wk	81.08%	1.000wk	100.00%
35.7	38	0.470wk	52.63%	0.848wk	92.11%
35.8	38	0.381wk	42.11%	0.794wk	89.47%
35.9	38	0.711wk	76.32%	1.000wk	100.00%
35.10	38	0.631wk	71.05%	0.916wk	97.37%
35.11	38	0.554wk	57.89%	0.903wk	94.74%
35.12	38	0.371wk	44.74%	0.820wk	92.11%
35.13	36	0.453wk	47.22%	0.914wk	97.22%
35.14	38	0.594wk	78.95%	1.000wk	100.00%

Note: i: ICC; k: Kappa; wk: Weighted Kappa; k#: Use Kappa since Weighted Kappa is not available.

* If the difference between test and retest is equal to or less than "1" for the ordinal variables (i.e. Q31-35), we recode the retest to be the same as the test results.

Table 12 Item-by-Item Reliability Test Results: Supportive Service or Programs.

Question No.	Number of Participants	Full Agreement		Partial Agreement*	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate	ICC/ Kappa/ Weighted Kappa	Agreement Rate
36	36	0.650[k]	72.22%	0.746[k]	75.00%
37[1]	3	n/a[2]	66.67%	n/a	n/a
38[1]	3	n/a[2]	66.67%	n/a	n/a
39	38	0.753[wk]	76.32%	0.910[wk]	94.74%
40	37	0.604[wk]	72.97%	0.796[wk]	91.89%

Note: 1. The answers for the participants who select "None of the above" in question 36 are excluded as the valid missing ones.
2. There are only three valid participants after excluding the missing ones. For both questions 37 and 38, two of the three valid participants have the same choice for test and retest.
i: ICC; k: Kappa; wk: Weighted Kappa
* If the difference between test and retest is equal to or less than "1" for the ordinal variables (i.e. Q39-40), or if there are certain overlaps between the test and retest for the nominal variables (i.e. Q36), we recode the retest to be the same as the test results.

Table 13 Item-by-Item Reliability Test Results: Demography.

Question No.	Number of Participants	Full Agreement	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate
41	38	1.000[i]	97.37%
42	38	1.000[k]	100.00%
43	38	1.000[k]	100.00%
44	38	1.000[k]	100.00%
45	38	0.999[i]	65.79%
46	38	0.989[i]	89.47%
47	38	1.000[k]	100.00%
48	38	0.935[k]	94.74%
49	38	0.865[k]	97.37%
50	38	0.935[k]	97.37%
51	38	0.911[k]	92.11%
52	38	0.947[k]	89.47%
53	38	0.864[k]	71.05%
54	38	0.781[k]	81.58%
55.1	37	0.984[i]	97.30%
55.2[1]	33	1.000[i]	81.82%
55.3[1]	35	1.000[i]	100.00%
56[1]	37	0.886[k]	89.19%
57.1	38	0.529[k]	92.11%
57.2	38	0.632[i]	86.84%
57.3	38	0.350[i]	89.47%

Note: 1. The answers for the participants who select "None" in question 55.1 are considered as the valid missing ones and recoded as "0".
i: ICC; k: Kappa

Table 13 Continued.

Question No.	Number of Participants	Full Agreement	
		ICC/ Kappa/ Weighted Kappa	Agreement Rate
58	37	0.767[wk]	75.68%
59	38	0.818[i]	47.37%
60	38	0.770[k]	36.84%
61	38	0.731[k]	92.11%
62	37	n/a[1]	94.59%
63	38	0.642[k]	94.74%
64	37	0.654[k]	97.30%
65	38	0.539[k]	92.11%
66	38	0.655[k]	97.37%
67	38	0.953[i]	68.42%
68	38	n/a[6]	100.00%
69	36	0.482[k,2]	94.44%
70	37	n/a[6]	100.00%
71.1	37	1.000[k]	100.00%
71.2[3]	36	0.846[i]	97.22%
72.1[3,4]	37	0.791[wk]	97.30%
72.2[3,4]	37	1.000[k#]	100.00%
72.3[3,4]	37	0.728[wk]	94.59%
72.4[3,4]	37	n/a[5]	97.30%
72.5[3,4]	37	0.648[wk]	94.59%
73	36	0.646[k]	33.33%
75	36	n/a[6]	100.00%
76.1	37	0.467[k]	86.49%
76.2	37	0.493[k]	86.49%

Note: 1. One participant selects "Yes" in test and "No" in retest, and another participant selects "Don't know/prefer not to answer" in test and "No" in retest. All others select "No" in both test and retest.
2. Three selections of “other, specify” are recoded as “Need no assistance to get around”, which are also consistent with the answers of question 63.
3. The answers are recoded as “0” or “0 times” if the participants select “No” in question 71.1
4. If a participant has partial missing answers in question 72, we recode the missing ones as “0 times”. If a participant misses the whole question 72, we exclude all answers as the missing ones.
5. All participants select “0 times” in test and retest except one participant selects “0 times” in test and “1-2 times” in retest.
6. All participants select "Yes" or “No” in both test and retest.
i: ICC; k: Kappa; wk: Weighted Kappa; k#: Use Kappa since Weighted Kappa is not available.

4.1.1.2. Key Sources of Discrepancy

Most of the discrepancies were associated with items that had insufficient variations and time variant conditions, which accounted for 13 and 10 unreliable items respectively (Table 14). Other possible reasons included (1) recall biases for the residential self-selection questions (reasons for moving into the current residential

location), (2) confusing or complicated statements (e.g. combination of items with different natures such as library and book store, information related to number/geometry), (3) confusion about social activities inside versus outside the neighborhood, (4) lack of "don't know" option, and (5) bicycle or pedestrian trails that were not recognized correctly. Additionally, fatigue might have led to inconsistent answers because the survey was quite long and could be complicated for some older adults. However, the last section had high reliability test results possibly because those questions related to demographic and socioeconomic characteristics were easier to respond compared to most other questions in the survey.

Table 14 Item-by-Item Key Sources of Discrepancy.

Section	Q	Key Sources of Discrepancy
2	10.1 & 10.13	• Lack of variation (See Appendix C showing the distribution) • Time variant condition: The two items could be more incidental base (i.e. be a bit more subjected to short-term/temporal incidents) • Some wording updated from the original validated survey ("in the past week" vs. "in a typical week in the past month")
3_All	11.1, 11.4, & 11.11	The whole question 11 is complicated (older adults may not get used to this type of complicated question). • [Q11.1] Confusion between "Rarely or don't visit" and "No interaction" • [Q11.4] Time variant condition: Outdoor destination may be more subjected to weather/seasonal conditions • [Q11.11] The different natures between library and book store: Combining library and book store may function differently; consider separating them in the future
	15.2	• Lack of variation (See Appendix C showing the distribution)
	15.4	• Time variant condition: Cases may change over time • Confusion between adults and older adults: Age differences between adults and older adults may not be clear based on the appearance
3_In	16	• Social activities inside vs. outside the neighborhood [Hypothesis] Even if older adults spend more time in the neighborhoods, they do most of their meaningful social activities outside the neighborhoods.
	18.4	• Most skewed distribution compared to Q18.1-18.3 (See Appendix C showing the distribution) • Time variant condition: Cases may change over time • Too many categories but with a small sample
	20.3, 20.4, & 21.3	• Time variant condition: Cases may change over time • Confusion between adults and older adults: Age differences between adults and older adults may not be clear based on the appearance
	21.2	• Lack of variation (See Appendix C showing the distribution)

Table 14 Continued.

Section	Q	• Key Sources of Discrepancy
3_Outside	23.2	• Lack of variation (See Appendix C showing the distribution)
	24.2	• Lack of variation (See Appendix C showing the distribution)
4	27.3, 27.8, & 27.16	• Recall bias: Gaps between the actual moving time and the survey time (Older adults may not have a good memory); Contaminated by the test (Older adults may think more thoroughly about the secondary or less important move-in reasons after completing the test)
	28.6 & 28.7	• Double negative questions that older adults may get confused with • No "don't know" option for those who never or rarely communicate/interact with their neighbors • Lack of variation especially for Q28.6 (See Appendix C showing the distribution) • Less strongly disagree in retest
	29.1	• Lack of variation (See Appendix C showing the distribution)
	29.3	• Time variant condition: Difficulty of parking may change based on weekly/daily peak hours and weather/seasonal conditions
	29.6	• Time variant condition: Ease of walk may change based on older adults' health status as well as weather/seasonal conditions • No "don't know" option for those who never or rarely walk to healthcare/medical services
	29.8	• Lack of variation (See Appendix C showing the distribution)
	30.2, 30.3, & 30.4	• Complicated statement: Difficult for older adults to fully understand the questions • Information related to geometry: Difficult for older adults to check/confirm [Consider using the GIS data instead]
	31.3	• Bicycle or pedestrian trail (perceived differently; not recognized correctly; less frequently found) • Less strongly disagree and more somewhat disagree in retest
	31.6	• Lack of variation (See Appendix C showing the distribution)
	32.1	• Lack of variation (See Appendix C showing the distribution)
	33.3 & 33.4	• Time variant condition: Cases may change over time
	33.7	• Confusion for those who do not have marked crosswalk in their neighborhood • No "don't know" option for those who never or rarely walk in their neighborhood
	34.2	• Lack of variation (See Appendix C showing the distribution) • Less strongly agree and more somewhat agree in retest • Difficulty in assessing for those who never/rarely look out through the window and/or in a porch
	35.8	• No "in/outside the neighborhood" in the statement: Older adults may get confused [Consider adding "**in/outside** the neighborhood" to the statement and moving the item at the end of the section]
	35.12	• Complicated statement: Number and quality may be different
6	57.3	• Lack of variation (See Appendix C showing the distribution)

Suggestions of improving the survey instrument for future studies on intergenerational communities.

(1) Separate each of the questions including items with different natures into two different questions (e.g. library and book store, number and quality of food stores).

(2) Simplify or exclude the questions with confusing and complicated statement or recall bias.

(3) Add the "don't know" option to some four-point Likert scale questions in Section 4.

The test-retest reliability assessment results showed that approximately half of the unreliable items were directly or modified from validated survey instruments, including 13 items from the Neighborhood Environment Walkability Scale. This finding suggests that reliability tests should be conducted even for those scales/surveys that have been previously validated, when applying to particular/different populations or settings. The following strategies were applied to respond to the test-retest reliability results, before conducting the bivariate and multiple regression analyses.

- Aggregated and recoded items/variables lacking of variation or with skewed distribution.
- Conducted the principal component analysis for those low-reliability Likert items to extract fewer factor variables and run reliability test for the extracted factor variables.
- Excluded the unreliable subjective environment items/variables from the inferential statistical analyses and utilized corresponding GIS data when available.

4.1.2. Full Study Descriptive Statistics

4.1.2.1. Sample Characteristics

A total of 455 participants aged 65 or older in Austin, Texas completed the full study survey, including 272 online and 183 paper surveys. The age range was 65 to 95, with a mean age of 73 and standard deviation of 6.2. Participants were about 72.1% female, 72.8% non-Hispanic white, and 41.7% married. Approximately 85.7% of

respondents had at least some college education. As for overall health status, only seven participants (1.6%) reported poor health, while 54 older adults (12.0%) described fair and 388 older adults (86.4%) selected good, very good, or excellent. Complete descriptive statistics of the full study data (i.e. subjective and objective data) after recoding are included in Appendix E.

A comparison of the study participants and the Austin older populations (U.S. Census Bureau, 2018) showed that the sample is generally representative of its target population in terms of age, race and ethnicity, marital status, living arrangement, employment status, and housing tenure (Table 15). However, this study recruited more females that was typical in studies like this. As for education, the study participants were much better educated compared to Austin older populations, which could be attributed to the long and complicated survey questionnaire. The comparisons between the paper and online survey participants showed that online survey participants were slightly younger and much higher educated; were more likely to be married or a member of unmarried couple, be employed, and own their current homes; and were less likely to be Hispanic or Latino origin and live with their grandchildren or great-grandchildren. A binary variable capturing paper and online surveys was tested but insignificant in all base models.

Table 15 Comparison of the Study Sample and the Austin Older Populations.

Demographic Characteristics	Study Participants			Austin Older Adults
	Paper	Online	Total	
Age				
65-69	29.5%	39.3%	35.4%	38.4%
70-74	24.0%	33.5%	29.7%	25.5%
75-79	23.5%	15.4%	18.7%	13.1%
80-84	13.7%	8.8%	10.8%	11.1%
85+	9.3%	2.9%	5.5%	11.9%
Gender				
Male	29.5%	26.8%	27.9%	44.4%
Female	70.5%	73.2%	72.1%	55.6%
Race and Ethnicity				
Hispanic or Latino origin (of any race)	50.8%	11.2%	13.7%	19.6%
White alone, not Hispanic or Latino	49.2%	88.8%	72.8%	66.0%
Marital Status				
Married	34.4%	46.7%	41.7%	54.2%
Widowed	29.5%	12.6%	19.4%	21.0%
Divorced	24.0%	27.0%	25.8%	17.1%
Separated	2.7%	1.1%	1.8%	1.6%
Never married	7.1%	8.1%	7.7%	6.2%
A member of an unmarried couple	2.2%	4.4%	3.5%	N/A
Education				
Less than high school graduate	10.4%	0.4%	4.4%	12.8%
High school graduate, GED, or alternative	18.0%	4.4%	9.9%	19.4%
Some college or associate's degree	26.2%	15.8%	20.0%	19.4%
Bachelor's degree or higher	45.4%	79.4%	65.7%	48.4%
Living with grandchild (or great-grandchild)	9.3%	3.0%	5.6%	5.2%
Employment Status (employed)	9.8%	23.5%	18.0%	25.4%
Housing Tenure				
Owner-occupied housing units	65.0%	84.9%	76.9%	75.5%
Renter-occupied housing units	35.0%	15.1%	23.1%	24.5%

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

Although the study sample is biased in certain demographic characteristics, it has appropriate representativeness in terms of geographic distribution except that fewer study participants were recruited from the high-end communities in northwest Austin. However, these high-end communities have very different environmental attributes than other Austin communities. Figure 5 shows spatial mapping of the study participants in Austin, Texas based upon education (i.e. percentage of people with bachelor degree or

above), race and ethnicity (i.e. percentage of the non-Hispanic White), and income (i.e. per capital income in the past 12 months) at the census block group level, as well as single family versus other residential with over-65 homeowners at the parcel level.

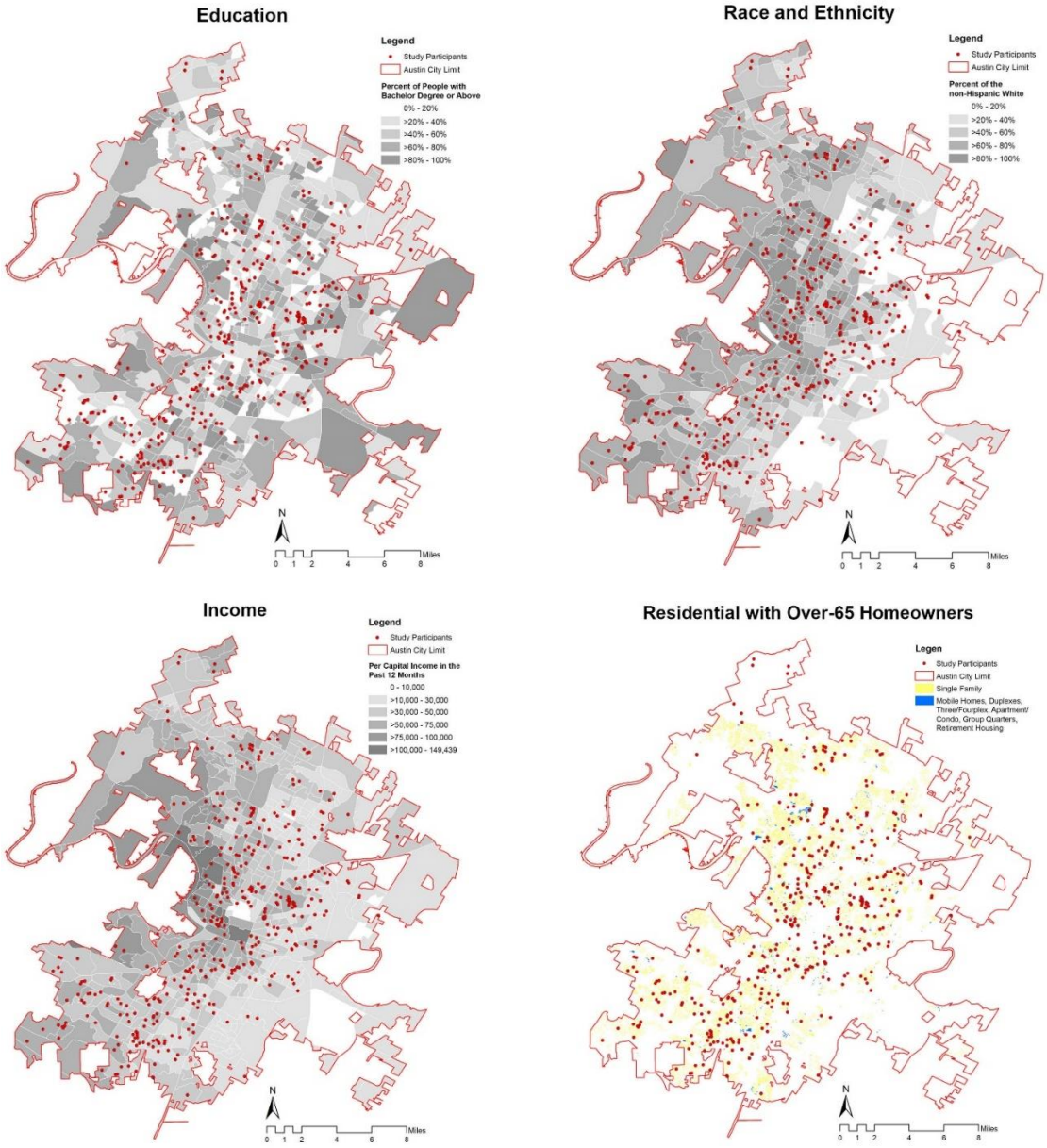


Figure 5 Study participants in Austin, Texas.

Note: Data related to education, race and ethnicity, and income came from the U.S. Census Bureau (2018). The GIS map for the census block groups was from the 2018 TIGER/Line Shapefiles developed by the U.S. Census Bureau (www.census.gov/cgi-bin/geo/shapefiles/index.php). The parcel-level map was downloaded from the City of Austin GIS Data on Open Data Portal (austintexas.gov/department/gis-data).

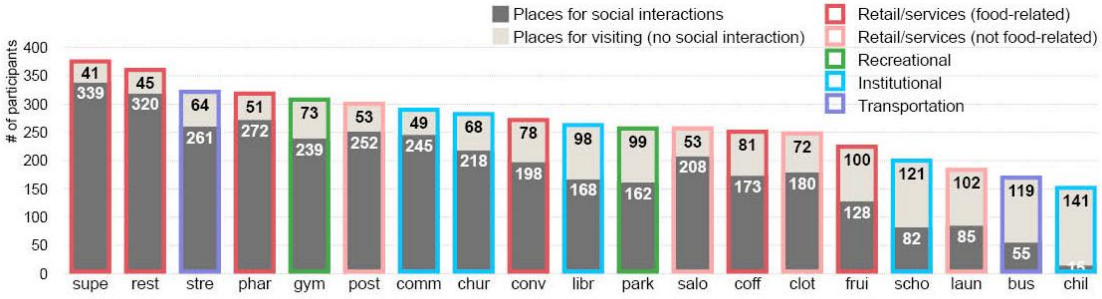
This dissertation further compared the study participants with the US older populations. In terms of general health conditions, the study participants (i.e. excellent: 15.4%, very good: 35.6%, good: 35.4%, fair: 12.0%, poor: 1.6%) are slightly healthier compared to the US older populations (i.e. excellent: 12.5%, very good: 31.4%, good: 33.1%, fair: 16.3%, poor: 6.7%) (Centers for Disease Control and Prevention, 2018). As for physical activity, 69.7% of the US older populations reported doing leisure time physical activity during the past 30 days, while 91.7% of the study participants reported doing moderate or vigorous physical activity in a typical week (Centers for Disease Control and Prevention, 2018).

4.1.2.2. Intergenerational and Other Social Activities

Based upon the descriptive statistics of older adults' social places, the four most common places for older adults to visit and interact with others were (1) supermarket, (2) restaurant, (3) street (on the street or sidewalks), and (4) pharmacy or drug store (Figure 6). Additionally, three more places that the majority of the study participants visited and interacted with others at least once a week included (1) gym, fitness facility, or recreation center; (2) post office, bank, or credit union, and (3) community or senior center.

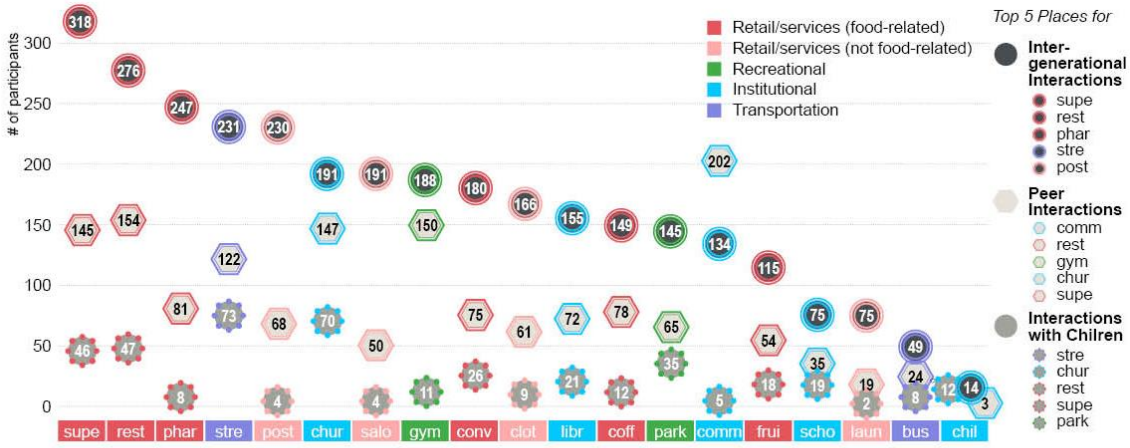
Figure 7 summarizes more detailed information regarding places for three specific types of social activities among older adults, including intergenerational interactions, interactions with children, and peer interactions. The top five places for intergenerational interactions were (1) supermarket, (2) restaurant, (3) pharmacy or drug

store, (4) street (on the street or sidewalks), and (5) post office, bank, or credit union. The most common places for peer interactions were (1) community or senior center, (2) restaurant, (3) gym, fitness facility, or recreation center, (4) church, and (5) supermarket. As for social interactions with children, the five most popular places were (1) street (on the street or sidewalks), (2) church, (3) restaurant, (4) supermarket, and (5) park.



Note: stre=street (on the street/sidewalks); park=park/trail; rest=restaurant; coff=coffee place/bakery; comm=community center/senior center; chur=church; chil=child daycare; scho=school/university; libr=library/book store; conv=convenience store/small grocery store; supe=supermarket; frui=fruit/vegetable market; laun=Laundry/dry cleaner; clot=clothing store; post=post office/bank/credit union; phar=pharmacy/drug store; salo=salon/barber shop; bus=bus stop/light rail station; gym=gym/fitness facility/recreation center

Figure 6 Places for visiting and social interactions at least once a week.



Note: stre=street (on the street/sidewalks); park=park/trail; rest=restaurant; coff=coffee place/bakery; comm=community center/senior center; chur=church; chil=child daycare; scho=school/university; libr=library/book store; conv=convenience store/small grocery store; supe=supermarket; frui=fruit/vegetable market; laun=Laundry/dry cleaner; clot=clothing store; post=post office/bank/credit union; phar=pharmacy/drug store; salo=salon/barber shop; bus=bus stop/light rail station; gym=gym/fitness facility/recreation center

Figure 7 Places for intergenerational and peer interactions at least once a week.

For older adults' intergenerational and other social activities in the neighborhood, this study directly measured their social interactions with four different age groups, including children, teenagers, adults, and older adults. According to the original social activity data (Figure 8), the majority of the participants interacted with adults (79.2%) and older adults (66.9%) at least once in a typical week, while only 28.0% and 21.9% interacted with children and teenagers at least once a week respectively.

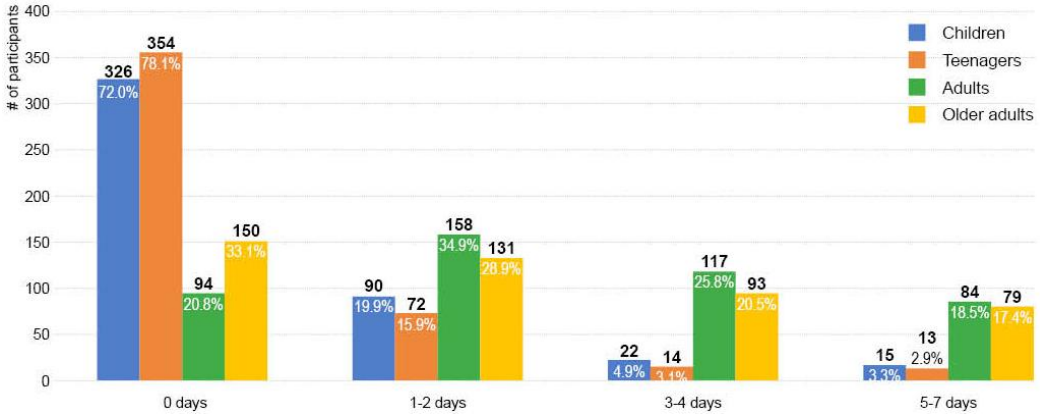


Figure 8 Days of intergenerational and other social activities in a typical week in the neighborhood.

The four outcome variables recoded from the original social activity data included interactions with children (28.0% yes versus 72.0% no), intergenerational interactions (80.1% yes versus 19.9% no), peer interactions (66.9% yes versus 33.1% no), and all social interactions (84.5% yes versus 15.5% no) in a typical week in the neighborhood. Most current investigations in intergenerational interactions focused on the impacts of interacting with children while underestimating social interactions with other generations such as adults and teenagers. Thus, this dissertation research explored

correlates of intergenerational activities, in terms of social interactions with children and with all younger generations (i.e. children, teenagers, or adults), and compared the differences and similarities in correlates. Additionally, as the binary variables of intergenerational and all social interactions had highly skewed distributions, multinomial logistic regression was also conducted among corresponding categorical variables of intergenerational and all social interactions with the values of 0, 1, 2, and 3 or more days in a typical week. The results between multinomial and binary logistic regressions were very similar.

4.1.2.3. Transportation and Recreational Walking

As shown in Figure 9, recreational walking (e.g. walking for recreation, sport, exercise, or leisure) was a more popular form of physical activity for older adults compared to transportation walking (e.g. walking to get to and from places). The majority of the participants (73.3%) reported walking for recreation at least once in a typical week, while only 43.8% walked for transportation at least once a week. Moreover, the participants (227, 51.4%) who walked for recreation at least three days in a typical week were almost two times of those (120, 27.2%) who walked for transportation three or more days per week. The two walking variables utilized in the bivariate and multiple regression analyses were transportation walking (43.8% walked versus 56.2% not walked) and recreational walking (73.3% walked versus 26.7% not walked).

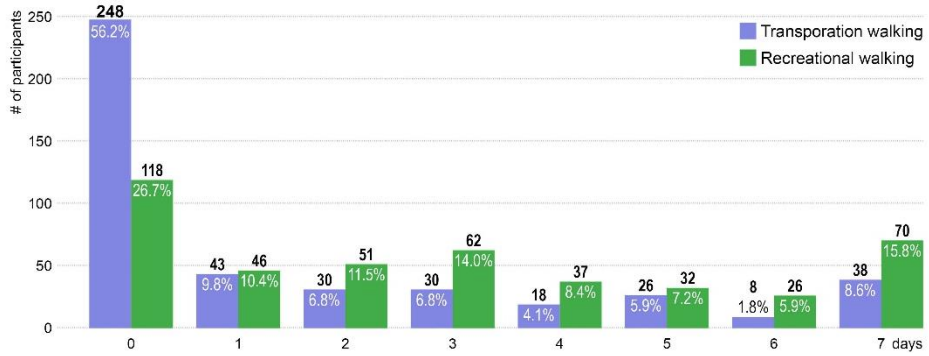


Figure 9 Days of transportation and recreational walking in a typical week.

4.1.3. Factor Analysis

The principal component analysis was conducted to generate fewer component variables from each of the ten questions (i.e. Q18, 27-35) with ordinal scale items in the survey, using IBM SPSS Statistics 25.0. Two rotation methods, including Varimax (orthogonal) and Promax (oblique) with Kaiser Normalization, were tested to generate very similar results. The Promax oblique rotation was finally utilized because it allowed factors to be correlated. The reliability test was also conducted for the items within each component to generate Cronbach's alpha measuring internal consistency.

During the test stage, two versions of component variables were generated, including missing values excluded cases listwise and replaced with mean. The results were mostly consistent for the bivariate analyses between factor variables and older adults' social activities when comparing the differences between the two versions. Thus, this dissertation used the factor variables that replaced missing values with the mean for all bivariate and multiple regression analyses.

4.1.3.1. Social Interactions with Neighbors

The principal component analysis yielded one component from the four items (on a seven-point Likert scale from more than once a day to seldom/never) measuring social interactions with neighbors (Table 16). This component explained 63.7% of the variance with the component loadings from 0.693 to 0.874, which suggested that the four items were unidimensional. Additionally, the component had a Cronbach's alpha of 0.805, indicating that the four items had relatively high internal consistency.

Table 16 Component Matrix: Social Interactions with Neighbors.

Scale Items	Component 1
18.1 Say hello to a neighbor	0.797
18.2 Stop and talk with a neighbor	0.874
18.3 Socialize with a neighbor at your home, your neighbor's home, or someplace else	0.817
18.4 Ask for help, seek advice, or borrow things from, or exchange favors with a neighbor	0.693
Eigenvalue	2.547
Percentage of Variance	63.7%
Cronbach's Alpha	0.805

Extraction Method: Principal Component Analysis.

4.1.3.2. Residential Self-Selection

Among the 16 items (on a four-point Likert scale from not at all important to very important) for residential self-selection, four items were excluded from the factor analysis: (1) affordability, (2) close to public transportation, (3) diversity of age groups, and (4) diversity of ethnic groups. Three out of the four items (i.e. affordability, close to public transportation, and diversity of ethnic groups) were not included in the principal component analysis because of many double-loaded items after adding them. The other item (i.e. diversity of age groups) was retained as an important individual ordinal

variable instead of weighting it as a factor score with other related items because the Primary Aim 1 of this dissertation research was to investigate correlates of older adults' intergenerational interactions. The diversity of ethnic groups was excluded from inferential statistics because of being highly correlated with the diversity of age groups (r=0.798). The two ordinal variables, including affordability and close to public transportation, were recoded as individual binary variables for bivariate and multiple regression analyses.

Table 17 Structure Matrix: Residential Self-Selection.

Scale Items	Component	
	1	2
27.9 Ease of walking	**0.803**	0.462
27.13 Neighborhood aesthetics or beautiful scenery	**0.772**	0.285
27.10 Sense of community	**0.760**	0.527
27.2 Close to park and natural open space	**0.745**	0.212
27.11 Neighborhood safety	**0.720**	0.397
27.5 Close to shops and services	**0.699**	0.544
27.12 Close to healthcare/medical facilities	**0.659**	0.606
27.3 Close to entertainment facilities	**0.636**	0.448
27.7 Close to friends	0.476	**0.787**
27.8 Presence of other older residents	0.436	**0.771**
27.16 Access to supportive programs	0.366	**0.699**
27.6 Close to family members	0.238	**0.713**
Eigenvalue	5.285	1.418
Percentage of Variance	44.0%	11.8%
Cronbach's Alpha	0.874	0.746

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

Two components were extracted from the remaining 12 scale items (Table 17), accounting for a total of 55.9% of the variance. The component 1 included eight items related to neighborhood environments (e.g. safety, accessibility), explaining 44.0% of the variance with component loadings from 0.636 to 0.803. The component 2 had four

items about social cohesion and support that explained 11.8% of the variance with component loadings from 0.699 to 0.787. The Cronbach's alpha for the components 1 and 2 were 0.874 and 0.746 respectively, suggesting that the items within each component had acceptable internal consistency.

4.1.3.3. Social Cohesion and Trust

The factor analysis extracted two components from seven items (on a four-point Likert scale from strongly disagree to strongly agree) capturing neighborhood social cohesion and trust (Table 18), which explained a total of 68.4% of the variance. The component 1 included five items related to neighborhood cohesion and support, explaining 49.2% of the variance with component loadings from 0.584 to 0.896. The component 2 had two items about neighborhood social cohesion that explained 19.1% of the variance with component loadings from 0.871 to 0.878. The Cronbach's alpha for the components 1 and 2 were 0.858 and 0.697 respectively.

Table 18 Structure Matrix: Social Cohesion and Trust.

Scale Items	Component	
	1	2
28.1 I see many people being physically active (e.g. walking, jogging, cycling, or playing sports) in my neighborhood.	**0.584**	0.108
28.2 My neighbors could be counted on to help in case of need.	**0.852**	0.244
28.3 This is a close-knit neighborhood.	**0.828**	0.186
28.4 People in my neighborhood are willing to help their neighbors.	**0.896**	0.297
28.5 People in my neighborhood can be trusted.	**0.818**	0.377
28.6 People in my neighborhood generally do NOT get along with each other.	0.269	**0.878**
28.7 People in my neighborhood do NOT share the same values.	0.233	**0.871**
Eigenvalue	3.447	1.338
Percentage of Variance	49.2%	19.1%
Cronbach's Alpha	0.858	0.697

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.1.3.4. Access to Services

Two out of the eight items (on a four-point Likert scale from strongly disagree to strongly agree) measuring access to services were excluded from factor analysis because the loadings were less than 0.4 when included. The two items, "I can do most of my shopping at local stores" and "Parking is difficult in local shopping areas," were recoded as two separate binary variables for bivariate and multiple regression analyses.

The factor analysis yielded two components from the remaining six items (Table 19), accounting for a total of 71.1% of the variance. The component 1 included four items related to neighborhood walkability, explaining 44.1% of the variance with component loadings from 0.719 to 0.891. The component 2 had two items about topographic barriers/terrains/slopes that explained 27.0% of the variance with component loadings from 0.898 to 0.907. The Cronbach's alpha for the components 1 and 2 were 0.819 and 0.787 respectively, indicating that the items within each component had acceptable internal consistency.

Table 19 Structure Matrix: Access to Services.

Scale Items	Component	
	1	2
29.2 Stores are within easy walking distance of my home.	**0.849**	0.065
29.4 There are many places to go within easy walking distance of my home.	**0.891**	0.073
29.5 It is easy to walk to a transit stop (bus, train) from my home.	**0.719**	0.262
29.6 It is easy to walk to healthcare/medical services (e.g. hospital, doctor's office, pharmacy).	**0.748**	-0.008
29.7 The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.	0.127	**0.898**
29.8 There are many canyons/hillsides in my neighborhood that limit the number of routes for getting from place to place.	0.071	**0.907**
Eigenvalue	2.647	1.619
Percentage of Variance	44.1%	27.0%
Cronbach's Alpha	0.819	0.787

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.1.3.5. Streets in the Neighborhood

One item (on a four-point Likert scale from strongly disagree to strongly agree), "there are walkways in my neighborhood that connect dead-end streets to streets, trails, or other dead-end streets," was excluded from the principal component analysis because it was the only item loading to another latent component when included. This item was also excluded from bivariate and inferential statistics because the results of the item relied entirely on another measure: "The streets in my neighborhood do not have many, or any, dead-end streets (cul-de-sacs)."

The factor analysis was conducted among the four remaining items related to neighborhood street connectivity to generate one component variable, which accounted for 47.3% of the variance with the component loadings from 0.510 to 0.786 (Table 20). The Cronbach's alpha for the component was 0.613.

Table 20 Component Matrix: Streets in My Neighborhood.

Scale Items	Component 1
30.1 The streets in my neighborhood do not have many, or any, dead-end streets (cul-de-sacs).	0.510
30.3 The distance between intersections in my neighborhood is usually short (100 yards or less; the length of a football field or less).	0.680
30.4 There are many four-way intersections in my neighborhood.	0.741
30.5 There are many alternative routes for getting from place to place in my neighborhood. (I don't have to go the same way every time.)	0.786
Eigenvalue	1.891
Percentage of Variance	47.3%
Cronbach's Alpha	0.613

Extraction Method: Principal Component Analysis.

4.1.3.6. Walking or Cycling Facilities

One item (on a four-point Likert scale from strongly disagree to strongly agree), "there are benches on most of the sidewalks in my neighborhood," was excluded because it was an additional item added to the existing validated survey instrument (i.e. Neighborhood Environment Walkability Scale). This item was recoded as an individual binary variable for bivariate and inferential statistics.

One component variable was extracted from the remaining five items measuring neighborhood walking or cycling facilities, accounting for 57.2% of the variance with the component loadings from 0.649 to 0.850 (Table 21). The reliability test generated a Cronbach's alpha of 0.812 for this component, which demonstrated that the five items within the component had relatively high internal consistency.

Table 21 Component Matrix: Walking or Cycling Facilities.

Scale Items	Component 1
31.1 There are sidewalks on most of the streets in my neighborhood.	0.850
31.2 The sidewalks in my neighborhood are well maintained (paved, even, and not a lot of cracks).	0.819
31.3 There are bicycle or pedestrian trails in or near my neighborhood that are easy to get to.	0.649
31.4 Sidewalks are separated from the road/traffic in my neighborhood by parked cars.	0.725
31.5 There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.	0.720
Eigenvalue	2.858
Percentage of Variance	57.2%
Cronbach's Alpha	0.812

Extraction Method: Principal Component Analysis.

4.1.3.7. Neighborhood Surroundings

The principal component analysis of the six items (on a four-point Likert scale from strongly disagree to strongly agree) on neighborhood surroundings generated two components, which explained a total of 73.9% of the variance (Table 22). The

component 1 included four items regarding neighborhood aesthetics, accounting for 56.9% of the variance with component loadings from 0.748 to 0.884. The component 2 had two items related to neighborhood street trees that explained 17.1% of the variance with component loadings from 0.898 to 0.911. The reliability analysis generated a Cronbach's alpha of 0.838 and 0.801 for the components 1 and 2 respectively, indicating relatively high internal consistency among the items within each component.

Table 22 Structure Matrix: Neighborhood Surroundings.

Scale Items	Component	
	1	2
32.1 There are trees along the streets in my neighborhood.	0.461	**0.898**
32.2 Trees give shade for the sidewalks in my neighborhood.	0.408	**0.911**
32.3 There are many interesting things to look at while walking in my neighborhood.	**0.763**	0.687
32.4 My neighborhood is generally free from litter.	**0.748**	0.313
32.5 There are many attractive natural sights in my neighborhood (such as landscaping, views).	**0.862**	0.488
32.6 There are attractive buildings/homes in my neighborhood.	**0.884**	0.403
Eigenvalue	3.412	1.025
Percentage of Variance	56.9%	17.1%
Cronbach's Alpha	0.838	0.801

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.1.3.8. Safety from Traffic

Eight items (on a four-point Likert scale from strongly disagree to strongly agree) related to safety from traffic were analyzed to extract three components, which explained 71.2% of the variance (Table 23). The component 1 included four items about traffic safety, accounting for 32.8% of the variance with component loadings from 0.581 to 0.852. The component 2 consisted of two items on crossing safety that accounted for 22.2% of the variance with component loadings from 0.925 to 0.934. The component 3 contained two items regarding safe traffic speed, explaining 16.2% of the variance with

component loadings from 0.877 to 0.886. The Cronbach's alpha for the components 1, 2, and 3 were 0.753, 0.861, and 0.718 respectively, evincing that the scale items within each of the three components had acceptable internal consistency.

Table 23 Structure Matrix: Safety from Traffic.

Scale Items	Component		
	1	2	3
33.1 There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.	**0.852**	0.087	0.269
33.2 There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.	**0.840**	0.079	0.218
33.8 When walking in my neighborhood, there are a lot of exhaust fumes (such as from cars, buses).	**0.741**	-0.180	0.208
33.5 Most drivers exceed the posted speed limits while driving in my neighborhood.	**0.581**	0.170	0.095
33.3 The speed of traffic on the street I live on is usually slow (30 mph or less).	0.275	0.085	**0.877**
33.4 The speed of traffic on most nearby streets is usually slow (30 mph or less).	0.184	0.096	**0.886**
33.7 The crosswalks in my neighborhood help walkers feel safe crossing busy streets.	0.126	**0.925**	0.114
33.6 There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.	-0.004	**0.934**	0.084
Eigenvalue	2.620	1.776	1.296
Percentage of Variance	32.8%	22.2%	16.2%
Cronbach's Alpha	0.753	0.861	0.718

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.1.3.9. Safety from Crime

The principal component analysis extracted two component variables from six items (on a four-point Likert scale from strongly disagree to strongly agree) measuring safety from crime, explaining 64.5% of the variance (Table 24). The component 1 was composed of three items on neighborhood crime rate that explained 42.1% of the variance with component loadings from 0.821 to 0.892. The component 2 consisted of three items related to neighborhood surveillance that accounted for 22.4% of the

variance with component loadings from 0.625 to 0.828. The Cronbach's alpha for the components 1 and 2 were 0.816 and 0.590, respectively.

Table 24 Structure Matrix: Safety from Crime.

Scale Items	Component	
	1	2
34.1 My neighborhood streets are well lit at night.	0.189	**0.759**
34.2 Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.	0.179	**0.828**
34.3 I see and speak to other people when I am walking in my neighborhood.	0.247	**0.625**
34.4 There is a high crime rate in my neighborhood.	**0.821**	0.265
34.5 The crime rate in my neighborhood makes it unsafe to go on walks during the day.	**0.855**	0.157
34.6 The crime rate in my neighborhood makes it unsafe to go on walks at night.	**0.892**	0.284
Eigenvalue	2.527	1.344
Percentage of Variance	42.1%	22.4%
Cronbach's Alpha	0.816	0.590

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.1.3.10. General Neighborhood Satisfaction

One item (on a four-point Likert scale from strongly dissatisfied to strongly satisfied), "number of people you know in your neighborhood," was excluded from the factor analysis because it was highly correlated with another measure: "How many friends you have in your neighborhood" (r=0.845). This item was also not included in the bivariate and multiple regression analyses.

The principal component analysis extracted three component variables from the remaining 13 items on general neighborhood satisfaction, accounting for 60.4% of the variance (Table 25). The component 1 consisted of seven items for satisfaction on accessibility that explained 39.6% of the variance with component loadings from 0.422 to 0.857. The component 2 included three items regarding satisfaction on safety that

explained 12.6% of the variance with component loadings from 0.722 to 0.859. The component 3 contained three items related to satisfaction on livability, explaining 8.2% of the variance with component loadings from 0.745 to 0.795. The components 1, 2, and 3 had a Cronbach's alpha of 0.858, 0.772, and 0.653, respectively.

Table 25 General Neighborhood Satisfaction.

Scale Items	Component		
	1	2	3
35.13 Number and quality of restaurants in your neighborhood?	**0.857**	0.358	0.356
35.3 Access to shopping in your neighborhood?	**0.854**	0.364	0.342
35.12 Number and quality of food stores in your neighborhood?	**0.849**	0.397	0.370
35.7 Access to entertainment in your neighborhood (restaurants, movies, clubs, etc.)?	**0.826**	0.344	0.414
35.8 Access to healthcare/medical services?	**0.643**	0.478	0.346
35.2 Access to public transportation in your neighborhood?	**0.585**	0.040	0.230
35.1 Highway access from your home?	**0.422**	0.328	0.289
35.10 Amount and speed of traffic in your neighborhood?	0.326	**0.859**	0.316
35.11 Noise from traffic in your neighborhood?	0.286	**0.833**	0.318
35.9 Safety from threat of crime in your neighborhood?	0.414	**0.722**	0.565
35.4 How many friends you have in your neighborhood?	0.309	0.168	**0.795**
35.6 How easy and pleasant it is to walk in your neighborhood?	0.380	0.458	**0.759**
35.14 Your neighborhood as a good place to live?	0.358	0.494	**0.745**
Eigenvalue	5.143	1.643	1.062
Percentage of Variance	39.6%	12.6%	8.2%
Cronbach's Alpha	0.858	0.772	0.653

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

4.2. Correlates of Older Adults' Social Interactions

Significant correlates of older adult's social interactions were tested in four different types of models: (1) base models, (2) perceived environment models, (3) objective environment models, and (4) final models. The base models included older adults' demographic and socioeconomic characteristics and residential self-selection factors to predict their intergenerational and other social activities in the neighborhood. The perceived environment models investigated the correlations between perceived

social and physical environments and older adults' social interactions after controlling for the base model variables. The objective environment models examined the associations between objective physical environments (i.e. GIS data measuring specific environmental elements/features) and older adult's social interactions in the neighborhood after controlling for the base model and perceived social environment variables. The final models tested significant roles of perceived and objective physical environments in older adult's social interactions in the neighborhood after controlling for the base model and perceived social environment variables.

Additionally, this study explored how the composite neighborhood walk, bike, and transit scores were correlated with older adults' intergenerational and other social interactions in the neighborhood. The results showed their significant roles in predicting older adults' social interactions.

4.2.1. Demographic and Socioeconomic Characteristics and Self-selection

4.2.1.1. Intergenerational Interactions

4.2.1.1.1. Interactions with Children

The base model showed that demographic and socioeconomic characteristics and residential self-selection factors explained 20.7% (Nagelkerke R Square) of the variance in older adults' social interactions with children (Table 26). Among the three significant demographic and socioeconomic variables, general health conditions (OR=1.396, p=0.022) and mobility aids (OR=2.240, p=0.033) were positively associated with the odds of interacting with children in the neighborhood, while personal illness in the past

three years (OR=0.570, p=0.031) was linked with lower odds of interacting with children. In terms of the residential self-selection, participants who indicated that diversity of age groups was a slightly (OR=3.771, p=0.002), moderately (OR=5.849, p<0.001), or very important (OR=4.682, p=0.001) reason for choosing their current home were more likely to interact with children in the neighborhood compared to those reported not at all important.

Table 26 Significant Demographic, Socioeconomic, and Self-selection Variables Associated with the Odds of Interacting with Children in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.032	0.115	0.992-1.073
Q42_Gender_Impute	Female (vs. male)	0.760	0.309	0.449-1.289
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.789	0.443	0.430-1.446
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.977	0.933	0.563-1.693
Q48_Education	Education level (grades; unit: 1)	0.949	0.508	0.814-1.107
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	0.504	0.112	0.216-1.173
	Upper-middle income ($40,000-$79,999)	0.564	0.185	0.241-1.316
	High income ($80,000 or more)	0.703	0.489	0.260-1.906
	Don't know/prefer not to answer	0.437	0.085	0.170-1.122
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.396***	**0.022**	**1.048-1.858**
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.240***	**0.033**	**1.067-4.706**
Q73_Personal_Illness	Personal illness (vs. no)	**0.570***	**0.031**	**0.343-0.949**
Residential Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.190	0.228	0.897-1.577
Q27_14_AgeGroups	Not at all important			
	Slightly important	**3.771****	**0.002**	**1.629-8.734**
	Moderately important	**5.849*****	**0.000**	**2.585-13.234**
	Very important	**4.682*****	**0.001**	**1.877-11.678**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 433.054[a]; Cox & Snell R Square: 0.143; Nagelkerke R Square: 0.207

4.2.1.1.2. Interactions with Children, Teenagers, or Adults

According to the base model results (Table 27), demographic and socioeconomic characteristics and residential self-selection factors accounted for 24.6% (Nagelkerke R Square) of the variance in older adults' social interactions with children, teenagers, or

adults. Only one demographic variable that measured general health conditions (OR=1.404, p=0.020) had a positive correlation with the likelihood of interacting with children, teenagers, or adults in the neighborhood. For residential self-selection, social cohesion and support had a positive association with the odds of interacting with younger generations (OR=1.500, p=0.017), and these factors included close to friends, presence of other older residents, access to supportive programs, and close to family members. Further, the participants reporting diversity of age groups to be slightly (OR=2.138, p=0.033), moderately (OR=2.782, p=0.004), or very important (OR=4.393, p=0.003) had a higher likelihood of participating in intergenerational activities in the neighborhood than those perceiving diversity of age groups as being not at all important.

Table 27 Significant Demographic, Socioeconomic, and Self-selection Variables Associated with the Odds of Interacting with Children, Teenagers, or Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.025	0.236	0.984-1.069
Q42_Gender_Impute	Female (vs. male)	0.608	0.120	0.325-1.138
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.490	0.051	0.239-1.005
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.537	0.174	0.827-2.859
Q48_Education	Education level (grades; unit: 1)	1.184	0.060	0.993-1.412
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.042	0.930	0.415-2.617
	Upper-middle income ($40,000-$79,999)	0.674	0.398	0.271-1.680
	High income ($80,000 or more)	0.859	0.782	0.293-2.518
	Don't know/prefer not to answer	2.956	0.056	0.974-8.971
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.404***	**0.020**	**1.054-1.872**
Q52_Employed	Employed (vs. not employed)	2.229	0.050	0.999-4.972
Residential Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.500***	**0.017**	**1.075-2.094**
Q27_14_AgeGroups	Not at all important			
	Slightly important	**2.138***	**0.033**	**1.064-4.295**
	Moderately important	**2.782****	**0.004**	**1.391-5.565**
	Very important	**4.393****	**0.003**	**1.678-11.501**

Note: *p<0.05; **p<0.01

-2 Log likelihood: 367.094[a]; Cox & Snell R Square: 0.155; Nagelkerke R Square: 0.246

4.2.1.2. Peer Interactions

Table 28 showed the demographic and socioeconomic characteristics and the residential self-selection factors included in the base model predicting peer interactions, which captured 26.0% (Nagelkerke R Square) of the total variance. The three demographic and socioeconomic variables significantly correlated with peer interactions were general health conditions, heart related diseases, and illness of a family member or friend in the past three years. General health conditions (OR=1.337, p=0.027) and illness of a family member or friend (OR=1.715, p=0.034) had positive associations with the odds of interacting with other older adults, while heart-related diseases (OR=0.378, p=0.006) were negatively correlated with the likelihood of having peer interactions in the neighborhood.

Table 28 Significant Demographic, Socioeconomic, and Self-selection Variables Associated with the Odds of Interacting with Old Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	0.982	0.337	0.946-1.019
Q42_Gender_Impute	Female (vs. male)	0.630	0.087	0.371-1.070
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.910	0.761	0.495-1.672
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.067	0.812	0.625-1.823
Q48_Education	Education level (grades; unit: 1)	0.997	0.969	0.857-1.160
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.292	0.564	0.541-3.084
	Upper-middle income ($40,000-$79,999)	0.631	0.298	0.265-1.503
	High income ($80,000 or more)	1.091	0.862	0.408-2.919
	Don't know/prefer not to answer	1.515	0.379	0.601-3.824
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.337***	**0.027**	**1.034-1.730**
Q60_Heart	Heart diseases (vs. no)	**0.378****	**0.006**	**0.188-0.760**
Q73_Illness_Family	Illness of a family member or friend (vs. no)	**1.715***	**0.034**	**1.041-2.827**
Residential Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**2.093*****	**0.000**	**1.545-2.836**
Q27_14_AgeGroups	Not at all important			
	Slightly important	0.866	0.649	0.467-1.607
	Moderately important	1.013	0.966	0.553-1.856
	Very important	**3.577****	**0.006**	**1.453-8.806**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 452.631[a]; Cox & Snell R Square: 0.187; Nagelkerke R Square: 0.260

As for residential self-selection, social cohesion and support was correlated with higher odds of being involved in peer interactions in the neighborhood (OR=2.093, p<0.001). Further, the participants who perceived diversity of age groups as being very important (OR=3.577, p=0.006) when selecting the current residence were more likely to interact with other older adults in the neighborhood compared to those reporting diversity of age groups to be not at all important.

4.2.1.3. All Social Interactions

Based on the base model displayed in Table 29, demographic and socioeconomic characteristics and residential self-selection factors explained 23.6% (Nagelkerke R Square) of the variance in older adults' social interactions with others in the neighborhood. The participants who were members of married or unmarried couples (OR=2.042, p=0.040) had higher odds of interacting with others in their neighborhood compared to those who were never married, separated, divorced, or widowed. General health conditions had a positive correlation with the likelihood of participating in social activities in the neighborhood among older adults (OR=1.389, p=0.037). Self-selection related to social cohesion and support was positively associated with the odds of interacting with others (OR=1.816, p=0.002). Perceiving the importance of the diversity of age groups as being moderately (OR=2.525, p=0.018) or very important (OR=6.501, p=0.005), compared to being not at all important, had a positive interaction with the odds of engaging in social activities in the neighborhood among the elderly.

Table 29 Significant Demographic, Socioeconomic, and Self-selection Variables Associated with the Odds of Interacting with Children, Teenagers, Adults, or Older Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.007	0.759	0.964-1.052
Q42_Gender_Impute	Female (vs. male)	0.800	0.509	0.413-1.551
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.701	0.365	0.325-1.512
Q47_Marital_Status	Married or unmarried couple (vs. others)	**2.042***	**0.040**	**1.032-4.041**
Q48_Education	Education level (grades; unit: 1)	1.146	0.167	0.945-1.389
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.074	0.889	0.393-2.932
	Upper-middle income ($40,000-$79,999)	0.605	0.322	0.223-1.637
	High income ($80,000 or more)	0.818	0.735	0.255-2.622
	Don't know/prefer not to answer	2.249	0.184	0.681-7.423
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.389***	**0.037**	**1.020-1.891**
Residential Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.816****	**0.002**	**1.242-2.654**
Q27_14_AgeGroups	Not at all important			
	Slightly important	1.676	0.166	0.807-3.479
	Moderately important	**2.525***	**0.018**	**1.175-5.426**
	Very important	**6.501****	**0.005**	**1.783-23.706**

Note: *p<0.05; **p<0.01

-2 Log likelihood: 315.192[a]; Cox & Snell R Square: 0.136; Nagelkerke R Square: 0.236

4.2.2. Perceived Environments

4.2.2.1. Intergenerational Interactions

4.2.2.1.1. Interactions with Children

The Nagelkerke R Square increased from 0.207 in the base model to 0.375 in the perceived environment model displayed in Table 30, indicating that perceived social and physical environments explained 16.8% of the variance in older adults' social interactions with children in the neighborhood. Controlling for the base model variables, three perceived social environment variables, including volunteer work (OR=1.943, p=0.029), digital communications with children (OR=4.032, p<0.001), and half or more of the social places located in the neighborhood (OR=2.571, p=0.001), were positively correlated with the odds of interacting with children in the neighborhood. Meanwhile,

neighborhoods that have many seniors (OR=0.270, p<0.001) had a negative correlation with the likelihood of interacting with children. For perceived physical environments, neighborhood aesthetics (OR=1.418, p=0.033) was positively correlated with the likelihood of interacting with children in the neighborhood. Furthermore, older adults who somewhat disagreed or somewhat/strongly agreed (OR=0.438, p=0.008) that there were benches on most of the sidewalks in their neighborhoods had a lower likelihood of interacting with children in their neighborhood than those who strongly disagreed with the statement.

Table 30 Significant Perceived Environment Variables Associated with the Odds of Interacting with Children in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.041	0.070	0.997-1.088
Q42_Gender_Impute	Female (vs. male)	0.559	0.057	0.308-1.017
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.780	0.484	0.389-1.564
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.899	0.731	0.491-1.648
Q48_Education	Education level (grades; unit: 1)	0.873	0.127	0.734-1.039
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	0.515	0.178	0.197-1.351
	Upper-middle income ($40,000-$79,999)	0.593	0.293	0.224-1.570
	High income ($80,000 or more)	0.695	0.528	0.225-2.152
	Don't know/prefer not to answer	0.503	0.214	0.170-1.486
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.423***	**0.036**	**1.023-1.981**
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.525***	**0.027**	**1.108-5.751**
Q73_Personal_Illness	Personal illness (vs. no)	0.575	0.058	0.325-1.018
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.039	0.819	0.748-1.443
Q27_14_AgeGroups	Not at all important			
	Slightly important	**4.402****	**0.002**	**1.742-11.120**
	Moderately important	**6.107*****	**0.000**	**2.462-15.146**
	Very important	**4.230****	**0.006**	**1.513-11.826**
Perceived Social Environments				
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**0.270*****	**0.000**	**0.135-0.540**
Q13_VolunteerWork	Volunteer work (vs. no)	**1.943***	**0.029**	**1.070-3.529**
Q15_1_DigitalChildren_Binary	Digital communications with children (vs. no)	**4.032*****	**0.000**	**2.165-7.508**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**2.571*****	**0.001**	**1.475-4.482**
Perceived Physical Environments				
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)	**1.418***	**0.033**	**1.029-1.954**
Q31_6_Benches_Final[a]	Yes (vs. no)	**0.438****	**0.008**	**0.239-0.804**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 365.427[a]; Cox & Snell R Square: 0.260; Nagelkerke R Square: 0.375

a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

4.2.2.1.2. Interactions with Children, Teenagers, or Adults

Based upon an increase of the Nagelkerke R Square from 0.246 in the base model to 0.357 in the perceived environment model shown in Table 31, perceived social and physical environments accounted for 11.1% of the variance in older adults' intergenerational interactions in the neighborhood. Controlling for the base model variables, six perceived environment variables were significantly correlated with older adults' intergenerational interactions in the neighborhood.

Table 31 Significant Perceived Environment Variables Associated with the Odds of Interacting with Children, Teenagers, or Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.045	0.065	0.997-1.095
Q42_Gender_Impute	Female (vs. male)	0.590	0.128	0.299-1.163
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.505	0.095	0.226-1.128
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.809	0.084	0.924-3.542
Q48_Education	Education level (grades; unit: 1)	1.145	0.157	0.949-1.383
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.138	0.802	0.413-3.138
	Upper-middle income ($40,000-$79,999)	0.726	0.530	0.267-1.971
	High income ($80,000 or more)	0.624	0.430	0.194-2.011
	Don't know/prefer not to answer	2.397	0.158	0.713-8.059
Q58_Health	General health conditions (Likert scales; unit: 1)	1.302	0.099	0.952-1.781
Q52_Employed	Employed (vs. not employed)	2.223	0.064	0.954-5.182
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.102	0.606	0.761-1.598
Q27_14_AgeGroups	Not at all important			
	Slightly important	**2.518***	**0.017**	**1.177-5.385**
	Moderately important	**2.471***	**0.020**	**1.154-5.289**
	Very important	**3.341***	**0.027**	**1.144-9.758**
Perceived Social Environments				
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)	**1.426***	**0.022**	**1.053-1.933**
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**2.356****	**0.007**	**1.258-4.414**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**3.148****	**0.002**	**1.525-6.498**
Perceived Physical Environments				
Q26_New	Newly built neighborhood (vs. not)	**0.356***	**0.020**	**0.149-0.847**
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)	**1.400***	**0.037**	**1.020-1.922**
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)	**0.712***	**0.031**	**0.523-0.969**

Note: *p<0.05; **p<0.01

-2 Log likelihood: 325.126[a]; Cox & Snell R Square: 0.225; Nagelkerke R Square: 0.357

For the perceived social environment variables, neighborhood cohesion and support (OR=1.426, p=0.022), digital communications with older adults (OR=2.356, p=0.007), and half or more of the social places located in the neighborhood (OR=3.148, p=0.002) were positively associated with the odds of participating in intergenerational activities in the neighborhood among older adults. In terms of the perceived physical environments, neighborhood walkability (OR=1.400, p=0.037) had a positive correlation with the likelihood of interacting with younger generations in the neighborhood, while living in a newly-built neighborhood (OR=0.356, p=0.020) and traffic safety (OR=0.712, p=0.031) were linked with lower odds of interacting with children, teenagers, or adults in the neighborhood.

4.2.2.2. Peer Interactions

As the Nagelkerke R Square increased from 0.260 in the base model to 0.436 in the perceived environment model displayed in Table 32, 17.6% of the variance in older adults' peer interactions in the neighborhood was explained by the perceived environments. Controlling for the base model variables, six subjectively measured environmental variables showed significant associations with older adult's peer interactions, including four measures of social environments and two measures of physical environments.

Table 32 Significant Perceived Environment Variables Associated with the Odds of Interacting with Old Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	0.997	0.873	0.955-1.040
Q42_Gender_Impute	Female (vs. male)	0.568	0.062	0.314-1.028
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.805	0.554	0.392-1.651
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.045	0.886	0.572-1.907
Q48_Education	Education level (grades; unit: 1)	0.957	0.612	0.806-1.135
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.960	0.186	0.724-5.310
	Upper-middle income ($40,000-$79,999)	0.845	0.738	0.315-2.266
	High income ($80,000 or more)	1.266	0.682	0.410-3.908
	Don't know/prefer not to answer	1.958	0.227	0.658-5.827
Q58_Health	General health conditions (Likert scales; unit: 1)	1.279	0.092	0.960-1.704
Q60_Heart	Heart diseases (vs. no)	**0.347***	**0.011**	**0.155-0.781**
Q73_Illness_Family	Illness of a family member or friend (vs. no)	**2.083***	**0.011**	**1.180-3.678**
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.692****	**0.003**	**1.198-2.390**
Q27_14_AgeGroups	Not at all important			
	Slightly important	0.930	0.841	0.458-1.890
	Moderately important	0.886	0.736	0.439-1.789
	Very important	**2.889***	**0.039**	**1.056-7.906**
Perceived Social Environments				
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)	**1.484***	**0.010**	**1.100-2.002**
Q28_NeighCohesion_IF2	Neighborhood social cohesion (factor scores; unit: 1)	**1.342***	**0.044**	**1.008-1.785**
Q36_2_Meal	Meal services/programs (vs. no)	**3.801****	**0.008**	**1.415-10.207**
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**6.898*****	**0.000**	**3.729-12.761**
Perceived Physical Environments				
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)	**1.344***	**0.042**	**1.011-1.786**
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)	**0.673****	**0.008**	**0.502-0.901**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 379.584[a]; Cox & Snell R Square: 0.314; Nagelkerke R Square: 0.436

All the four social environment variables, involving neighborhood cohesion and support (OR=1.484, p=0.010), neighborhood social cohesion (OR=1.342, p=0.044), the availability of meal-related services or programs in the neighborhood (OR=3.801, p=0.008), and digital communication with older adults (OR=6.898, p<0.001), were positively associated with the odds of interacting with other older adults in the neighborhood. In terms of the perceived physical environments, neighborhood walkability (OR=1.344, p=0.042) was positively, while traffic safety (OR=0.673,

p=0.008) was negatively correlated with the likelihood of interacting with other older adults in the neighborhood.

4.2.2.3. All Social Interactions

According to an increase of 0.090 in the Nagelkerke R Square, from 0.236 in the base model to 0.326 in the perceived environment model summarized in Table 33, perceived social and physical environments accounted for 9.0% of the variance in older adults' social activities (i.e. interacting with children, teenagers, adults, or older adults) in the neighborhood. Controlling for the base model variables, three perceived environment variables were significantly correlated with older adults' social interactions in the neighborhood. In terms of perceived social environments, digital communications with older adults (OR=3.548, p<0.001) had a positive association with the odds of participating in social activities in the neighborhood. As for perceived physical environments, neighborhood walkability (OR=1.498, p=0.023) was positively, while living in a newly-built neighborhood (OR=0.365, p=0.027) was negatively linked with the odds of interacting with others in the neighborhood.

Table 33 Significant Perceived Environment Variables Associated with the Odds of Interacting with Children, Teenagers, Adults, or Older Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.020	0.402	0.974-1.068
Q42_Gender_Impute	Female (vs. male)	0.729	0.381	0.359-1.480
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.576	0.194	0.250-1.325
Q47_Marital_Status	Married or unmarried couple (vs. others)	**2.113***	**0.042**	**1.027-4.350**
Q48_Education	Education level (grades; unit: 1)	1.130	0.239	0.922-1.385
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.292	0.641	0.440-3.795
	Upper-middle income ($40,000-$79,999)	0.704	0.520	0.242-2.049
	High income ($80,000 or more)	0.655	0.509	0.186-2.299
	Don't know/prefer not to answer	2.148	0.248	0.587-7.859
Q58_Health	General health conditions (Likert scales; unit: 1)	1.200	0.264	0.871-1.653
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.640***	**0.017**	**1.094-2.458**
Q27_14_AgeGroups	Not at all important			
	Slightly important	1.708	0.175	0.788-3.702
	Moderately important	2.157	0.068	0.944-4.930
	Very important	**4.664***	**0.028**	**1.177-18.487**
Perceived Social Environments				
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)	1.367	0.052	0.997-1.874
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**3.548*****	**0.000**	**1.872-6.727**
Perceived Physical Environments				
Q26_New	Newly built neighborhood (vs. not)	**0.365***	**0.027**	**0.149-0.890**
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)	**1.498***	**0.023**	**1.057-2.123**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 287.284[a]; Cox & Snell R Square: 0.188; Nagelkerke R Square: 0.326

4.2.3. Objective Physical Environments

4.2.3.1. Intergenerational Interactions

4.2.3.1.1. Interactions with Children

Perceived social and objective physical environments accounted for 14.8% of the variance in older adults' social interactions with children, estimated from the Nagelkerke R Square values that increased from 0.207 in the base model to 0.355 in the objective environment model displayed in Table 34. Controlling for the base model and perceived social environment variables, two objective physical environment variables, including

the presence of sports and fitness destinations (OR=1.886, p=0.041) and development permits (OR=2.686, p=0.015), were positively correlated with the odds of interacting with children in the neighborhood. Moreover, three objective physical environment variables, containing the percentage of high-speed streets (OR=0.748, p=0.001), the percentage of the residential land use (OR=0.726, p=0.009), and the presence of the locally undesirable land use (OR=0.529, p=0.039), had negative associations with older adults' likelihood of interacting with children in the neighborhood.

Table 34 Significant Objective Physical Environment Variables Associated with the Odds of Interacting with Children in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.030	0.176	0.987-1.076
Q42_Gender_Impute	Female (vs. male)	0.618	0.105	0.346-1.105
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.825	0.581	0.418-1.630
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.936	0.833	0.509-1.724
Q48_Education	Education level (grades; unit: 1)	0.892	0.202	0.748-1.063
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	**0.289***	**0.010**	**0.113-0.739**
	Upper-middle income ($40,000-$79,999)	**0.294***	**0.014**	**0.110-0.781**
	High income ($80,000 or more)	0.336	0.062	0.107-1.056
	Don't know/prefer not to answer	**0.271***	**0.017**	**0.092-0.795**
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.447***	**0.025**	**1.047-2.001**
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.876***	**0.014**	**1.240-6.673**
Q73_Personal_Illness	Personal illness (vs. no)	**0.546***	**0.035**	**0.311-0.957**
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.110	0.521	0.807-1.527
Q27_14_AgeGroups	Not at all important			
	Slightly important	**2.990***	**0.018**	**1.210-7.388**
	Moderately important	**4.451*****	**0.001**	**1.849-10.716**
	Very important	2.696	0.053	0.985-7.377
Perceived Social Environments				
Q28_NeighCohesion_IF2	Neighborhood social cohesion (factor scores; unit: 1)	**1.434***	**0.012**	**1.082-1.901**
Q13_VolunteerWork	Volunteer work (vs. no)	**2.059***	**0.018**	**1.134-3.739**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**2.281****	**0.003**	**1.317-3.950**
Objective Physical Environments (Sausage Buffer)				
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)	**0.748*****	**0.001**	**0.630-0.888**
L_RES_PTS_2	Residential land use (percentage; unit: 10%)	**0.726****	**0.009**	**0.572-0.922**
D_Fit_S	Presence of sports and fitness destinations (vs. no)	**1.886***	**0.041**	**1.025-3.470**
E_Per_cts_S	Development permits issued in 2019 (vs. no)	**2.686***	**0.015**	**1.211-5.958**
L_Lulu_ars_S	Presence of the locally undesirable land use (vs. no)	**0.529***	**0.039**	**0.289-0.968**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 373.114[a]; Cox & Snell R Square: 0.246; Nagelkerke R Square: 0.355

4.2.3.1.2. Interactions with Children, Teenagers, or Adults

According to the increased Nagelkerke R Square from 0.246 in the base model to 0.359 in the objective environment model as shown in Table 35, perceived social and objective physical environments explained 11.3% of the variance in older adults' intergenerational interactions in the neighborhood. Controlling for the base model and perceived social environment variables, the number of stop signs (OR=1.206, p=0.003) and the presence of food stores (OR=2.054, p=0.042) were positively associated with the odds of interacting with younger generations in the neighborhood.

Table 35 Significant Objective Physical Environment Variables Associated with the Odds of Interacting with Children, Teenagers, or Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.040	0.090	0.994-1.088
Q42_Gender_Impute	Female (vs. male)	0.579	0.119	0.292-1.151
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	**0.443***	**0.047**	**0.198-0.990**
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.795	0.086	0.921-3.497
Q48_Education	Education level (grades; unit: 1)	1.107	0.293	0.916-1.338
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.330	0.585	0.479-3.693
	Upper-middle income ($40,000-$79,999)	0.905	0.847	0.327-2.500
	High income ($80,000 or more)	0.781	0.677	0.244-2.500
	Don't know/prefer not to answer	**3.827***	**0.030**	**1.143-12.815**
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.360***	**0.049**	**1.002-1.846**
Q52_Employed	Employed (vs. not employed)	2.239	0.066	0.949-5.285
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.165	0.417	0.806-1.685
Q27_14_AgeGroups	Not at all important			
	Slightly important	1.623	0.203	0.770-3.423
	Moderately important	2.042	0.060	0.971-4.292
	Very important	2.580	0.072	0.918-7.252
Perceived Social Environments				
Q15_3_DigitalAdults_Binary	Digital communications with adults (vs. no)	1.782	0.070	0.954-3.328
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**2.206***	**0.017**	**1.154-4.215**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**3.361*****	**0.001**	**1.651-6.841**
Objective Physical Environments (Sausage Buffer)				
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)	**1.206****	**0.003**	**1.066-1.365**
D_Food_S	Presence of food stores (vs. no)	**2.054***	**0.042**	**1.026-4.113**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 321.810[a]; Cox & Snell R Square: 0.226; Nagelkerke R Square: 0.359

4.2.3.2. Peer Interactions

Based on an increase of 0.162 in the Nagelkerke R Square from 0.260 in the base model to 0.422 in the objective environment model displayed in Table 36, 16.2% of the variance in older adults' social interactions with other older adults in the neighborhood was explained by the perceived social and objective physical environments. Controlled for the base model variables, two perceived social environment variables and two objective physical environment variables were significantly associated with older adults' peer interactions.

Table 36 Significant Objective Physical Environment Variables Associated with the Odds of Interacting with Old Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	0.994	0.774	0.953-1.036
Q42_Gender_Impute	Female (vs. male)	**0.526***	**0.034**	**0.290-0.954**
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.685	0.292	0.338-1.386
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.093	0.766	0.609-1.959
Q48_Education	Education level (grades; unit: 1)	0.934	0.426	0.789-1.105
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.595	0.349	0.600-4.242
	Upper-middle income ($40,000-$79,999)	0.599	0.299	0.228-1.576
	High income ($80,000 or more)	0.971	0.957	0.334-2.826
	Don't know/prefer not to answer	1.893	0.231	0.666-5.375
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.335***	**0.043**	**1.009-1.768**
Q60_Heart	Heart diseases (vs. no)	**0.440***	**0.037**	**0.204-0.951**
Q73_Illness_Family	Illness of a family member or friend (vs. no)	**2.337****	**0.004**	**1.321-4.135**
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.862*****	**0.000**	**1.330-2.607**
Q27_14_AgeGroups	Not at all important			
	Slightly important	0.775	0.477	0.385-1.563
	Moderately important	0.875	0.702	0.440-1.739
	Very important	2.463	0.070	0.93-6.523
Perceived Social Environments				
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**1.971***	**0.028**	**1.075-3.616**
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**7.557*****	**0.000**	**4.120-13.864**
Objective Physical Environments (Sausage Buffer)				
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)	**1.105***	**0.031**	**1.009-1.210**
Objective Physical Environments (Shortest Network Distance)				
D_OINS_SDN[a]	Distance to the closest other institution (miles; unit: 1)	**0.587****	**0.005**	**0.404-0.854**

Note: *p<0.05; **p<0.01; ***p<0.001

a: Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

-2 Log likelihood: 384.181[a]; Cox & Snell R Square: 0.303; Nagelkerke R Square: 0.422

In terms of the objective physical environment variables, the number of stop signs (OR=1.105, p=0.031) objectively measured within the sausage buffers had a positive correlation with the odds of interacting with other older adults in the neighborhood. Furthermore, the shortest network distance to the closest other institution (OR=0.587, p=0.005) was negatively associated with the likelihood of interacting with other older adults in the neighborhood. The other institutions included legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities, other than educational and community destinations, banks and post offices, offices, and religious destinations.

4.2.3.3. All Social Interactions

Perceived social and objective physical environments accounted for 12.5% of the variance in older adults' social interactions with children, teenagers, adults, or older adults in the neighborhood, as the Nagelkerke R Square increased from 0.236 in the base model to 0.361 in the objective environment model summarized in Table 37. Controlling for the base model and perceived social environment variables, there was only one objective physical environment variable significantly associated with older adults' social interactions in the neighborhood. Specifically, the natural log of the shortest network distance to the closest rail station (OR=0.414, p<0.001) was negatively correlated with the odds of participating in social activities in the neighborhood.

Table 37 Significant Objective Physical Environment Variables Associated with the Odds of Interacting with Children, Teenagers, Adults, or Older Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.022	0.378	0.973-1.073
Q42_Gender_Impute	Female (vs. male)	0.782	0.509	0.378-1.621
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.811	0.640	0.336-1.955
Q47_Marital_Status	Married or unmarried couple (vs. others)	**2.619***	**0.013**	**1.230-5.575**
Q48_Education	Education level (grades; unit: 1)	1.072	0.516	0.869-1.324
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.303	0.641	0.428-3.965
	Upper-middle income ($40,000-$79,999)	0.777	0.655	0.257-2.349
	High income ($80,000 or more)	0.678	0.549	0.190-2.418
	Don't know/prefer not to answer	3.015	0.094	0.829-10.968
Q58_Health	General health conditions (Likert scales; unit: 1)	1.372	0.064	0.981-1.917
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.338	0.177	0.877-2.043
Q27_14_AgeGroups	Not at all important			
	Slightly important	1.741	0.174	0.783-3.874
	Moderately important	**2.462***	**0.036**	**1.060-5.722**
	Very important	**4.086***	**0.041**	**1.062-15.728**
Perceived Social Environments				
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**3.162*****	**0.001**	**1.615-6.191**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**4.422****	**0.001**	**1.789-10.927**
Objective Physical Environments (Shortest Network Distance)				
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station (ln(miles); unit: 1)	**0.414*****	**0.000**	**0.259-0.662**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 269.802[a]; Cox & Snell R Square: 0.207; Nagelkerke R Square: 0.361

4.2.4. Perceived and Objective Physical Environments

4.2.4.1. Intergenerational Interactions

4.2.4.1.1. Interactions with Children

According to the final model (Table 38) with an increase of 0.218 in the Nagelkerke R Square from the base model, perceived and objective environments together explained 21.8% of the variance in older adults' social interactions with children in the neighborhood. Controlling for the base model and perceived social environment variables, two perceived physical environment variables were significantly correlated with social interactions with children. Specifically, neighborhood aesthetics

(OR=1.399, p=0.047) had a positive association with the odds of interacting with children in the neighborhood, while benches on the sidewalks (OR=0.348, p=0.001) were negatively correlated with the likelihood of interacting with children.

Table 38 Significant Perceived and Objective Physical Environment Variables Associated with the Odds of Interacting with Children in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.042	0.079	0.995-1.090
Q42_Gender_Impute	Female (vs. male)	**0.493***	**0.023**	**0.267-0.909**
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.929	0.847	0.441-1.960
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.971	0.928	0.519-1.817
Q48_Education	Education level (grades; unit: 1)	0.856	0.100	0.711-1.031
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	0.473	0.130	0.179-1.248
	Upper-middle income ($40,000-$79,999)	0.466	0.135	0.171-1.267
	High income ($80,000 or more)	0.494	0.240	0.153-1.600
	Don't know/prefer not to answer	0.413	0.120	0.135-1.261
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.440***	**0.037**	**1.022-2.029**
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.411***	**0.042**	**1.032-5.630**
Q73_Personal_Illness	Personal illness (vs. no)	0.573	0.070	0.314-1.046
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.136	0.467	0.806-1.601
Q27_14_AgeGroups	Not at all important			
	Slightly important	**4.916****	**0.001**	**1.902-12.702**
	Moderately important	**7.695*****	**0.000**	**2.979-19.878**
	Very important	**5.509****	**0.002**	**1.913-15.867**
Perceived Social Environments				
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**0.261*****	**0.000**	**0.127-0.536**
Q15_1_DigitalChildren_Binary	Digital communications with children (vs. no)	**4.495*****	**0.000**	**2.339-8.638**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**2.079***	**0.013**	**1.170-3.694**
Perceived Physical Environments				
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)	**1.399***	**0.047**	**1.005-1.947**
Q31_6_Benches_Final[a]	Yes (vs. no)	**0.348****	**0.001**	**0.183-0.662**
Objective Physical Environments (Sausage Buffer)				
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)	**0.747*****	**0.001**	**0.628-0.889**
L_RES_PTS_2	Residential land use (percentage; unit: 10%)	**0.671****	**0.003**	**0.517-0.871**
E_Per_cts_S	Development permits issued in 2019 (vs. no)	**3.470****	**0.003**	**1.511-7.973**
L_Lulu_ars_S	Presence of the locally undesirable land use (vs. no)	**0.476***	**0.023**	**0.251-0.902**

Note: *p<0.05; **p<0.01; ***p<0.001

-2 Log likelihood: 347.443[a]; Cox & Snell R Square: 0.295; Nagelkerke R Square: 0.425

a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

In terms of the objective physical environments, development permits (OR=3.470, p=0.003) were linked with higher odds of interacting with children in the

neighborhood. Meanwhile, the percentage of high-speed streets (OR=0.747, p=0.001), the percentage of the residential land use (OR=0.671, p=0.003), and the presence of the locally undesirable land use (OR=0.476, p=0.023) had negative correlations with the likelihood of interacting with children.

4.2.4.1.2. Interactions with Children, Teenagers, or Adults

Based upon the final model (Table 39) showing an increase of 0.126 in the Nagelkerke R Square from the base model, 12.6% of the variance in older adults' social interactions with children, teenagers, or adults was estimated to be explained by the perceived and objective environments. Controlling for the base model and perceived social environment variables, three perceived physical environment variables and one objective physical environment variable were significantly associated with older adults' intergenerational interactions. For the perceived physical environment variables, perceived neighborhood surveillance (OR=1.385, p=0.044) was positively correlated with the odds of interacting with younger generations in the neighborhood; while living in the newly-built neighborhood (OR=0.396, p=0.039) and perceived traffic safety (OR=0.663, p=0.016) were negatively interacted with the likelihood of participating in intergenerational activities in the neighborhood. Regarding the objective physical environment, the number of stop signs (OR=1.209, p=0.002) within the sausage buffers had a positive association with the odds of engaging in intergenerational interactions in the neighborhood.

Table 39 Significant Perceived and Objective Physical Environment Variables Associated with the Odds of Interacting with Children, Teenagers, or Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	1.040	0.101	0.992-1.089
Q42_Gender_Impute	Female (vs. male)	0.551	0.089	0.278-1.094
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.522	0.117	0.231-1.177
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.700	0.127	0.860-3.358
Q48_Education	Education level (grades; unit: 1)	1.122	0.234	0.929-1.355
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.316	0.600	0.471-3.681
	Upper-middle income ($40,000-$79,999)	0.826	0.712	0.300-2.277
	High income ($80,000 or more)	0.849	0.782	0.267-2.701
	Don't know/prefer not to answer	3.345	0.053	0.982-11.396
Q58_Health	General health conditions (Likert scales; unit: 1)	1.341	0.073	0.973-1.847
Q52_Employed	Employed (vs. not employed)	**2.620***	**0.031**	**1.090-6.297**
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.170	0.410	0.805-1.699
Q27_14_AgeGroups	Not at all important			
	Slightly important	1.907	0.098	0.888-4.093
	Moderately important	**2.215***	**0.040**	**1.035-4.739**
	Very important	**2.970***	**0.046**	**1.018-8.667**
Perceived Social Environments				
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**2.313***	**0.010**	**1.227-4.361**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**3.393****	**0.001**	**1.630-7.065**
Perceived Physical Environments				
Q26_New	Newly built neighborhood (vs. not)	**0.396***	**0.039**	**0.164-0.955**
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)	**0.663***	**0.016**	**0.476-0.925**
Q34_Surveillance_IF2	Neighborhood surveillance (factor scores; unit: 1)	**1.385***	**0.044**	**1.009-1.901**
Objective Physical Environments (Sausage Buffer)				
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)	**1.209****	**0.002**	**1.075-1.360**

Note: *p<0.05; **p<0.01

-2 Log likelihood: 317.109[a]; Cox & Snell R Square: 0.234; Nagelkerke R Square: 0.372

4.2.4.2. Peer Interactions

Perceived and objective environments accounted for 17.9% of the variance in older adults' peer interactions in the neighborhood as the Nagelkerke R Square increased from 0.260 in the base model to 0.439 in the final model shown in Table 40. Controlling for the base model and perceived social environment variables, perceived traffic safety (OR=0.746, p=0.042) was negatively correlated with the odds of interacting with other older adults in the neighborhood. As for objective physical environments, the number of

stop signs (OR=1.101, p=0.043) had a positive association with the likelihood of interacting with other older adults in the neighborhood. Moreover, the shortest network distance to the closest other institution (OR=0.644, p=0.024) was linked with lower odds of interacting with other older adults in the neighborhood. The other institution category involved legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities.

Table 40 Significant Perceived and Objective Physical Environment Variables Associated with the Odds of Interacting with Old Adults in the Neighborhood.

Variable	Measure	OR	P-value	95% CI
Demographic and Socioeconomic Characteristics				
Q41_Age	Age (years; unit: 1)	0.996	0.866	0.955-1.039
Q42_Gender_Impute	Female (vs. male)	**0.532***	**0.040**	**0.291-0.972**
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.660	0.264	0.318-1.369
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.107	0.736	0.613-2.000
Q48_Education	Education level (grades; unit: 1)	0.948	0.539	0.799-1.124
Q54_Income	Low income (below $20,000)			
	Lower-middle income ($20,000-$39,999)	1.399	0.512	0.513-3.818
	Upper-middle income ($40,000-$79,999)	0.516	0.190	0.192-1.386
	High income ($80,000 or more)	0.727	0.575	0.238-2.216
	Don't know/prefer not to answer	1.377	0.562	0.466-4.072
Q58_Health	General health conditions (Likert scales; unit: 1)	1.319	0.058	0.991-1.757
Q60_Heart	Heart diseases (vs. no)	**0.399***	**0.023**	**0.181-0.882**
Q73_Illness_Family	Illness of a family member or friend (vs. no)	**2.250****	**0.006**	**1.262-4.012**
Self-selection				
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	**1.802*****	**0.001**	**1.284-2.531**
Q27_14_AgeGroups	Not at all important			
	Slightly important	0.812	0.566	0.398-1.655
	Moderately important	0.887	0.738	0.438-1.794
	Very important	2.333	0.094	0.865-6.294
Perceived Social Environments				
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**1.909***	**0.038**	**1.035-3.521**
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)	**1.358***	**0.038**	**1.016-1.815**
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)	**7.687*****	**0.000**	**4.142-14.265**
Perceived Physical Environments				
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)	**0.746***	**0.042**	**0.562-0.989**
Objective Physical Environments (Sausage Buffer)				
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)	**1.101***	**0.043**	**1.003-1.209**
Objective Physical Environments (Shortest Network Distance)				
D_OINS_SDN[a]	Distance to the closest other institution (miles; unit: 1)	**0.644***	**0.024**	**0.440-0.943**

Note: *p<0.05; **p<0.01; ***p<0.001

a: Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

-2 Log likelihood: 376.508[a]; Cox & Snell R Square: 0.316; Nagelkerke R Square: 0.439

4.2.4.3. All Social Interactions

No perceived physical environment variable remained significant after adding the significant objective physical environment variable (i.e. natural log of the shortest network distance to the closest rail station) in this final model. Thus, the final model for all social interactions was the same as the objective environment model described in 4.2.3.3. All Social Interactions.

4.2.5. Neighborhood Walk, Transit, and Bike Scores

Controlling for the base model and perceived social and physical environmental variables, neighborhood walk, transit, and bike scores were significantly correlated with older adults' intergenerational and peer interactions in the neighborhood. Specifically, neighborhood walk scores were positively associated with the odds of interacting with younger generations (OR=1.014, P=0.035), other older adults (OR=1.013, P=0.026), and all generations (OR=1.017, P=0.017) in the neighborhood among older adults (Table 41). Transit scores were linked with a higher likelihood of interacting with younger generations (OR=1.019, P=0.042), other older adults (OR=1.035, $p<0.001$), and others of all ages (OR=1.031, P=0.003). Bike scores were positively correlated with the odds of interacting with children (OR=1.014, P=0.044), younger generations (OR=1.018, P=0.017), other older adults (OR=1.020, P=0.003), and all generations (OR=1.026, P=0.003).

Table 41 Significant Walk, Transit, and Bike Score Variables Associated with Older Adults' Social Interactions in the Neighborhood.

Variable	Measure	Binary Logistic	Children[1]	Intergenerational[2]	Peer[3]	All[4]
Walk_Score	Neighborhood walkability scores (0-100)	OR		**1.014***	**1.013***	**1.017***
		P		**0.035**	**0.026**	**0.017**
		95% CI		**1.001-1.026**	**1.002-1.024**	**1.003-1.031**
		Cox & Snell R Square		0.216	0.315	0.198
		Nagelkerke R Square		0.342	0.438	0.344
Transit_Score	Neighborhood transit service scores (0-100)	OR		**1.019***	**1.035*****	**1.031****
		P		**0.042**	**0.000**	**0.003**
		95% CI		**1.001-1.038**	**1.016-1.054**	**1.011-1.052**
		Cox & Snell R Square		0.215	0.330	0.204
		Nagelkerke R Square		0.341	0.459	0.354
Bike_Score	Neighborhood bikeability scores (0-100)	OR	**1.014***	**1.018***	**1.020****	**1.026****
		P	**0.044**	**0.017**	**0.003**	**0.003**
		95% CI	**1.000-1.028**	**1.003-1.033**	**1.007-1.034**	**1.009-1.043**
		Cox & Snell R Square	0.266	0.215	0.317	0.201
		Nagelkerke R Square	0.384	0.342	0.441	0.351

Note: *p<0.05; **p<0.01; ***p<0.001

1. Interactions with children in the neighborhood: Control for significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q69_MobilityAids, Q73_Personal_Illness), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q26_ManySenior, Q13_VolunteerWork, Q15_1_DigitalChildren_Binary, Q16_SocialPlace_In), and perceived physical environment (i.e. Q32_Aesthetics_IF1, Q31_6_Benches_Final) factors.
2. Interactions with children, teenagers, or adults in the neighborhood: Control for significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q52_Employed), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q28_NeighCohesionSup_IF1, Q15_4_DigitalOldAdults_Binary, Q16_SocialPlace_In), and perceived physical environment (i.e. Q33_TrafficSafety_IF1) factors.
3. Interactions with older adults in the neighborhood: Control for significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q60_Heart, Q73_Illness_Family), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q28_NeighCohesionSup_IF1, Q28_NeighCohesion_IF2, Q36_2_Meal, Q15_4_DigitalOldAdults_Binary), and perceived physical environment (i.e. Q33_TrafficSafety_IF1) factors.
4. Interactions with children, teenagers, adults, or older adults in the neighborhood: Control for significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health), perceived social environment (i.e. Q28_NeighCohesionSup_IF1, Q15_4_DigitalOldAdults_Binary, Q16_SocialPlace_In) factors.

4.2.6. Conclusions and Discussions

Table 42 summarizes the correlates of older adults' intergenerational and peer interactions in the neighborhood, following the four-step process from the base model estimation to the full model development. The discussions below are based upon the four final models as shown in the last four columns in the table as well as findings from the neighborhood walk, transit, and bike scores.

Table 42 Correlates of Older Adults' Intergenerational and Other Social Activities in the Neighborhood.

Variable	Measure	Base Model (OR)				PEM (OR)				OEM (OR)				Final Model (OR)			
		Child	Inter	Peer	All	Child	Inter	Peer	All	Child	Inter	Peer	All	Child	Inter	Peer	All
Demographic and Socioeconomic Characteristics																	
Q41_Age	Age (years; unit: 1)	1.032	1.025	0.982	1.007	1.041	1.045	0.997	1.020	1.030	1.040	0.994	1.022	1.042	1.040	0.996	1.022
Q42_Gender_Impute	Female (vs. male)	0.760	0.608	0.630	0.800	0.559	0.590	0.568	0.729	0.618	0.579	**0.526***	0.782	**0.493***	0.551	**0.532***	0.782
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.789	0.490	0.910	0.701	0.780	0.505	0.805	0.576	0.825	**0.443***	0.685	0.811	0.929	0.522	0.660	0.811
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.977	1.537	1.067	**2.042***	0.899	1.809	1.045	**2.113***	0.936	1.795	1.093	**2.619***	0.971	1.700	1.107	**2.619***
Q48_Education	Education level (grades; unit: 1)	0.949	1.184	0.997	1.146	0.873	1.145	0.957	1.130	0.892	1.107	0.934	1.072	0.856	1.122	0.948	1.072
Q54_Income	Low income (below $20,000)																
	Lower-middle income ($20,000-$39,999)	0.504	1.042	1.292	1.074	0.515	1.138	1.960	1.292	**0.289***	1.330	1.595	1.303	0.473	1.316	1.399	1.303
	Upper-middle income ($40,000-$79,999)	0.564	0.674	0.631	0.605	0.593	0.726	0.845	0.704	**0.294***	0.905	0.599	0.777	0.466	0.826	0.516	0.777
	High income ($80,000 or more)	0.703	0.859	1.091	0.818	0.695	0.624	1.266	0.655	0.336	0.781	0.971	0.678	0.494	0.849	0.727	0.678
	Don't know/prefer not to answer	0.437	2.956	1.515	2.249	0.503	2.397	1.958	2.148	**0.271***	**3.827***	1.893	3.015	0.413	3.345	1.377	3.015
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.396***	**1.404***	**1.337***	**1.389***	**1.423**	1.302	1.279	1.200	**1.447***	**1.360***	**1.335***	1.372	**1.440***	1.341	1.319	1.372
Q52_Employed	Employed (vs. not employed)		2.229				2.223				2.239				**2.620***		
Q60_Heart	Heart diseases (vs. no)			**0.378****				**0.347***				**0.440***				**0.399***	
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.240***				**2.525***				**2.876***				**2.411***			
Q73_Personal_Illness	Personal illness (vs. no)	**0.570***				0.575				**0.546***				0.573			
Q73_Illness_Family	Illness of a family member or friend (vs. no)			**1.715***				**2.083***				**2.337****				**2.250****	
Self-selection																	
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.190	**1.500***	**2.093*****	**1.816****	1.039	1.102	**1.692****	**1.640***	1.110	1.165	**1.862*****	1.338	1.136	1.170	**1.802*****	1.338
Q27_14_AgeGroups	Not at all important																
	Slightly important	**3.771****	**2.138***	0.866	1.676	**4.402****	**2.518***	0.930	1.708	**2.990***	1.623	0.775	1.741	**4.916****	1.907	0.812	1.741
	Moderately important	**5.849*****	**2.782****	1.013	**2.525***	**6.107*****	**2.471***	0.886	2.157	**4.451*****	2.042	0.875	**2.462***	**7.695*****	**2.215***	0.887	**2.462***
	Very important	**4.682*****	**4.393****	**3.577****	**6.501****	**4.230****	**3.341***	**2.889***	**4.664***	2.696	2.580	2.463	**4.086***	**5.509****	**2.970***	2.333	**4.086***
Perceived Social Environments																	
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)					**0.270*****						**1.971***		**0.261*****		**1.909***	
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)						**1.426***	**1.484***	1.367							**1.358***	
Q28_NeighCohesion_IF2	Neighborhood social cohesion (factor scores; unit: 1)							**1.342***		**1.434***							
Q36_2_Meal	Meal services/programs (vs. no)							**3.801****									
Q13_VolunteerWork	Volunteer work (vs. no)					**1.943***				**2.059***							
Q15_1_DigitalChildren_Binary	Digital communications with children (vs. no)					**4.032*****								**4.495*****			
Q15_3_DigitalAdults_Binary	Digital communications with adults (vs. no)										1.782						
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)						**2.356****	**6.898*****	**3.548*****		**2.206***	**7.557*****	**3.162*****		**2.313***	**7.687*****	**3.162*****
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)					**2.571*****	**3.148****			**2.281****	**3.361*****		**4.422****	**2.079***	**3.393****		**4.422****

Table 42 Continued.

Variable	Measure	Base Model (OR)				PEM (OR)				OEM (OR)				Final Model (OR)			
		Child	Inter	Peer	All	Child	Inter	Peer	All	Child	Inter	Peer	All	Child	Inter	Peer	All
Perceived Physical Environments																	
Q26_New	Newly built neighborhood (vs. not)						**0.356***		**0.365***						**0.396***		
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)						**1.400***	**1.344***	**1.498***								
Q31_6_Benches_Final[a]	Yes (vs. no)					**0.438****								**0.348****			
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)					**1.418***								**1.399***			
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)						**0.712***	**0.673****							**0.663***	**0.746***	
Q34_Surveillance_IF2	Neighborhood surveillance (factor scores; unit: 1)														**1.385***		
Objective Physical Environments (Sausage Buffer)																	
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)									**0.748*****				**0.747*****			
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)										**1.206****	**1.105***			**1.209****	**1.101***	
L_RES_PTS_2	Residential land use (percentage; unit: 10%)									**0.726****				**0.671****			
D_Fit_S	Presence of sports and fitness destinations (vs. no)									**1.886***							
D_Food_S	Presence of food stores (vs. no)										**2.054***						
E_Per_cts_S	Development permits issued in 2019 (vs. no)									**2.686***				**3.470****			
L_Lulu_ars_S	Presence of the locally undesirable land use (vs. no)									**0.529***				**0.476***			
Objective Physical Environments (Shortest Network Distance)																	
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station (ln(miles), unit: 1)												**0.414*****				**0.414*****
D_OINS_SDN[b]	Distance to the closest other institution (miles; unit: 1)											**0.587****				**0.644***	
Cox & Snell R Square		0.143	0.155	0.187	0.136	0.260	0.225	0.314	0.188	0.246	0.226	0.303	0.207	0.295	0.234	0.316	0.207
Nagelkerke R Square		0.207	0.246	0.260	0.236	0.375	0.357	0.436	0.326	0.355	0.359	0.422	0.361	0.425	0.372	0.439	0.361

Note: *p<0.05; **p<0.01; ***p<0.001

PEM=Perceived Environment Model; OPE=Objective Environment Model

Child=Interactions with children in the neighborhood; Inter=Interactions with children, teenagers, or adults in the neighborhood; Peer=Interactions with older adults in the neighborhood; All=Interactions with children, teenagers, adults, or older adults in the neighborhood

a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

b: Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

Older males were more likely to interact with children or other older adults in their neighborhood compared to older females. Older adults who were members of married or unmarried couples had a higher likelihood of participating in social activities in the neighborhood than those who were never married, separated, divorced, or widowed. Those reporting better health conditions were linked with higher odds of interacting with children. Older adults who were employed, compared to those who were not employed, were more likely to interact with children, teenagers, or adults in their neighborhood. Those with heart-related diseases tended to engage in less peer interactions in the neighborhood. Older adults who needed mobility aids (i.e. wheelchair, walker with seat, walker, cane) reported higher likelihood of interacting with children in the neighborhood than their counterparts. The three possible explanations for the positive relationship between mobility aids and social interactions with children are that older populations needing mobility aids (1) may be more aware of the importance of walking and social interactions, (2) may reside closer to daily destinations and/or to homes of family members or friends with children, and (3) may receive care or assistances from others including children. Illness of a family member or friend in the past three years was associated with higher odds of interacting with other older adults in the neighborhood, which might be attributed to more visits of the family members and/or friends.

As for the residential self-selection factors, social cohesion and support had a positive association with the odds of interacting with other older adults in the neighborhood. Diversity of age groups was positively correlated with the likelihood of

interacting with children and other younger generations but had no association with peer interactions in the neighborhood.

In terms of the perceived social environments, neighborhoods that have many seniors were negatively correlated with the odds of interacting with children while positively related to the likelihood of interacting with other older adults in the neighborhood. Neighborhood cohesion and support had a positive association with the likelihood of interacting with others of the same age group in the neighborhood. Digital communications with children were linked with higher odds of interacting with children in the neighborhood, while digital communications with older adults had positive correlations with the likelihood of interacting with younger generations or other older adults in the neighborhood. Half or more of the social places located in the neighborhood had a positive association with the odds of interacting with younger generations but had no correlation with peer interactions in the neighborhood. One possible reason is that older adults may be most likely to interact with other older adults at the senior centers outside their neighborhoods.

Regarding perceived physical environments, newly built neighborhood was negatively associated with the likelihood of interacting with younger generations in the neighborhood, while neighborhood surveillance was linked with a higher likelihood of interacting with younger generations in the neighborhood. Neighborhood aesthetics was correlated with higher odds of interacting with children in the neighborhood. Traffic safety had negative associations with the odds of interacting with younger generations or other older adults, which might be attributed to awareness issues. Specifically, older

adults who were more active (e.g. walking more outdoors) tended to be better aware of traffic safety issues (e.g. high traffic speeds) in their neighborhoods.

Perceived benches on most of the sidewalks in the neighborhood had a negative correlation with the odds of interacting with children in the neighborhood. One possible explanation for the negative relationship is that study participants reporting more benches on the sidewalks may live closer to downtown or major arterials with transit stops, as benches tended to be more available in these locations. The bivariate analysis (i.e. chi-square test) demonstrated that perceived benches on most of the sidewalks in the neighborhood had a significant association with the number of transit stops ($p<0.001$) and the commercial land use areas ($p=0.004$) objectively measured within the sausage buffers.

For objective physical environments, the percentage of high-speed streets and the presence of the locally undesirable land use was shown to be negatively correlated with the odds of interacting with children in the neighborhood. The number of stop signs had positive associations with the likelihood of interacting with younger generations and other older adults in the neighborhood. The shortest network distance to the closest rail station was negative correlated with the odds of interacting with others of all age groups in the neighborhood, while the shortest network distance to the closest other institution (i.e. legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities) was linked with lower odds of interacting with other older adults in the neighborhood.

The percentage of the residential land use (ranging from 0.0% to 73.3%, with a mean of 50.4% and standard deviation of 13.4%) tended to be linked with a lower likelihood of interacting with children in the neighborhood, which might be explained by the fact that neighborhoods with more residential land use had less recreational land use (e.g. parks, playgrounds, recreational centers). The descriptive statistics (Figure 7) showed that the park/trail was one of the most popular places for older adults to interact with children, and two partially adjusted models showed that neighborhoods with four or more parks (OR=2.506, p=0.029) and six or more acres of parks (OR=2.445, p=0.042) were linked with higher odds of interacting with children in the neighborhood than those without park. Furthermore, the presence of sports and fitness destinations within the sausage buffers were also shown to be positively associated with the likelihood of interacting children in the neighborhood. The bivariate analyses suggested that the percentage of the residential land use was negatively correlated with the presence of sports and fitness destinations (independent samples t-test, $p<0.001$), number of parks (one-way ANOVA, $p<0.001$), and area of parks (one-way ANOVA, $p<0.001$).

Development permits were positively associated with the likelihood of interacting with children in the neighborhood. The permits issued in 2019 in Austin, Texas included 3,652 commercial (i.e. 1,433 building, 323 driveway/sidewalk, 828 electrical, 491 mechanical, and 577 plumbing) and 21,155 residential (i.e. 4,854 building, 2,874 driveway/sidewalk, 4,721 electrical, 4,204 mechanical, and 4,502 plumbing) permits. Among all development permits, the commercial permits included 2,670 active (73.1%) and 838 finished (22.9%) ones, while the residential permits

contained 10,118 active (47.8%) and 10,829 finished (51.2%) ones. These permits, especially the finished ones, bring many new developments and infrastructure improvements to corresponding neighborhoods, leading to more dynamic and vibrant living environments that can foster social interactions among different generations.

Neighborhood walk, bike, and transit scores were positively correlated with the odds of interacting with younger generations and other older adults in the neighborhood (See 4.2.5. Walk, Bike, and Transit Scores for details). While developed as a destination-driven composite measure to estimate the environmental friendliness to support walking, biking and transit use, respectively, these scores appear to also capture environmental characteristics associated with social interactions. More studies are needed to further investigate the potential associations of walk, bike, and transit scores with various social activities and health-related outcomes in various settings (e.g. locations, populations). Given its ease of use and wide availability, these scores have the potential to promote considerations of the physical environmental domain in studies such as the intergenerational interaction literature that has traditionally overlooked the roles of physical environments.

In conclusions, neighborhood social and physical environments play essential roles in promoting older adults' intergenerational and other social activities in the neighborhood. Given the significant health benefits of intergenerational interactions for all age groups, especially for older adults, more studies are needed to better understand environmental facilitators and barriers of various types of older adults' intergenerational interactions occurring in one's daily environments.

4.3. Intergenerational Interactions and Walking

4.3.1. Intergenerational Interactions as Dependent Variables

Controlling for significant covariates, transportation walking (OR=2.218, p=0.008) was positively correlated with the odds of interacting with children in the neighborhood (Table 43). Recreational walking was linked with higher odds of interacting with children (OR=2.407, p=0.031), younger generations (OR=2.481, p=0.009), other older adults (OR=1.851, p=0.036), and others of all age groups (OR=2.030, p=0.042).

For the significant covariates, social interactions with children in the neighborhood was positively associated with mobility aids, residential self-selection of diversity of age groups, neighborhood social cohesion, volunteer work, digital communications with children, half or more of the social places located in the neighborhood, neighborhood aesthetics, and development permits; but negatively related to being female, personal illness in the past three years, neighborhoods that have many seniors, benches on most of the sidewalks, and percentage of high-speed streets. Intergenerational interactions in the neighborhood had positive associations with age, employment status, reporting diversity of age groups as being moderately or very important, digital communications with older adults, half or more of the social places located in the neighborhood, and the number of stop signs; but negative correlations with newly built neighborhood and traffic safety.

Table 43 Significant Walking Activity Variables Associated with Intergenerational and Other Social Activities.

Variable	Measure	Intergenerational and Other Social Activities							
		Child		Inter		Peer		All	
		OR	P-value	OR	P-value	OR	P-value	OR	P-value
Demographic and Socioeconomic Characteristics									
Q41_Age	Age (years; unit: 1)	1.048	0.059	**1.061***	**0.020**	0.988	0.560	1.030	0.241
Q42_Gender_Impute	Female (vs. male)	**0.436***	**0.014**	0.509	0.068	0.619	0.107	0.665	0.276
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.728	0.435	0.501	0.104	0.927	0.827	0.625	0.275
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.573	0.104	1.539	0.231	0.975	0.934	1.956	0.075
Q48_Education	Education level (grades; unit: 1)	0.893	0.253	1.072	0.481	1.023	0.779	1.062	0.565
Q54_Income	Low income (below $20,000)								
	Lower-middle income ($20,000-$39,999)	0.384	0.084	1.424	0.518	1.460	0.446	1.347	0.604
	Upper-middle income ($40,000-$79,999)	0.567	0.312	0.933	0.897	0.710	0.493	0.828	0.739
	High income ($80,000 or more)	0.572	0.384	0.844	0.780	1.007	0.990	0.739	0.639
	Don't know/prefer not to answer	0.304	0.056	3.318	0.060	1.424	0.506	3.011	0.095
Q58_Health	General health conditions (Likert scales; unit: 1)	1.226	0.275	1.255	0.190	1.314	0.056	1.213	0.252
Q52_Employed	Employed (vs. not employed)			**2.698***	**0.033**				
Q60_Heart	Heart diseases (vs. no)					**0.333****	**0.005**		
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**3.429***	**0.012**						
Q73_Personal_Illness	Personal illness (vs. no)	**0.470***	**0.024**						
Q73_Illness_Family	Illness of a family member or friend (vs. no)					**1.830***	**0.028**		
Residential Self-selection									
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.087	0.657	1.089	0.665	**1.829*****	**0.000**	**1.627***	**0.021**
Q27_14_AgeGroups	Not at all important								
	Slightly important	**4.148****	**0.006**	1.981	0.088	0.781	0.475	1.369	0.434
	Moderately important	**5.548*****	**0.001**	**2.308***	**0.038**	0.792	0.498	**2.372***	**0.043**
	Very important	**3.346***	**0.038**	**3.152***	**0.039**	**3.536***	**0.014**	**4.176***	**0.036**
Perceived Social Environments									
Q25_MoveInYear_Impute	Time living in your current home (years; unit: 1)					1.014	0.111		
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**0.238*****	**0.000**						
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)					**1.413***	**0.017**		
Q28_NeighCohesion_IF2	Neighborhood social cohesion (factor scores; unit: 1)	**1.382***	**0.035**			**1.393***	**0.020**		
Q36_2_Meal	Meal services/programs (vs. no)					**3.278***	**0.014**		
Q13_VolunteerWork	Volunteer work (vs. no)	**1.993***	**0.046**						
Q15_1_DigitalChildren_Binary	Digital communications with children (vs. no)	**4.150*****	**0.000**						
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)			**2.339***	**0.012**			**3.592*****	**0.000**
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**2.626****	**0.002**	**3.290****	**0.002**				
Perceived Physical Environments									
Q26_New	Newly built neighborhood (vs. not)			**0.391***	**0.042**				
Q31_6_Benches_Final[a]	Yes (vs. no)	**0.388****	**0.006**						
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)	**1.425***	**0.046**						
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)			**0.620****	**0.008**	**0.679****	**0.008**		
Q34_Surveillance_IF2	Neighborhood surveillance (factor scores; unit: 1)			1.360	0.066				
Objective Physical Environments (Sausage Buffer)									
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)	**0.821***	**0.024**						
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)			**1.238*****	**0.001**	**1.094***	**0.041**	**1.239****	**0.002**
E_Per_cts_S	Development permits issued in 2019 (vs. no)	**2.785***	**0.015**						
Walking Activity									
Q5_TranWalking_YesNo	Transportation walking (vs. no)	**2.218****	**0.008**						
Q6_RecWalking_YesNo_2	Recreational Walking (vs. no)	**2.407***	**0.031**	**2.481****	**0.009**	**1.851***	**0.036**	**2.030***	**0.042**
Cox & Snell R Square		0.314		0.253		0.256		0.191	
Nagelkerke R Square		0.454		0.402		0.357		0.333	

Note: *p<0.05; **p<0.01; ***p<0.001

a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

As for peer interactions in the neighborhood, positive correlates included illness of a family member or friend in the past three years, residential self-selection factors

regarding diversity of age group and social cohesion and support, factor variables about neighborhood social cohesion and trust, the availability of meal-related services or programs, and the number of stop signs; while heart-related diseases and perceived traffic safety were negative correlates. Social interactions with others of all age groups in the neighborhood were positively associated with residential self-selection factors regarding diversity of age group and social cohesion and support, digital communications with older adults, and the number of stop signs.

4.3.2. Walking as Dependent Variables

Controlling for significant covariates, social interactions with children in the neighborhood (OR=1.931, p=0.022) were positively associated with the odds of being a transportation walker (Table 44), while social interactions with younger generations (i.e. children, teenagers, adults) in the neighborhood (OR=2.259, p=0.015) were positively correlated with being a recreational walker. Furthermore, one indirect intergenerational interaction variable, seeing teenagers biking in the neighborhood (OR=1.942, p=0.009), was linked with higher odds of being a transportation walker. Another indirect intergenerational interaction variable, seeing other generations sitting in the neighborhood (OR=1.943, p=0.043), had a positive association with the likelihood of being a recreational walker.

Table 44 Significant Intergenerational Interaction Variables Associated with Walking.

Variable	Measure	Transportation Walking			Recreational Walking		
		OR	P	95% CI	OR	P	95% CI
Demographic and Socioeconomic Characteristics							
Q41_Age	Age (years; unit: 1)	1.002	0.929	0.962-1.044	**0.950***	**0.021**	**0.909-0.992**
Q42_Gender_Impute	Female (vs. male)	0.865	0.612	0.493-1.516	1.198	0.578	0.634-2.264
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	1.747	0.108	0.885-3.446	1.687	0.141	0.840-3.387
Q47_Marital_Status	Married or unmarried couple (vs. others)	1.443	0.210	0.814-2.561	**1.989***	**0.034**	**1.054-3.751**
Q48_Education	Education level (grades; unit: 1)	0.909	0.231	0.778-1.062	1.084	0.374	0.907-1.296
Q54_Income	Low income (below $20,000)						
	Lower-middle income ($20,000-$39,999)	0.521	0.162	0.209-1.298	0.709	0.494	0.265-1.900
	Upper-middle income ($40,000-$79,999)	0.668	0.401	0.260-1.713	**0.308***	**0.018**	**0.116-0.817**
	High income ($80,000 or more)	0.466	0.166	0.159-1.371	0.459	0.179	0.147-1.428
	Don't know/prefer not to answer	2.266	0.107	0.837-6.135	0.472	0.156	0.167-1.333
Q58_Health	General health conditions (Likert scales; unit: 1)	0.844	0.267	0.626-1.139	1.186	0.304	0.856-1.643
Q49_HousingType	One-family detached house (vs. others)	0.647	0.165	0.350-1.197			
Q51_2_Dog	Dog in the household (vs. no dog)	0.591	0.069	0.336-1.042	**2.388***	**0.011**	**1.217-4.685**
Q52_Employed	Employed (vs. not employed)	**2.111***	**0.025**	**1.099-4.057**	**0.463***	**0.036**	**0.225-0.952**
Q59_SleepHour	Sleep time (hours; unit: 1)	**1.217***	**0.043**	**1.007-1.472**			
Q63_DifficultyWalking	Difficulty walking (vs. no)				**0.178*****	**0.000**	**0.091-0.346**
Q67_Alcohol	Alcoholic drink in a typical week (vs. no)	**1.990***	**0.011**	**1.168-3.389**			
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.513***	**0.024**	**1.128-5.601**			
Residential Self-selection							
Q27_4_PublicTransportation	Not at all important (vs. others)	0.613	0.104	0.340-1.105	1.497	0.215	0.792-2.830
Q27_NeighborEnvironment_IF1_New	Environmental self-selection scores (factor scores; unit: 1)	1.083	0.602	0.802-1.464	1.296	0.107	0.945-1.778
Recruitment Channel							
Q74_Recruitment3	Participants recruited from Nextdoor/Facebook (vs. no)				**0.383****	**0.008**	**0.187-0.782**
Perceived Social Environments							
Q36_4_Transportation	Transportation related services/programs (vs. no)	**2.194***	**0.034**	**1.060-4.542**			
Q13_VolunteerWork	Volunteer work (vs. no)				**1.998***	**0.015**	**1.146-3.482**
Q22_6_See_OlderAdultSocializing	See older adults socializing in the neighborhood (vs. no)				**2.570****	**0.002**	**1.427-4.629**
Q22_2_See_OldAdultBiking	See older adults biking in the neighborhood (vs. no)				**0.394***	**0.017**	**0.184-0.846**
Perceived Physical Environments							
Q11_Interaction_OlderAdults	Number of places for peer interaction (count; unit: 1)	**1.086***	**0.013**	**1.017-1.158**			
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)	**1.400***	**0.022**	**1.049-1.868**			
Q31_6_Benches_Final[a]	Yes (vs. no)				1.823	0.064	0.965-3.444
Objective Physical Environments (Sausage Buffer)							
L_off_ars_3	Area of office (0 acres)						
	>0 acres - <1.5 acres	1.575	0.216	0.767-3.231			
	≥1.5 acres	**2.447***	**0.025**	**1.118-5.352**			
L_com_ars_S	Presence of the commercial land use (vs. no)	**0.388***	**0.013**	**0.184-0.816**			
Direct Intergenerational Interactions							
Q21_1_InteractChildren_In	Interact with children in the neighborhood (vs. no)	**1.931***	**0.022**	**1.100-3.392**			
Q21_InteractChildTeenAdult_In_Binary	Interact with other generations in neighborhood (vs. no)				**2.259***	**0.015**	**1.173-4.349**
Indirect Intergenerational Interactions							
Q22_2_See_TeenagerBiking	See teenagers biking in the neighborhood (vs. no)	**1.942****	**0.009**	**1.178-3.202**			
Q22_4_See_ChildTeenAdultSitting	See other generations sitting in the neighborhood (vs. no)				**1.943***	**0.043**	**1.022-3.693**
Cox & Snell R Square		0.249			0.271		
Nagelkerke R Square		0.334			0.396		

Note: *p<0.05; **p<0.01; ***p<0.001

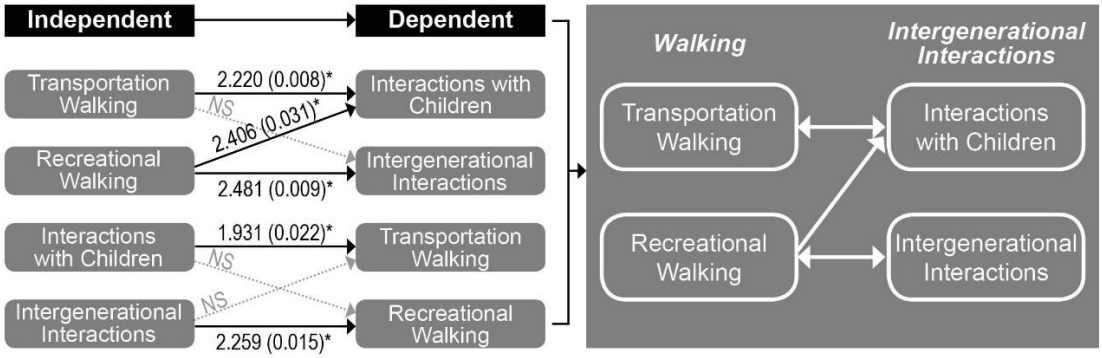
a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

For the significant covariates, transportation walking was positively associated with employment status, sleep time, alcoholic drink, mobility aids, transportation-related services or programs, the number of places for peer interactions, perceived neighborhood walkability, and office area (1.5 acres or more); but negatively related to the presence of

the commercial land use. In terms of recreational walking, positive correlates included being married or a member of unmarried couple, having a dog in one's household, volunteer work, and seeing older adults socializing in the neighborhood; while age, income, employment status, difficulty in walking, seeing older adults biking in the neighborhood, and participants recruited from social media (i.e. Nextdoor, Facebook) were negative correlates.

4.3.3. Conclusions and Discussions

The results suggested that both direct and indirect intergenerational activities in the neighborhood were positively correlated with transportation and recreational walking. Figure 10 shows a summary of the significant relationships between direct intergenerational interactions and walking based upon the results in 4.3.1. Intergenerational Interactions as Dependent Variables and 4.3.2. Walking as Dependent Variables, demonstrating a mutual relationship between transportation walking and interactions with children, and a mutual association between recreational walking and intergenerational interactions. Furthermore, there was only a one-way relationship between recreational walking and interactions with children (i.e. recreational walking predicting interactions with children), while transportation walking was not correlated with intergenerational interactions.



Note: *OR (P-value); Each model has controlled for significant demographic and socioeconimic characteristics, residential self-selection factors, recruitment channels, perceived social and physical enviornments, and objective physical environments

Figure 10 Walking and intergenerational interactions.

Detailed discussions on other significant correlates of interacting with children and younger generations (i.e. children, teenagers, adults) can be found in 4.2.6. Conclusions and Discussions. Among the significant correlates of older adults' walking, having a dog in one's household was positively correlated with the likelihood of being a recreational walker, but not significantly associated with the odds of being a transportation walker. Employment status was associated with higher odds of being a transportation walker but lower odds of being a recreational walker. Alcoholic drink was positively correlated with the odds of being a transportation walker, which might be explained by the fact that older adults who had more alcoholic beverages in a typical week were less likely to drive to destinations. Mobility aids were linked with a higher likelihood of being a transportation walker. Similar to the explanations for the positive relationship between mobility aids and interactions with children in the neighborhood, older adults who needed mobility aids were more aware of benefits of walking for

maintaining and improving their health conditions, and they lived within a shorter distance of their routine destinations and family member's or friend's homes.

Seeing older adults biking in the neighborhood was negatively correlated with the odds of being a recreational walker. One possible reason is that older adults who see other older adults biking in the neighborhood with many streets, including major streets with high traffic volume and speed, more readily recognize these can make it unsafe or less desirable for recreational walking among older adults. These transportation facilities are more useful for transportation walking rather than recreational walking. One sample T-test suggested that seeing older adults biking in the neighborhood was positively correlated with the total length of streets within the sausage buffers ($p<0.001$), while chi-square test showed no significant relationship between seeing older adults biking and the total length of bike lanes along the streets ($p=0.093$).

The presence of the commercial land use within the sausage buffers was linked with a lower likelihood of being a transportation walker. One possible explanation is that these commercial destinations may be mostly located next to major vehicle streets and designed with big parking lots that are not pedestrian-friendly. The bivariate analysis (i.e. Chi-square test) demonstrated a significant positive association between the presence of the commercial land use and the presence of big box retails within the sausage buffers ($p<0.001$).

Compared with transportation walking, recreational walking was a more popular form of physical activity for older adults. Intergenerational interactions in the neighborhood and the significant covariates accounted for a higher proportion of

variance in recreational walking. Future longitudinal studies using objective measures in additional locations/populations are needed to further investigate the associations between physical activity and various types of intergenerational interactions occurring in one's routine environments.

4.4. Correlates of Social Interactions Versus Walking

Although there were significant associations between intergenerational interactions and walking as described above, correlates of social interactions versus walking among older adults were most inconsistent (Table 45). Only two variables, including employment status and benches on most of the sidewalks in the neighborhood, showed significant correlations with older adults' social interactions and walking. Specifically, employment status was positively associated with the odds of interacting with younger generations (OR=2.620, p=0.031) and being a transportation walker (OR=2.055, p=0.021), while negatively correlated with the likelihood of being a recreational walker (OR=0.412, P=0.022). Benches on most of the sidewalks in the neighborhood were linked with lower odds of interacting with children (OR=0.348, p=0.001) but higher odds of being a recreational walker (OR=2.127, P=0.023).

Table 45 Correlates of Social Interactions Versus Walking.

Variable	Measure	Social Activities (OR)				Walking (OR)	
		Child	Inter	Peer	All	Tran	Rec
Demographic and Socioeconomic Characteristics							
Q41_Age	Age (years; unit: 1)	1.042	1.040	0.996	1.022	0.999	**0.953***
Q42_Gender_Impute	Female (vs. male)	**0.493***	0.551	**0.532**	0.782	0.835	0.893
Q43_44_Race_Ethnicity	Non-Hispanic White (vs. others)	0.929	0.522	0.660	0.811	**2.034***	**2.474***
Q47_Marital_Status	Married or unmarried couple (vs. others)	0.971	1.700	1.107	**2.619***	1.274	1.870
Q48_Education	Education level (grades; unit: 1)	0.856	1.122	0.948	1.072	0.906	1.118
Q54_Income	Low income (below $20,000)						
	Lower-middle income ($20,000-$39,999)	0.473	1.316	1.399	1.303	0.454	0.846
	Upper-middle income ($40,000-$79,999)	0.466	0.826	0.516	0.777	0.568	**0.257***
	High income ($80,000 or more)	0.494	0.849	0.727	0.678	0.465	0.443
	Don't know/prefer not to answer	0.413	3.345	1.377	3.015	1.906	0.522
Q58_Health	General health conditions (Likert scales; unit: 1)	**1.440***	1.341	1.319	1.372	0.974	1.207
Q49_HousingType	One-family detached house (vs. others)					0.600	
Q51_2_Dog	Dog in the household (vs. no dog)					0.615	1.882
Q52_Employed	Employed (vs. not employed)		**2.620***			**2.055***	**0.412***
Q59_SleepHour	Sleep time (hours; unit: 1)					1.161	
Q60_Heart	Heart diseases (vs. no)			**0.399***			
Q63_DifficultyWalking	Difficulty walking (vs. no)						**0.176*****
Q69_MobilityAids	Need assistance to get around (vs. no assistance)	**2.411***				1.960	
Q73_Personal_Illness	Personal illness (vs. no)	0.573					
Q73_Illness_Family	Illness of a family member or friend (vs. no)			**2.250****			
Residential Self-selection							
Q27_4_PublicTransportation	Not at all important (vs. others)					0.714	**2.011***
Q27_NeighborEnvironment_IF1_New	Environmental self-selection scores (factor scores; unit: 1)					1.186	**1.412***
Q27_SocialCohesion_IF2_New	Social cohesion and support (factor scores; unit: 1)	1.136	1.170	**1.802*****	1.338		
Q27_14_AgeGroups	Not at all important						
	Slightly important	**4.916****	1.907	0.812	1.741		
	Moderately important	**7.695*****	**2.215***	0.887	**2.462***		
	Very important	**5.509****	**2.970***	2.333	**4.086***		
Recruitment Channel							
Q74_Recruitment3	Participants recruited from Nextdoor/Facebook (vs. no)						**0.464***
Perceived Social Environments							
Q26_ManySenior	Neighborhoods that have many seniors (vs. no)	**0.261*****		**1.909***			
Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support (factor scores; unit: 1)			**1.358***			
Q36_4_Transportation	Transportation related services/programs (vs. no)					**2.103***	
Q15_1_DigitalChildren_Binary	Digital communications with children (vs. no)	**4.495*****					
Q15_4_DigitalOldAdults_Binary	Digital communications with old adults (vs. no)		**2.313***	**7.687*****	**3.162*****		
Q16_SocialPlace_In	Half or more in the neighborhood (vs. less than half)	**2.079***	**3.393****		**4.422****		
Q19_3_Know_Adults_Impute	Know 6 or more adults in the neighborhood (vs. 0-5)						**2.349****
Q20_WatchChildTeen_In_Binary	Watching children or teenagers doing activities (vs. no)					**1.680***	
Q20_WatchChildTeenAdultOldAdult_In_Binary	Watching people doing activities in the neighborhood (vs. no)						**0.481***
Q22_2_See_OldAdultBiking	See older adults biking in the neighborhood (vs. no)						**0.256*****
Q22_4_See_PeopleSitting	See people sitting in the neighborhood (vs. no)						**2.352****
Perceived Physical Environments							
Q11_Interaction_OlderAdults	Number of places for peer interactions (counts; unit: 1)					**1.096****	
Q11_PlaceInteract	Number of places for social interactions (counts; unit: 1)						**1.210*****
Q26_New	Newly built neighborhood (vs. not)		**0.396***				
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)					**1.330***	
Q31_6_Benches_Final[a]	Yes (vs. no)	**0.348****					**2.127***
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)	**1.399***					
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)		**0.663***	**0.746***			
Q34_Surveillance_IF2	Neighborhood surveillance (factor scores; unit: 1)		**1.385***				
Objective Physical Environments (Sausage Buffer)							
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)	**0.747*****					
T_SSIG_CTS_2	Number of stop signs (counts; unit: 10)		**1.209****	**1.101***			
T_IT3_DNS	Density of intersections with 3 or more ways (counts/acre; unit: 1)					**1.207***	
L_RES_PTS_2	Residential land use (percentage; unit: 10%)	**0.671****					
L_off_ars_3	Area of office (0 acres)						
	>0 acres - <1.5 acres					**2.023***	
	≥1.5 acres					**3.150****	
L_com_ars_S	Presence of the commercial land use (vs. no)					**0.374****	
E_Per_cts_S	Development permits issued in 2019 (vs. no)	**3.470****					
L_Lulu_ars_S	Presence of the locally undesirable land use (vs. no)	**0.476***					

Table 45 Continued.

Variable	Measure	Social Activities (OR)				Walking (OR)	
		Child	Inter	Peer	All	Tran	Rec
Objective Physical Environments (Shortest Network Distance)							
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station (ln(miles), unit: 1)				**0.414*** **		
D_OINS_SDN[b]	Distance to the closest other institution (miles; unit: 1)			**0.644***			
Cox & Snell R Square		0.295	0.234	0.316	0.207	0.237	0.301
Nagelkerke R Square		0.425	0.372	0.439	0.361	0.318	0.438

Note: *p<0.05; **p<0.01; ***p<0.001

a: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

b: Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

Detailed results and discussions on correlates of social interactions can be founded in 4.2. Correlates of Older Adults' Social Interactions. As for correlates of walking, transportation walking was positively correlated with being non-Hispanic White, being employed, the availability of transportation related services or programs, watching children or teenagers doing activities in the neighborhood, the number of places for peer interactions, perceived neighborhood walkability, the density of intersections with 3 or more ways, and area of offices; but negatively correlated with the presence of the commercial land use. Positive correlates of recreational walking involved being non-Hispanic White, knowing six or more adults in the neighborhood, seeing people sitting in the neighborhood, the number of places for social interactions, and benches on most of the sidewalks. Meanwhile, negative correlates were age, being employed, difficulty in walking, participants recruited from Nextdoor/Facebook, watching people doing activities in the neighborhood, and seeing older adults biking in the neighborhood. The possible explanation for the negative association between recreational walking and watching people doing activities in the neighborhood is that those spending more time watching others may prefer to just stay outdoors at their

homes or at other destinations (e.g. parks, senior/community centers) for the purpose of watching others doing activities.

This dissertation research suggested that the correlates of older adults' social interactions versus walking were most different. However, there is a need of more studies using various measures and settings to further investigate the similarities and differences in personal and environmental facilitators and barriers of various social activities versus physical activities. Such studies can contribute to a more comprehensive understanding of the complex interactions among neighborhood environments, intergenerational and other social activities, physical activities, and health among older adults.

4.5. Physical Environments, Intergenerational Interactions, and Walking

4.5.1. Four-Step Approach Results

Following the four-step approach described in 3.5.2.2.4. Mediation Effects, the first two steps identified the significant physical environmental correlates of intergenerational interactions versus walking among older adults (Table 46). The third step suggested significantly positive associations between transportation walking and interactions with children, between recreational walking and interactions with children, as well as between recreational walking and intergenerational interactions (see 4.3. Intergenerational Interactions and Walking for more details). The fourth step was conducted only for two physical environment variables: benches on most of the sidewalks in the neighborhood and the density of transit stops. The variable that

measured benches on most of the sidewalks was a significant correlate of social interactions with children and recreational walking, while the measure of transit stop density was significantly associated with intergenerational interactions and recreational walking.

Table 46 Physical Environmental Correlates of Intergenerational Interactions Versus Walking, from Partially Adjusted Models[#].

Variable	Measure	Intergenerational				Walking			
		Child[a]		Inter[b]		Tran[c]		Rec[d]	
		OR	P-value	OR	P-value	OR	P-value	OR	P-value
Perceived Physical Environments									
Q26_New	Newly built neighborhood (vs. not)			**0.460***	**0.047**				
Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability (factor scores; unit: 1)			**1.461***	**0.013**	**1.428****	**0.005**		
Q31_6_Benches_Final[e]	Yes (vs. no)	***[0.348**]***						**1.966***	**0.024**
Q32_Aesthetics_IF1	Neighborhood aesthetics (factor scores; unit: 1)	**1.401***	**0.023**						
Q33_TrafficSafety_IF1	Traffic safety (factor scores; unit: 1)			**0.676****	**0.009**				
Q34_Surveillance_IF2	Neighborhood surveillance (factor scores; unit: 1)			***[1.385*]***					
Objective Physical Environments (Sausage Buffer)									
T_STRT_LNS	Total length of street segments (miles, unit: 1)			**1.181****	**0.001**	**1.112****	**0.006**		
T_ST30_LNS	Length of high-speed streets (>30mph) (miles, unit: 1)			**1.267***	**0.013**				
T_ST30_PTS_2	High-speed streets (>30mph) (percentage; unit: 10%)	**0.797****	**0.002**						
T_SWLK_LNS	Total length of sidewalks (miles, unit: 1)			**1.094****	**0.002**	**1.061***	**0.010**		
T_Ptst_cts_2	Number of transit stops (0)								
	1-5			1.010	0.977				
	6-10			1.927	0.107				
	11 or more			**3.271****	**0.007**				
T_Ptst_S2	Higher density of transit stops: ≥10 per 100 acres (vs. lower density: <10 per 100 acres)			**2.592***	**0.013**			**2.165***	**0.024**
T_PTRO_CTS	Number of transit routes (counts; unit: 1)			**1.155****	**0.003**				
T_SSIG_CTS_2	Number of stop signs (counts: unit: 10)			**1.226*****	**0.001**				
T_SSIG_DNS	Density of stop signs (counts/acre; unit: 1)			**1.183****	**0.003**				
T_IT3_CTS_2	Number of Intersections with 3 or more ways (counts; unit: 10)			**1.247****	**0.001**	**1.169****	**0.001**		
T_IT3_DNS	Density of intersections with 3 or more ways (counts/acre; unit: 1)			**1.212***	**0.048**	**1.240***	**0.012**		
T_ITT_CTS_2	Number of intersections with stop signs (counts; unit: 10)			**1.398*****	**0.001**	**1.144***	**0.038**		
T_ITT_PTS	Intersections with stop signs (percentage; unit: 1%)			**6.327****	**0.006**				
L_RES_PTS_2	Residential land use (percentage; unit: 10%)	***[0.671**]***							
L_off_ars_3	Area of office (0 acres)								
	>0 acres - <1.5 acres			1.340	0.360	1.389	0.242		
	≥1.5 acres			**2.216***	**0.021**	**2.087***	**0.010**		
L_off_pts_2	Percentage of office (0%)								
	>0% - <2%			1.476	0.198	1.536	0.104		
	≥2%			**2.300***	**0.034**	**2.105***	**0.020**		
L_com_ars_S	Presence of the commercial land use (vs. no)					***[0.374**]***			
L_Lulu_ars_S	Presence of the locally undesirable land use (vs. no)	***[0.476*]***							
D_ALL_CTS_ln	Natural log of the number of all destinations (ln(counts); unit: 1)			**1.287***	**0.023**				

Table 46 Continued.

Variable	Measure	Intergenerational				Walking			
		Child[a]		Inter[b]		Tran[c]		Rec[d]	
		OR	P-value	OR	P-value	OR	P-value	OR	P-value
D_lulu_cts_2	Number of locally undesirable destinations (0)								
	1			**3.017****	**0.008**				
	2 or more			2.030	0.054				
D_lulu_dns_2	Density of locally undesirable destinations (0 per 100 acres)								
	>0 - <1 per 100 acres			**3.056***	**0.011**				
	≥1 per 100 acres			**2.079***	**0.039**				
D_Food_S	Presence of food stores (vs. no)			**2.299****	**0.009**				
D_rins_cts_2	Number of the religious destinations (0)								
	1			1.846	0.094	**1.759***	**0.046**		
	2 or more			**2.614***	**0.015**	1.427	0.214		
D_rins_dns_2	Density of the religious destinations (0 per 100 acres)								
	>0 - <1 per 100 acres			2.219	0.066	**2.154***	**0.014**		
	≥1 per 100 acres			**2.159***	**0.024**	1.309	0.312		
D_Oins_S[f]	Presence of other institutions (vs. no)	**1.705***	**0.032**						
D_Fit_S	Presence of sports and fitness destinations (vs. no)	**1.834***	**0.023**						
D_park_cts_3	Number of parks (0)								
	1	1.019	0.958						
	2-3	1.115	0.752						
	4 or more	**2.506***	**0.029**						
D_park_ars_5	Area of parks (0 acres)								
	>0 acres - <2 acres	1.146	0.685						
	≥2 acres - <6 acres	1.036	0.922						
	≥6 acres	**2.445***	**0.042**						
D_park_pts_2	Percentage of park areas (0%)								
	>0% - <1%			**2.332***	**0.044**				
	≥1% - <3%			1.357	0.378				
	≥3%			1.465	0.363				
D_para_cts_S	Presence of facilities in the parks (vs. no)			**1.721***	**0.047**				
D_Tril_lns_3	Length of trails (0 miles)								
	>0 miles - <0.15 mile			1.150	0.644				
	≥0.15 mile			**2.349***	**0.042**				
G_TREE_ARS	Area of tree canopy (acres; unit: 1)			**1.013***	**0.044**				
E_Per_cts_S	Development permits issued in 2019 (vs. no)	**2.266***	**0.024**						
Objective Physical Environments (Shortest Network Distance)									
T_PTST_SDN_ln	Natural log of the distance to the closest transit stop (ln(miles); unit: 1)			**0.749***	**0.027**				
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station (ln(miles); unit: 1)			**0.495*****	**0.000**				
T_Ptrc_P	One transit route at the closest stop (vs. 2 or more routes)			**1.817***	**0.041**				
D_FOOD_SDN	Distance to the closest food store (miles; unit: 1)			**0.606***	**0.046**	**0.576***	**0.037**		
W_WATR_SDN_ln	Natural log of the distance to the closest park with/next to the water feature [ln(miles)]	**0.803***	**0.030**	**0.644*****	**0.001**				
Walk, Transit, and Bike Scores									
Walk_Score	Neighborhood walkability scores (unit: 1)			**1.016****	**0.009**				
Transit_Score	Neighborhood transit service scores (unit: 1)			**1.026****	**0.003**				
Bike_Score	Neighborhood bikeability scores (unit: 1)	***[1.014*]***		**1.020****	**0.006**				

Note: *p<0.05; **p<0.01; ***p<0.001; ***[XXX]***: Full model results

#: Results from one-by-one tests: physical environmental variables were added to the base models one at a time because many of the physical environmental variables are associated with each other.

a. The base model for social interactions with children included nine demographic and socioeconomic variables (i.e. age, gender, race and ethnicity, marital status, education, income, general health conditions, mobility aid, and personal illness) and two residential self-selection variables (i.e. diversity of age groups, social cohesion and support).

b. The base model for social interactions with children, teenagers, or adults included eight demographic and socioeconomic variables (i.e. age, gender, race and ethnicity, marital status, education, income, general health conditions, and employment status) and two residential self-selection variables (i.e. diversity of age groups, social cohesion and support).

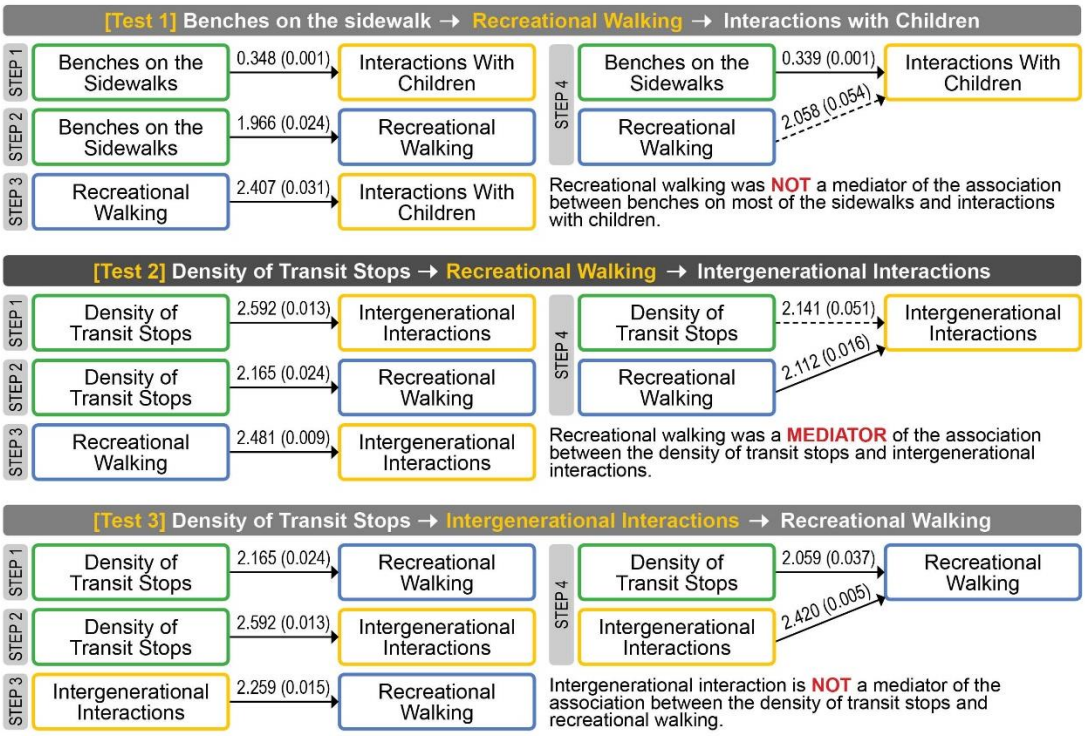
c. The base model for transportation walking included 12 demographic and socioeconomic variables (i.e. age, gender, race and ethnicity, marital status, education, income, general health conditions, housing type, dog in the household, employment status, daily sleep time, and mobility aids) and two residential self-selection variables (i.e. neighborhood environments, close to public transportation).

d. The base model for recreational walking included 10 demographic and socioeconomic variables (i.e. age, gender, race and ethnicity, marital status, education, income, general health conditions, difficulty walking, dog in the household, and employment status), two residential self-selection variables (i.e. neighborhood environments, close to public transportation), and one recruitment channel variable (i.e. recruited from social media).

e: Four-point Likert scale recoding: yes = somewhat disagree + somewhat agree + strongly agree; no = strongly disagree

f: Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

Figure 11 summarizes the four-step approach results from three tests for two physical environmental variables, including benches on most of the sidewalk and the density of transit stops. Test 1 indicated that benches on most of the sidewalks in the neighborhood were significantly correlated with the odds of interacting with children among older adults in the regression models with (OR=0.339, p=0.001) and without (OR=0.348, p=0.001) the recreational walking variable, demonstrating that recreational walking had no mediation effects on the associations between benches on most of the sidewalks and social interactions with children. Test 2 suggested a mediation effect of recreational walking on the association between the density of transit stops and older adults' intergenerational interactions in the neighborhood because the correlation between the density of transit stops and intergenerational interactions became insignificant after controlling for recreational walking (OR=2.141, p=0.051). A structural equation model was also built to further investigate the mediation effect of recreational walking. Test 3 demonstrated no mediation effect of intergenerational interactions on the association between the density of transit stops and older adults' recreational walking, as the density of transit stops was linked with higher odds of being a recreational walker no matter the variable of intergenerational interactions was controlled (OR= 2.019, p=0.038) or not (OR=2.146, p=0.022).



Note: Benches on the Sidewalks (variable name: Q31_6_Benches_Final; yes vs. no); Density of Transit Stops (variable name: T_Ptst_S2; ≥10 per 100 acres vs. <10 per 100 acres); Interactions with Children (variable name: Q21_1_InteractChildren_In; yes vs. no in a typical week); Intergenerational Interactions (variable name: Q21_InteractChildTeenAdult_In_Binary; yes vs. no in a typical week); Recreational Walking (variable name: Q6_RecWalking_YesNo_2; yes vs. no in a typical week).

[Test 1]: The steps 1 and 4 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q69_MobilityAids, Q73_Personal_Illness), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q26_ManySenior, Q15_1_DigitalChildren_Binary, Q16_SocialPlace_In), perceived physical environment (i.e. Q32_Aesthetics_IF1, Q31_6_Benches_Final), and objective physical environment (i.e. T_ST30_PTS, L_RES_PTS, E_Per_cts_S, L_Lulu_ars_S) factors. The step 2 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q63_DifficultyWalking, Q51_2_Dog, Q52_Employed), residential self-selection (i.e. Q27_4_PublicTransportation, Q27_NeighborEnvironment_IF1_New), and recruitment channel (i.e. Q74_Recruitment3) variables. The step 3 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q69_MobilityAids, Q73_Personal_Illness), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q26_ManySenior, Q28_NeighCohesion_IF2, Q13_VolunteerWork, Q15_1_DigitalChildren_Binary, Q16_SocialPlace_In), perceived physical environment (i.e. Q32_Aesthetics_IF1, Q31_6_Benches_Final), and objective physical environment (i.e. T_ST30_PTS, E_Per_cts_S) factors.

[Test 2] The steps 1 and 4 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q52_Employed) and residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups) factors. The step 2 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q63_DifficultyWalking, Q51_2_Dog, Q52_Employed), residential self-selection (i.e. Q27_4_PublicTransportation, Q27_NeighborEnvironment_IF1_New), and recruitment channel (i.e. Q74_Recruitment3) variables. The step 3 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q52_Employed), residential self-selection (i.e. Q27_SocialCohesion_IF2_New, Q27_14_AgeGroups), perceived social environment (i.e. Q15_4_DigitalOldAdults_Binary, Q16_SocialPlace_In), perceived physical environment (i.e. Q26_New, Q33_TrafficSafety_IF1, Q34_Surveillance_IF2), and objective physical environment (i.e. T_SSIG_CTS) factors.

[Test 3] The steps 1 and 4 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q63_DifficultyWalking, Q51_2_Dog, Q52_Employed), residential self-selection (i.e. Q27_4_PublicTransportation, Q27_NeighborEnvironment_IF1_New), and recruitment channel (i.e. Q74_Recruitment3) variables. The step 2 controlled for the significant demographic and socioeconomic (i.e. Q41_Age, Q42_Gender_Impute, Q43_44_Race_Ethnicity, Q47_Marital_Status, Q48_Education, Q54_Income_Final, Q58_Health, Q63_DifficultyWalking, Q51_2_Dog, Q52_Employed), residential self-selection (i.e. Q27_4_PublicTransportation, Q27_NeighborEnvironment_IF1_New), and recruitment channel (i.e. Q74_Recruitment3), perceived social environment (i.e. Q13_VolunteerWork, Q22_6_See_OlderAdultSocializing, Q22_2_See_OldAdultBiking), and perceived physical environment (i.e. QQ31_6_Benches_Final) factors.

Figure 11 Physical environments, intergenerational interactions, and walking.

4.5.2. Structural Equation Modeling Results

As shown in Figure 12, the structural equation models further demonstrated that recreation walking was a mediator of the association between transit stop density and intergenerational interactions. Specifically, the density of transit stops had a direct

positive effect on recreational walking (coefficient=0.097, p=0.043) and recreational walking was directly predictive of more intergenerational interactions (coefficient=0.123, p=0.004). The density of transit stops had an insignificant direct effect on intergenerational interactions (coefficient=0.063, p=0.152) when recreational walking was controlled, while it was significantly correlated with more intergenerational interactions (coefficient=0.100, p=0.022) if not controlled for recreational walking.

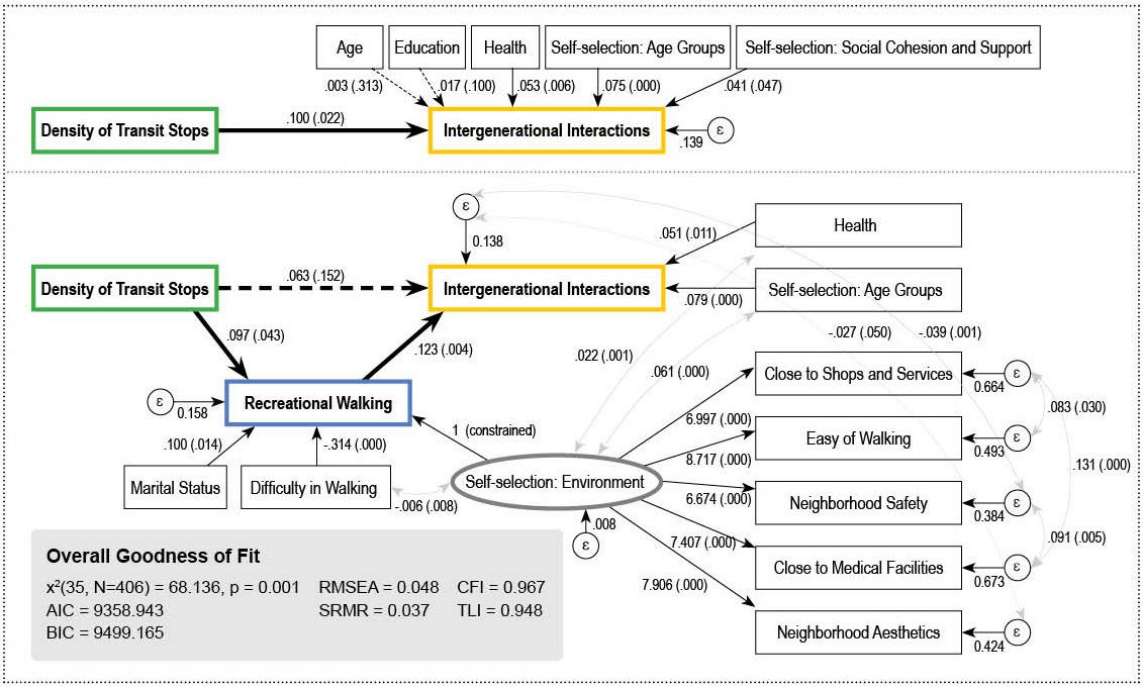


Figure 12 Density of transit stops, recreational walking, and intergenerational interactions.

4.5.3. Conclusions and Discussions

Findings from this dissertation research suggested that the density of transit stops in the neighborhood has a direct positive effect on recreational walking, and is indirectly associated with more intergenerational interactions among older adults. A neighborhood

that has a higher density of transit stops can provide more opportunities for older adults to take public transit to recreational destinations (e.g. parks, trails), supporting more independent travel and recreational walking during travel and at destinations reached by transit. As a result, spending more time outdoors brings more opportunities to interact with younger generations. Furthermore, transit stops, especially those with benches and shelters that can offer places to rest while walking, serve to increase opportunities for recreational walking among older adults and tend to gather people of different ages together. The chi-square test demonstrated a significant positive association between benches on most of the sidewalks and the density of transit stops in one's neighborhood ($p<0.001$).

The descriptive statistics showed that more than one third of the participants (n=174, 38.5%) reported visiting transit stops at least once a week. An easy access to public transport tends to become increasingly important for supporting independent living and promoting active lifestyles as people age. Future studies investigating the benefits of various public transit stops, in terms of accessibility, quality (e.g. availability of benches and shelters), and usage types (e.g. bus stops versus rail stations), are needed to better understand the direct and indirect impacts of various public transit stops on aging populations. These studies will provide empirical evidence for supporting transit-oriented development with well-designed transit stops and sufficiently-supplied public transit that can bring tremendous health-related benefits to older adults.

As there is no empirical investigation on the complex associations among neighborhood environments, intergenerational interactions, and older adults' walking,

this study has developed the conceptual framework with the hypothesized complex relationships for guiding the data-driven approach to build the structural equation model. Future efforts are needed to utilize more rigorous data collection and analysis methods and additional study settings to further explore the direct and indirect effects of social and physical environments on older adults' intergenerational interactions and walking. When there exist a large number of empirical studies that support relevant theory building, more theory-driven approaches can be utilized to further investigate the mediation effects of intergenerational interactions on the associations between environments and walking, and examine the mediation effects of walking on the correlations between environments and intergenerational interactions.

4.6. Neighborhood Age Composition, Social Interactions, and Walking

As described in 3.4.2.3. Neighborhood Age Composition, this dissertation research investigated three different methods to calculate neighborhood age composition within a ½-mile airline buffer around each senior respondent's home as well as at the census block group level. The neighborhood age composition variables were added to the multivariate base and full models one at a time. The descriptive and inferential (i.e. partially adjusted model and full model results) statistics for all neighborhood age composition variables were included in APPENDIX H. The neighborhood age composition variables generated from the first two methods had no significant association with any of the four social interaction and two walking outcome variables in the full models. Table 47 summarizes the significant findings from the third method.

Table 47 Neighborhood Age Composition, Social Interactions, and Walking [Full Model Significant Results]

	½-Mile Airline Buffer[a] (OR)								Block Group[b] (OR)							
	Child		Inter		Peer		Rec		Child		Inter		Peer		Rec	
	OR	P-value	OR	P-value	OR	P-value	OR	P-value	OR	P-value	OR	P-value	OR	P-value	OR	P-value
Children (0-4)																
Number													0.998**	0.006		
Percent[c]	0.883*	0.044														
Density 1											1.526*	0.029				
Density 2																
Children (5-9)																
Number	0.997**	0.008											0.998*	0.010		
Percent[c]	0.842**	0.004														
Density 1	0.483**	0.007							0.648*	0.014						
Density 2	0.201**	0.008							0.444*	0.027						
Children (10-14)																
Number													0.996**	0.001		
Percent[c]											1.104*	0.047				
Children (15-17)																
Number													0.993**	0.002		
Percent[c]					0.808*	0.040							0.838*	0.022		
Density 2													0.247*	0.012	0.370*	0.038
Children (0-17)																
Number													0.999**	0.002		
Percent[c]					0.958*	0.050										
Density 2																
Adults (18-64)																
Number							1.000*	0.025					1.000*	.015		
Density 2							0.887*	0.025								
Older adults (65+)																
Number			0.998*	0.043							0.998*	0.035				
Density 2			0.371*	0.043												

Note: *p<0.05; **p<0.01

a: Full model includes all significant demographic, socioeconomic, residential self-selection, recruitment channel, and perceived and objective environment variables.

b: Full model includes all significant demographic, socioeconomic, residential self-selection, recruitment channel, perceived and objective environment, and distance to the block group central point variables.

c: The unit is 1%.

Density 1 (net density) = number of each age group / residential area within the buffer (n/acres)

Density 2 (gross density) = number of each age group / whole buffer area (n/acres)

4.6.1. Neighborhood Age Composition and Intergenerational Interactions

The number, percentage, and density of children were negatively associated with social interactions with children in the neighborhood. Five variables measured within the ½-mile airline buffer, including the percentage of children aged zero to four (OR=0.883, p=0.044) and the number (OR=0.997, p=0.008), the percentage (OR=0.842, p=0.004), the net density (OR=0.483, p=0.007), and the gross density (OR=0.201, p=0.008) of children aged five to nine, was negatively associated with the odds of interacting with children. Meanwhile, two variables measured within the census block group, including

the net density (OR=0.648, p=0.014) and the gross density (OR=0.444, p=0.027) of children aged five to nine, were linked with lower odds of interacting with children.

In terms of intergenerational interactions, the number (OR=0.998, p=0.043) and the gross density (OR=0.371, p=0.043) of older adults within the ½-mile airline buffer were negatively correlated with the odds of participating in intergenerational activities. For variables measured at the census block group level, the net density of children aged zero to four (OR=1.526, p=0.029) and the percentage of children aged 10 to 14 (OR=1.104, p=0.047) were positively associated with the likelihood of interacting with younger generations, while the number of older adults (OR=0.998, p=0.035) was negatively associated with the likelihood of interacting with younger generations.

4.6.2. Neighborhood Age Composition and Peer Interactions

A neighborhood that has more children was associated with less peer interactions in one's neighborhood. The percentage of children aged zero to 17 within the ½-mile airline buffer (OR=0.958, p=0.050) and the number of children aged zero to 17 at the census block group level (OR=0.999, p=0.002) were negatively correlated with the odds of interacting with other older adults. The percentage of children aged 15 to 17 at the census block group level (OR=0.838, p=0.022) was negatively associated with the likelihood of interacting with other older adults. The number of children aged 15 to 17 per acre of the whole census block group area (OR=0.247, p=0.012) was linked with a lower likelihood of having peer interactions in the neighborhood.

4.6.3. Neighborhood Age Composition and Walking

Recreation walking had negative associations with the presence of children and adults in the neighborhood. Two variables measured within the ½-mile airline buffer, including the number (OR=1.000, p=0.025) and the gross density (OR=0.887, p=0.025) of adults aged 18 to 64, had negative associations with the likelihood of being a recreational walker. Only one variable measured at the census block group level, the density of children aged 15 to 17, showed a significant association with lower odds of being a recreational walker (OR=0.370, p=0.038).

4.6.4. Conclusions and Discussions

This dissertation research indicated that the percentage of children aged zero to nine and the number and the density of children aged five to nine were negatively related to older adults' social interactions with children in the neighborhood, although the density of children aged zero to four had a positive association with older adults' intergenerational interactions in the neighborhood. The presence or density of children in the neighborhood was hypothesized to be an important condition supporting intergenerational interactions. However, findings from this research suggest that more children living in the neighborhood do not necessarily lead to more social interactions between older adults and children possibly because social interactions are more likely to happen among the acquaintances. Moreover, parental attitudes and beliefs are essential determinants of social and physical activities among children, especially those under 10 years. For example, one focus group participant mentioned: "Stranger danger, sometimes

I don't feel comfortable interacting or talking with children in the neighborhood as parents these days are more cautious, worried about stranger danger. In this town, you don't approach and talk to children in the park unless you know them." Another participant stated: "Cultural changes have both parents working, with kids in daycare instead of homecare where they were out and about and interacting with neighbors."

Future studies evaluating the impacts of parental attitudes on children's interactions with older adults can contribute to a more comprehensive understanding of the personal, social, and physical determinants of social interactions between children and older adults. Additionally, there is a need for more studies that investigate the complex correlations among the presence of children, parental attitudes, and social interactions between children and older adults, as parental attitudes may be significant moderators of the associations between the presence of children and social interactions with children among older adults.

Furthermore, this study illustrated that the presence of younger generations (i.e. children, adults) in one's neighborhood was negatively associated with older adults' recreational walking. Neighborhoods with many children and younger adults might not have sufficient supplies of the specific facilities and amenities needed for supporting outdoor recreational activities among older adults.

Empirical evidence on neighborhood age composition and its impacts on older adults is extremely limited. This dissertation research has described some initial efforts and investigations on how to measure neighborhood age composition. Future studies are needed to develop and validate more advanced methods of measuring neighborhood age

composition and investigate the effects of neighborhood age composition on older adults' intergenerational and other social activities, physical activities, and health.

4.7. Research Translation: iCat.p

The iCat.p is designed as an informative tool with a collection of survey items capturing physical elements and features of the community environment that can promote intergenerational interactions. Translating research into practice and policy is an important step to make sure that research knowledge can effectively reach and benefit the target populations for whom it is intended (Woolf, 2008).

Most empirical studies end with the reporting of their outcomes in scientific venues such as journal articles, which are often beyond the reach of practitioners and the general public. Research translation is increasingly recognized as a necessary yet overlooked step in research that limits its potential for broader impacts and practical interventions. Assessment tools translated from relevant empirical research can help practical applications and effective dissemination of empirical research/science. For example, the Neighborhood Environment Walkability Survey, a self-administered survey instrument that was developed by translating findings from a review of literatures on environmental correlates of physical activity (Saelens, Sallis, & Frank, 2003), has been widely applied in supporting empirical studies on neighborhood environments and activity living in the US and beyond (Cerin et al., 2014; Cerin, Macfarlane, Ko, & Chan, 2007).

4.7.1. Purpose

This tool aims to provide practical guidance in policymaking, planning, and design toward creating and retrofitting community environments to promote social interactions across different age groups and healthy aging in place. It can also be used by local residents and community members interested in learning about residential environmental characteristics that can contribute to promoting intergenerational activities and healthy aging in place, which can inform their housing location decision-making process.

4.7.2. Methods

The tool was developed by translating findings from this dissertation research into a user-friendly, survey-based guide. As this dissertation study was carried out in a singly community, it also referred to the relevant findings from previous literature (i.e. popular places for intergenerational programs and interventions that brought health benefits to older adults). This preliminary version of iCat drew from descriptive statistics and partially adjusted models, in addition to the final model results. Specifically, this tool selected survey items related to the top five places for social interactions with children and intergenerational interactions based upon the descriptive statistics. Furthermore, it included survey items that drew from significant findings regarding the perceived and objective physical environmental predictors of social interactions with children and intergenerational interactions among older adults. Most survey items were

adapted from the Neighborhood Environment Walkability Survey, and new items were incorporated when existing items were not available.

4.7.3. Results

The iCat.p is a four-page preliminary assessment tool, which includes a cover page with a user instruction guide and six overall rating items covering (1) walkability, (2) safety, (3) thermal comfort, (4) aesthetics, (5) diversity of age groups, and (6) quality of social life. The remaining three pages encompass specific physical elements and features organized into six domains: (a) destination land uses, (b) general land uses, (c) streets and sidewalks, (d) aesthetics and thermal comfort, (e) neighborhood safety, and (f) neighborhood development. The complete iCat.p can be found in APPENDIX J.

4.7.4. Next Steps and Discussions

The iCat, a validated assessment tool, will be developed in the future in three steps. The first step is to conduct more empirical research, including qualitative (e.g. focus groups) and quantitative studies, to gather more empirical evidence to guide the further development and modification of the preliminary tool (iCat.p). The second step is to test the validity and reliability of the assessment tool and make corresponding edits based on the test results. The third step is to develop the final tool and the user manual including the scoring method that can guide the proper use of the final tool. Upon the publication in a peer-reviewed journal, iCat will be made available to the public via an open study website.

The final tool will become the first validated assessment tool of measuring physical environments of an intergenerational community. It will contribute to supporting future research on age-friendly or intergenerational communities and their influences on social interactions across different age groups and healthy aging in place. Furthermore, it will contribute to guiding policymakers and practical professionals to create intergenerational communities that can support healthy aging in place.

5. DISCUSSION

5.1. Contribution

Exploring a relatively new research area, this is the first empirical study that has developed new theoretical frameworks, proposed a measurable definition of an intergenerational community, and documented its impacts on aging populations. Environmental attributes related to social environments, physical environments, and neighborhood age composition that are significantly associated with older adults' intergenerational and other social interactions and walking activities are the key components of an intergenerational community. The findings of this dissertation research can contribute to expanding the existing body of knowledge on environments and older adults' health behaviors and health outcomes, which will guide future research, intervention efforts, and professional practice related to promoting intergenerational interactions and healthy aging in place.

Under the guidance of the overarching theories related to environments and aging described in 2. LITERATURE REVIEW, this dissertation research has examined the significance of social and physical environments in understanding older adults' intergenerational and other social interactions and walking. Although many previous investigations have demonstrated that neighborhood environments (e.g. walkability) are important for promoting older adults' physical activity or walking, health or quality of life, and social interactions or participations, limited empirical research has explored the associations between neighborhood environments and older adults' intergenerational

interactions. Thus, this dissertation research can contribute to expanding the existing literature through investigating the significant associations of older adults' intergenerational interactions with their neighborhood social and physical environments, in terms of walkability, land use diversity, safety, thermal comfort, aesthetics, age group diversity, social cohesion and support, and new developments. Moreover, findings from this dissertation research have been translated to a user-friendly assessment tool (iCat.p) that can contribute to providing practical guidance toward building an intergenerational community.

According to the social ecological model of health promotion, personal factors, including demographic and socioeconomic characteristics and residential self-selection factors, are all important predictors of older adults' intergenerational interactions. However, limited empirical evidence has illustrated the impacts of personal factors on social interactions across different age groups. Therefore, this dissertation study can contribute to expanding the existing literature by suggesting significant personal correlates of older adults' intergenerational interactions, including gender, general health conditions, being employed, needing mobility aids, and residential self-selection related to diversity of age groups.

Based upon the systematic literature review of intergenerational interactions and older adults' health-related outcomes discussed earlier, the correlations between non-program based intergenerational interactions and older adult's health behaviors and health outcomes are unclear due to limited empirical research. Thus, this dissertation research can contribute by adding empirical evidence on significant positive associations

between non-program based intergenerational interactions occurring in one's neighborhood and older adults' walking, including transportation and recreational walking.

In addition, this dissertation research has compared the similarities and differences in personal and environmental correlates of intergenerational interactions and walking among older adults, demonstrating that the personal and environmental predictors were mostly different. Two common physical environmental predictors (i.e. benches on the sidewalks, density of transit stops) have been further tested for potential mediation effects of intergenerational interactions and walking, indicating that recreational walking significantly mediates the associations between the density of transit stops and older adults' intergenerational interactions.

Another literature gap mentioned earlier is limited empirical evidence on measuring neighborhood age composition and evaluating its impacts on older adults' health behaviors and health outcomes. Although this study has not developed a valid neighborhood age mix calculation method, it has documented initial investigations on the associations of the number, percentage, and density of different age groups in the neighborhood with older adults' social and physical activities.

5.2. Implications for Future Research, Practice, and Policy

5.2.1. Implications for Future Research

This dissertation research has added empirical evidence to understanding the health-related benefits of intergenerational communities. The measurable definition of

an intergenerational community and its impacts on aging populations justified in the study can guide future research in environmental gerontology, especially studies focusing on age-friendly or intergenerational communities for promoting active and healthy aging in place. The survey instrument of this dissertation research can be further adapted for future studies that examine the influences of social and physical environments on older adults' social activities, physical activities, and health.

Future studies are needed to utilize more rigorous sampling and analytical strategies, apply case-control and pre-post comparisons, and involve additional locations or communities. As the generalizability of significant findings from this research are limited to older adults who are living in Austin, Texas and similar communities/cities in the US, there is a need of future research in more diverse communities in terms of the population size and composition and the spatial/physical contexts. More investigations should also focus on developing rigorous objective and subjective measures of social and physical activities among older adults. Furthermore, future efforts are needed to explore the correlates and the effects of various types of intergenerational and other social interactions, such as naturally occurring interactions, casual daily interactions, and formal social interactions. These social interactions can differ in locations (e.g. parks or restaurants inside versus outside one's neighborhood); duration and frequency (e.g. 1 hour per day versus per week); quality considering emotional preference, experience, and satisfaction; age groups from young children to older adults; and the level of intimacy (e.g. family members living in the same neighborhood versus others).

Another area needing more efforts is to develop an intergenerational community index as a composite measure of the neighborhood environments that can impact older adults' intergenerational interactions. All these efforts will further contribute to identifying the specific environmental features and elements of an intergenerational community that can elicit healthy aging benefits among diverse older populations and community settings.

5.2.2. Implications for Practice and Policy

This study can provide empirical guidance for designing or building an intergenerational community in Austin and beyond, in terms of policy/program interventions as well as environmental supports. Significant findings from this study present promising strategies for policymakers and practitioners to support the development of age-friendly communities that promote intergenerational interactions. Moreover, the evidence-based design or planning tool (iCat.p) that includes specific strategies related to general land uses, destinations land uses (e.g. parks and open spaces), streets and sidewalks, aesthetics and thermal comfort, safety, and neighborhood development (e.g. infrastructure improvements) can provide guiding design or planning principles for planners and designers to create intergenerational communities that can foster social interactions across different generations and support healthy aging in place.

5.3. Limitations

This dissertation has four major limits. First, potential endogeneity was one of the major challenges for this dissertation research, which mostly originated from omitted variables, the simultaneous causality between independent and dependent variables, and self-selection factors. For omitted variables, it is rarely available to control all the alternative explanations for older adults' social and physical activities since older populations are heterogeneous with a great diversity of lifestyles, preferences, mental and physical abilities, and socioeconomic and cultural backgrounds. To minimize the risk of missing important covariates, this dissertation research tested more than 300 variables, including information related to demographics and socioeconomic characteristics, residential self-selection factors, the recruitment channel, and neighborhood social and physical environments, through the bivariate and multiple regression analyses. Additionally, this was a cross-sectional study that generated results predicting correlations instead of causality. There was a lack of clarity about temporal precedence of the independent variables and the dependent variables. Older adults who were more active and healthier chose to live in an intergenerational community with environmental elements and features that supported intergenerational interactions. However, residential self-selection variables (i.e. reasons for selecting their current residence) were controlled in all the multiple regression models to address the self-selection bias.

Second, the survey recall bias is another major challenge of the study since the survey is the only way to collect primary data. To maximize the validity and reliability

of the survey instrument, most questions were adapted from exiting validated questionnaires, and new questions were incorporated when existing items were not available. The final instrument was developed after a series of pilot tests (i.e. focus group, one-on-one in-dept discussions, test-retest reliability assessment) to ensure appropriate length, completeness, clarity, and organization of the questionnaire.

Third, the convenience sampling led to sample bias (e.g. an over-representation of active and healthy older adults). Relevant variables were tested during the modeling process, and those significant ones (e.g. employed versus not employed) were retained in the models. However, many of those variables (e.g. diseases, living arrangements) were not significant suggesting that the risk of serious sampling bias is small.

Finally, the objectively measured physical environments and neighborhood age composition rely on secondary data, which can be unavailable, incomplete, or inconsistent. To be specific, the GIS data for objectively measured physical environments are collected or updated in varying time periods with different levels of completeness and precision. Objective data related to streetlights and benches in Austin, Texas are not available, which are shown to be key factors contributing to active aging. Moreover, the US Census data for calculating the neighborhood age composition are only available at the census block group level, while the study's unit of measurement is a ½-mile airline buffer around each older adult's home.

6. CONCLUSIONS

This dissertation achieved the research primary and secondary aims and tested the four hypotheses for the two primary aims. In terms of the Primary Aim 1 and the Hypothesis 1, this dissertation research suggested that social and physical environments were significant predictors of older adults' intergenerational interactions in the neighborhood. Social environmental correlates of intergenerational interactions included neighborhoods that have many seniors, neighborhood social cohesion and trust, volunteer work, digital communications, and half or more of the social places located in the neighborhood. Meanwhile, physical environmental correlates encompassed newly built neighborhoods, benches on most of the sidewalks, perceived neighborhood aesthetics, perceived traffic safety, perceived neighborhood surveillance, the percentage of high-speed streets, the number of stop signs, the percentage of the residential land use, the presence of sports and fitness destinations, the presence of food stores, development permits, and the presence of the locally undesirable land use. Significant environmental elements and features identified from this dissertation research can be essential components of an intergenerational community.

The Primary Aim 2 was achieved through testing the Hypotheses 2 to 4. First, this dissertation study demonstrated that community-level routine intergenerational activities were significantly positively associated with older adults' transportation and recreational walking (Hypothesis 2). Second, this dissertation research investigated significant environmental correlates of older adults' transportation and recreational walking (Hypothesis 3) and compared the similarities and differences in environmental

correlates of intergenerational interactions versus walking among older adults (Hypotheses 1 and 3). The comparison results showed that the majority of the environmental predictors of older adults' intergenerational interactions versus walking were inconsistent. Third, the mediation effect test results demonstrated the significant mediation effect of recreational walking on the association between the density of transit stops and intergenerational interactions among older adults (Hypothesis 4).

For the Secondary Aim 1, this dissertation documented investigations using three different ways of measuring neighborhood age composition. Corresponding results indicated that the neighborhood mix/diversity indices based upon land uses and races may be inappropriate ways of measuring the neighborhood age mix. However, the number, density, and percentage of different age groups may be potential solutions that need to be further tested in future studies.

Regarding the Secondary Aim 2, the Preliminary Version of the Intergenerational Community Assessment Tool (iCat.p) was developed by translating findings of this dissertation research into a user-friendly guide that policymakers and practical professionals can use to create or retrofit community environments for promoting social interactions across different age groups and supporting healthy aging in place. The final version (iCat) will be developed in the future after more empirical evidence is gathered.

In conclusion, this dissertation research provides solid empirical evidence on the environmental correlates of intergenerational interactions and walking as well as the associations between non-program based intergenerational interactions and walking among older adults. Findings from this study are translated into an evidence-based

design or planning tool with corresponding strategies toward developing policy or environmental interventions that can be applied to designing intergenerational communities and to retrofitting existing communities to become age-friendly. This study suggests the potential of intergenerational communities as promising strategies that promote aging in place, which is an effective response to many challenges associated with population aging. Given the significant health benefits of social and physical activities for older adults and other generations, policymakers, researchers, and practitioners should investigate more social and physical environmental facilitators as well as barriers for creating intergenerational communities that can support active and healthy living of all generations.

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APPENDIX A

FOCUS GROUP PROTOCOL AND RESULTS

FOCUS GROUP PROTOCOL

Purpose: Get comments on a survey instrument for a larger study on examining the influence of neighborhood environments on healthy aging

Recruitment:

- Sign-up sheet and advertising flyer prepared and posted by Sinan Zhong
- Selection of volunteered participants to ensure age distribution and gender balance
- Survey distributed to the volunteered participants by June 8, 2018.
- Reminder e-mail or phone call the day before the scheduled focus group

Type: Semi-structured, facilitated discussions

Duration/time: 10-11:30am, June 12, 2018

Locations: Meeting Room at the Southwood Community Center, 1520 Rock Prairie Rd, College Station, TX 77845

Target samples: One focus group session with up to 10 participants

Administration: Discussions to be audio-recorded if all participants agree; administered by:

- 1 facilitator (Sinan Zhong)
- 2 note takers (Dr. Chanam Lee and Judy Pruitt)

FOCUS GROUP DISCUSSION ITEMS

General questions

1) In general, how do you feel about the survey questionnaire?
2) How about the length?
3) Were there any questions that you did not feel comfortable answering?

Recommendations for each section of the survey

4) Was there any question that was confusing or unclear?

Particular questions related to Section 3

5) Did you read the instruction on top of Section 3 that reads “The neighborhood is defined as a 10-15 minute walk from your home. Please do NOT count family members, relatives, friends, or others living with you”?

6) When asking about socializing with other generations, do you feel it is appropriate separating teenagers from children?
7) Should we add a specific age threshold for each age group in the survey (e.g. adults aged 18-64, older adults aged 65 or over)?
8) What do the terms “interact”, “socialize”, and “spend time with” mean to you?
9) How do you feel about the question 38?

Particular questions related to Section 6

10) For the two different ways of asking for age (see Questions 54.a. & 54.b.), which one do you feel is better?
11) How do you feel about the question 89 about falling?

Conclusion

12) In terms of an online or paper survey, which one would you prefer?
13) Is there anything else that you would like to tell us about neighborhood environment and healthy aging, especially about ways to promote social interactions with younger generations?
14) Do you have any other questions or suggestions for our study?

FOCUS GROUP RESULTS

Participants: 9 older adults (65+) + 1 late older adult (65+) + 1 people (<65 joined briefly)

Basic information of the nine older participants

- Age range: 70 – 83
- Mean age: 76.7
- 3 males and 6 females
- No Hispanic, Latino, or Spanish origin
- 8 White and 1 Asian

Introduction & ice-breaking: Favorite outdoor activity

Participant 1: Lawn mowing

Participant 2: Walk

Participant 3: Skiing

Participant 4: Walk, social interactions in the neighborhood

Participant 5: Swimming/walking, more younger people moved in recently

Participant 6: I know every car in the cul-de-sac, not the people. That is how we live these days. Neighborhood in the survey seems to refer to urban

settings. In many neighborhoods around, you can go nowhere by walking 10+ minutes

Participant 7: Walk, everyone else in my neighborhood is a student, students are awesome (offers the phone number just in case needed, offer help with the lawn), lives near Thomos Park

Participant 8: Lived in CS for 4 years, don't go outside much due to allergy, mostly indoor (at this community center or church), don't like the architecture of the neighborhood – buildings are not built without windows, porches, etc. You don't get to see people.

Participant 9: Walk, engage in activities at the center

Survey in general: How did you feel about the survey? How about the length? Were there any questions that you did not feel comfortable answering?

Participant 1: Stranger danger, sometimes I don't feel comfortable interacting/talking with children in the neighborhood as parents these days are more cautious, worried about stranger danger.

When I was young, people knew each other in the neighborhood, but not these days; saw a news story about parents who let their children walk to the park and were charged with child neglect.

We used to have porches and people naturally see each other and say hi, now with different houses, the way it is built, don't allow these types of interactions. Now people want privacy and built a fortress around them.

In this town, you don't approach and talk to children in the park unless you know them.

Architects are no long building "friendly" neighborhoods, styles have changed for safety and to accommodate they was we live and "use our homes today

Participant 2: I was able to complete in 30 minutes

Participant 3: Q4 – not applicable, add "not applicable" For our age group, we don't walk for transportation. We call Uber or drive ourselves. The survey overall is quite complicated.

Participant 4: 20-30 minutes not enough, took much longer, I've never done anything this extensive.

Questions that need to add up to 100% was quite demanding, complex.

Responding to the participant 1's comments, may be cultural differences.

Need to pay attention to specific age groups (e.g. 55 vs. 65+ different).

	I understood the purposes of this as how older adults can be more active.
	You don't need to talk to them, you can just watch them and enjoy seeing other age generations spending time in the park, etc.
Participant 5:	Many times, older residents are incapacitated and do not go out of home very often, if at all.
Participant 6:	Not applicable is needed (some questions that were not relevant, not sure how to answer, no children, etc. in the neighborhood).
	We sometimes have more interactions with those who used to live in my neighborhood than those who newly moved into my neighborhood.
	When we were younger, children forced the interaction. We don't have kids anymore. Surveys like this can help understand how people engage in these activities.
Participant 7:	Back in the 70s, used to have many kids in my neighborhood but few children now. Cultural changes have both parents working, with kids in daycare instead of homecare where they were out and about and interacting with neighbors.
Participant 8:	Not applicable is needed (some questions that were not relevant, not sure how to answer, no children, etc. in the neighborhood)
Participant 9:	None
Late participant:	What is the ultimate goal? For my case, I have 9 grandchildren and I interact with them. For some others not sure.
Other:	Most than 1 hour, 2 of them spent 30 min, some Qs went fast because not relevant.

Discussions by section

People felt generally fine. Each question was understandable.

Participant 1:	Attitudes have changed, more people keep to themselves and do not interact as much with their neighbors. The attitude of "if I cannot control-don't worry"
Participant 2:	None
Participant 3:	Socializing can mean parties… interact is better. It was suggested that the survey might be better suited to a "smaller town" scenario, or older, established areas might yield more relevant results.
	Add a question on do you live in a gated community, old neighborhood, etc.?
	Clarify the purpose of the survey, better/clearly organize the survey.

	Perhaps understanding the residential history is important (neighborhood turnover, etc.)
Participant 4:	Consider separating the survey into two sections: General section (shorter general section) and Detailed section (longer complex), note that people/communities are not diverse in this town. Socializing can mean parties… interact is better. May want to do another focus group in another area such as Bryan where things are different. Identify more diverse neighborhoods to survey. Social isolation is important to consider.
Participant 5:	None
Participant 6:	We built the neighborhood when everyone moved in at the same time in College Station so don't have a lot of variations/diversity. Bryan will be different. Depending on how many other groups you have, may be enough with little interaction if you don't have much – may be that you don't like to interact or you don't have enough other age groups.
Participant 7:	I can walk to many types of places, Kohl's, Whataburger, etc.
Participant 8:	Children and teenager should be separate, took adults as 20+… married (age definitions); okay as it is. Identify the age groups in question Many of us don't have anything in College Station. There are other areas with places to walk to.
Participant 9:	None
Late participant:	What will you do when you enter the data? So much information, so many options to check off, so much so it is nothing… What is the purpose of this survey?
People <65:	Considering the neighborhood sociodemographic/age profile is important in studies like this. Identify the type of neighborhood the survey-taker lives in (old, new, urban, suburban, diverse, generational differences).
Other:	Questions those are difficult to answer: o Q17: How many times do you say hello – difficult to answer; CLee asked and people agreed that the categorical response option would be easier o Q24: I see them but don't socialize, so put 0… Seeing vs. Socializing o Q38: New format of 38C is easier

- Q19 and 21: Difficult to answer, requires a lot of effort and had to guess
- Q54: Age is better (mentioned by 3). Year is okay.
- Q89: Q89 is fine but not clear if not fallen. 89b is easier

Wrap-up discussions

- Most people prefer the paper version since they don't like scrolling.
- Socializing people outside the neighborhood (sometimes more common than in neighborhood) → This is an important point and need to more clearly capture how much socialization people do outside the neighborhood (with family members, old neighbors, etc.)
- Some questions did not go deep enough for accuracy in the identified population
- Tailor questions to fit demographics of the neighborhood being surveyed
- Be sure the questions are not too difficult in format

Results from the survey data

- **SECTION 1**: The questions on total walking, transportation walking, and recreation walking are confusing (Questions 2, 3, 4, 5, 6, and 7)
- **SECTION 2**: Only a few missing items
- **SECTION 3**: The questions 33 and 34 with a long location list are difficult to answer (low accurate rate). The question 38 regarding social interaction satisfaction is confusing (low response rate).
- **SECTION 4:** Only a few missing items
- **SECTION 5:** The questions 49, 50, and 51 are not clear → Keep only one question with more specific programs listed.
- **SECTION 6**: Only a few missing items

APPENDIX B

PRETEST PROTOCOL AND RESULTS

PRETEST PROTOCOL

Purpose: Pretest a survey instrument for a larger study on examining the influence of neighborhood environments on healthy aging

Recruitment:

- Sign-up sheet and advertising flyer prepared and posted by Sinan Zhong at local senior serving organizations; Individual/personal solicitation by Sinan Zhong
- Selection of volunteered participants to ensure age distribution and gender balance
- Reminder e-mail or phone call the day before each scheduled pretest

Type: One-on-one (in person) discussion

Duration/time: 1 to 1.5 hours per one-on-one discussion; specific time to be determined based upon the facilitator and each participant's availability

Locations: Specific location to be determined by each participant (e.g. a meeting room at Texas A&M University or a coffee shop in College Station/Bryan)

Sampling Frame: Seniors living in College Station/Bryan including members of local senior serving organizations (e.g. Southwood Community Center in College Station and Brazos County Senior Citizen's Association in Bryan); Participants of the AustinUp 50+ in ATX Job Fair on September 12, 2018 in Jewish Community Center, Austin, Texas

Target Samples: One round of participating pretests with up to 20 participants

Administration: Discussions to be audio-recorded if each participant agrees; administered by Sinan Zhong, following the pre-develop script (see below).

PRETEST DISCUSSION ITEMS

Introduction (5-min)

- Introduction of the dissertation study and the purpose of today's discussions

Informed Consent Process (10-min)

- Introduction of the informed consent form
- The informed consent form completed by participants
- The signed form collected by Sinan Zhong

Main Discussion Items (60-min)

I will ask the participant to take the survey while I am sitting next to him/her. The purpose is to observe the whole process and identify specific survey questions that may be difficult or confusing for the participant. The participant can also ask for

clarification and report any problems or issues (e.g. errors or questions that are confusing) during the process. Below is a list of questions that may be discussed during the process of taking the survey or after completing the survey.

General questions

1) In general, how do you feel about the survey questionnaire?
2) How about the length?
3) How about the font size and the overall format of the survey?
4) Were there any questions that were difficult to answer?
5) Were there any questions that you did not feel comfortable answering?
6) Were there any questions that were confusing or unclear?
    a) If yes, which question? Why?
    b) If no, that's it.

Particular questions related to Section 3

7) Should we add a specific age threshold for each age group in the survey (e.g. adults aged 18-64, older adults aged 65 or over)?
    a) If yes, what does the age threshold mean to you?
    b) If no, why not?
8) What do the terms "interact", "socialize", and "spend time with" mean to you?

Particular question related to Section 6

9) For the two different ways of asking for your age (see Questions 39.a. & 39.b.), which one do you feel is better or easier?

Conclusion (15-min)

Thank you so much for your valuable time and inputs. Before we wrap up,

10) Is there anything that I can do to make the survey easier?
11) In terms of an online or paper survey, which one would you prefer?
12) Is there anything else that you would like to tell us about neighborhood environment and healthy aging, especially about ways to promote social interactions with younger generations?
13) Do you have any other questions or suggestions for our study?

PRETEST RESULTS

Participants in College Station/Bryan, Texas: 10 older adults (60+)

- Age range: 61 – 82
- Mean age: 69
- 5 males and 5 females

- 4 paper surveys, 5 online surveys, and 1 paper and online surveys

Participants in Austin, Texas: 6 older adults (65+) (+ 2 people aged 54 or 56)

- Age range: 65-71
- Mean age: 67.2
- 2 males and 4 females
- 6 online surveys

Key Comments from Eight Participants

Participant 1:
- Older adults may not like online survey.
- Question 5 (walk for transportation): try to give a few examples
- Section 3: How to define intergenerational activities?

Participant 2:
- Question 5 (walk for transportation): What do you mean transportation? Need more explanations → Add an example.
- Question 10 (mental health): spent relatively long time; tried to explain some special situation (i.e. lost his wife recently) → Add a question regarding significant life events at the end.
- Question 11: should add something like "not applicable." → Add the "I don't visit this place" option)
- Question 18: should add something like "a few days a week."
- Question 27 (close to families and friends): separate families and friends
- Question 39 (age): try to use age range options
- Question 42 (race): People might be sensitive to "white" and "black."
- Why do you want to know weight and height? It might be better to use range options for weight.
- "Which of the following best describes you? (straight, lesbian, etc.)" People might say it's none of your business.
- Question 59 (diseases/health issues): Why do you want to ask? Tried to explain details of high cholesterol.

Participant 3:
- "In what year were you born?": a better way to ask for age. When you get older, you forget your age and need to calculate. Many of my friends laugh at it.
- Questions regarding weight and height: The option of "don't know" is not necessary. People should know their weight and height.

- Question 58 (diseases/health issues): Too many; Try to make it shorter; Tried to find out any questions that slow me down. This is the only one that has slowed me down.
- Overall, it is a good questionnaire. It is long, but there is no question that people need to think a lot. Also, there is no repeated question.
- The only comment: little long
- Survey age threshold: may not be able to get enough respondents from seniors aged 85+/90+; Mostly from seniors aged 65-75

Participant 4:
- The survey is easily readable.
- Try to make the survey shorter; exclude those that are not really relevant.

Participant 5:
- Question 1 (light physical activity): very difficult to do an accurate estimate
- Not sure why to ask for ethnicity (question 41)
- Take too long

Participant 6:
- It is hot in the Summer time in Austin. If you give me during the winter time, it will be a completely different story.
- Do not hang out in the neighborhood, we always drive out together to hang out in other places (live in an apartment complex).
- Healthcare/medical services are available anywhere in Austin. It is easy to be in a hospital within 15 minutes.
- "In what year were you born?" More regular and common ways of asking for age
- Question 53: Did not pay attention to "excluding yourself". Suggested adding additional (how many additional people...live in your household?)
- Question 58 (diseases/health issues): Making me feel bad, just a joke.
- The survey is a little bit long (many questions). If these are all you need, I feel that will be fine.

Participant 7:
- The season does make the differences. Sometimes you cannot generalize. Answers are different among different seasons. To get true answers, should be more specific.
- Weather and seasons are both necessary, especially for neighborhood activities.
- Questions regarding social activities in your neighborhood: If weather is nice, they are all out. If not, not. In Spring, Summer, and Fall, people go out almost every day (early morning or late

afternoon in Summer). In Winter, people usually do not go outside.

- Questions regarding physical activity: very difficult for her; Spent a lot of time thinking; tried to memorize time spending for each example, such as gardening, cleaning, and so on; Need to repeat the questions twice or more.
- Walked 3 miles/day one year ago; do not walk currently because of the physical health issues; Hope my next year will be back again.
- Questions regarding sedentary activity: think about every detail again; Very difficult for her to answer
- Question 11: She answered each item very slowly. Sometimes, we had to go back to check others of different ages listed above.
- Answers will be totally different from those aged 55-64, 65-74, and 75-84; The age will make the big difference; Seniors retired at 55-64 (financially sound) will have more time for travelling, etc.

Participant 8:

- The survey is good for me. No question that is difficult or confusing. The only concern is related to questions on neighborhood walkability. People usually do not walk to places. We all drive to places (culture).

Participant 9:

- I define neighborhood as the immediate area surrounding my house or the subdivision I live in. I did not include a radius of 1-3 miles of my house as my neighborhood. If the radius is included, shopping/library/church are accessible but public transportation is severely lacking.

APPENDIX C

TEST-RETEST DESCRIPTIVE STATISTICS

Section 1. About Your Physical Activities and Walking

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
1	Continuous: Light physical activity (minutes/week)	38/38	975.47 (1860.37)	604.42 (780.82)
			15-10500	0-4200
2	Continuous: Moderate physical activity (minutes/week)	38/38	291.64 (309.41)	344.08 (316.79)
			0-1260	0-1440
3	Continuous: Vigorous physical activity (minutes/week)	38/38	80.00 (181.67)	84.47 (171.75)
			0-1040	0-960
4	Continuous: All-purpose walking (minutes/week)	35/38	334.14 (304.23)	393.16 (421.09)
			0-1120	0-2100
5	Continuous: Transportation walking (minutes/week)	36/38	56.47 (128.20)	63.29 (234.31)
			0-630	0-1440
6	Continuous: Recreational walking (minutes/week)	35/38	177.86 (241.44)	155.42 (174.25)
			0-1120	0-840
7.1	Continuous: Sedentary activity (minutes/weekday)	38/38	6.75 (4.58)	6.49 (4.05)
			1.5-20	1-15.5
7.2	Continuous: Sedentary activity (minutes/weekend day)	38/37	5.93 (3.39)	5.47 (2.95)
			1.5-16	2-15

Section 2. About Your Quality of Life and Mental Health

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
8	Five categories: Quality of life	38/38		
	1=Very poor		0 (0.00%)	1 (2.63%)
	2=Poor		2 (5.26%)	0 (0.00%)
	3=Neither poor nor good		2 (5.26%)	3 (7.89%)
	4=Good		13 (34.21%)	17 (44.74%)
	5=Very good		21 (55.26%)	17 (44.74%)
9	Five categories: Health	38/38		
	1=Very dissatisfied		1 (2.63%)	2 (5.26%)
	2=Dissatisfied		4 (10.53%)	4 (10.53%)
	3=Neither satisfied nor dissatisfied		7 (18.42%)	6 (15.79%)
	4=Satisfied		13 (34.21%)	16 (42.11%)
	5=Very satisfied		13 (34.21%)	10 (26.32%)
10.1	Four categories: I was bothered by things that usually don't bother me.	38/38		
	1=Rarely or none of the time		25 (65.79 %)	29 (76.32%)
	2=Some or a little of the time		9 (23.68%)	9 (23.68%)
	3=Occasionally or a moderate amount of time		2 (5.26%)	0 (0.00%)
	4=Most or all of the time		2 (5.26%)	0 (0.00%)
10.2	Four categories: I did not feel like eating; my appetite was poor.	38/38		
	1=Rarely or none of the time		32 (84.21%)	35 (92.11%)
	2=Some or a little of the time		4 (10.53%)	1 (2.63%)
	3=Occasionally or a moderate amount of time		2 (5.26%)	2 (5.26%)
	4=Most or all of the time		0 (0.00%)	0 (0.00%)
10.3	Four categories: I felt that I could not shake off the blues even with help from my family or friends.	38/38		
	1=Rarely or none of the time		31 (81.58%)	34 (89.47%)
	2=Some or a little of the time		6 (15.79%)	3 (7.89%)
	3=Occasionally or a moderate amount of time		0 (0.00%)	0 (0.00%)
	4=Most or all of the time		1 (2.63%)	1 (2.63%)
10.4	Four categories: I felt I was just as good as other people.	38/38		
	1=Rarely or none of the time		6 (15.79 %)	4 (10.53%)
	2=Some or a little of the time		4 (10.53%)	2 (5.26%)
	3=Occasionally or a moderate amount of time		4 (10.53%)	5 (13.16%)
	4=Most or all of the time		24 (63.16%)	27 (71.05%)
10.5	Four categories: I had trouble keeping my mind on what I was doing.	38/38		
	1=Rarely or none of the time		22 (57.89%)	21 (55.26%)
	2=Some or a little of the time		10 (26.32%)	12 (31.58%)
	3=Occasionally or a moderate amount of time		6 (15.79%)	2 (5.26%)
	4=Most or all of the time		0 (0.00%)	3 (7.89%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
10.6	Four categories: I felt depressed.	38/38		
	1=Rarely or none of the time		27 (71.05%)	30 (78.95%)
	2=Some or a little of the time		9 (23.68%)	7 (18.42%)
	3=Occasionally or a moderate amount of time		1 (2.63%)	0 (0.00%)
	4=Most or all of the time		1 (2.63%)	1 (2.63%)
10.7	Four categories: I felt that everything I did was an effort.	38/38		
	1=Rarely or none of the time		19 (50.00%)	23 (60.53%)
	2=Some or a little of the time		11 (28.95%)	9 (23.68%)
	3=Occasionally or a moderate amount of time		5 (13.16%)	3 (7.89%)
	4=Most or all of the time		3 (7.89%)	3 (7.89%)
10.8	Four categories: I felt hopeful about the future.	38/38		
	1=Rarely or none of the time		4 (10.53%)	2 (5.26%)
	2=Some or a little of the time		7 (18.42%)	3 (7.89%)
	3=Occasionally or a moderate amount of time		11 (28.95%)	14 (36.84%)
	4=Most or all of the time		16 (42.11%)	19 (50.00%)
10.9	Four categories: I thought my life had been a failure.	38/37		
	1=Rarely or none of the time		33 (86.84%)	34 (91.89%)
	2=Some or a little of the time		2 (5.26%)	2 (5.41%)
	3=Occasionally or a moderate amount of time		2 (5.26%)	0 (0.00%)
	4=Most or all of the time		1 (2.63%)	1 (2.70%)
10.10	Four categories: I felt fearful.	38/38		
	1=Rarely or none of the time		26 (68.42%)	27 (71.05%)
	2=Some or a little of the time		10 (26.32%)	10 (26.32%)
	3=Occasionally or a moderate amount of time		1 (2.63%)	0 (0.00%)
	4=Most or all of the time		1 (2.63%)	1 (2.63%)
10.11	Four categories: My sleep was restless.	37/38		
	1=Rarely or none of the time		12 (32.43%)	12 (31.58%)
	2=Some or a little of the time		18 (48.65%)	18 (47.37%)
	3=Occasionally or a moderate amount of time		5 (13.51%)	6 (15.79%)
	4=Most or all of the time		2 (5.41%)	2 (5.26%)
10.12	Four categories: I was happy.	38/37		
	1=Rarely or none of the time		3 (7.89%)	3 (8.11%)
	2=Some or a little of the time		5 (13.16%)	4 (10.81%)
	3=Occasionally or a moderate amount of time		11 (28.95%)	10 (27.03%)
	4=Most or all of the time		19 (50.00%)	20 (54.05%)
10.13	Four categories: I talked less than usual.	38/38		
	1=Rarely or none of the time		27 (71.05%)	25 (65.79%)
	2=Some or a little of the time		9 (23.68%)	11 (28.95%)
	3=Occasionally or a moderate amount of time		1 (2.63%)	1 (2.63%)
	4=Most or all of the time		1 (2.63%)	1 (2.63%)
10.14	Four categories: I felt lonely.	38/38		
	1=Rarely or none of the time		20 (52.63%)	26 (68.42%)
	2=Some or a little of the time		11 (28.95%)	8 (21.05%)
	3=Occasionally or a moderate amount of time		5 (13.16%)	2 (5.26%)
	4=Most or all of the time		2 (5.26%)	2 (5.26%)
10.15	Four categories: People were unfriendly.	38/38		
	1=Rarely or none of the time		33 (86.84%)	30 (78.95%)
	2=Some or a little of the time		3 (7.89%)	7 (18.42%)
	3=Occasionally or a moderate amount of time		2 (5.26%)	1 (2.63%)
	4=Most or all of the time		0 (0.00%)	0 (0.00%)
10.16	Four categories: I enjoyed life.	38/37		
	1=Rarely or none of the time		3 (7.89%)	4 (10.81%)
	2=Some or a little of the time		6 (15.79%)	7 (18.92%)
	3=Occasionally or a moderate amount of time		10 (26.32%)	4 (10.81%)
	4=Most or all of the time		19 (50.00%)	22 (59.46%)
10.17	Four categories: I had crying spells.	38/38		
	1=Rarely or none of the time		35 (92.11%)	36 (94.74%)
	2=Some or a little of the time		3 (7.89%)	2 (5.26%)
	3=Occasionally or a moderate amount of time		0 (0.00%)	0 (0.00%)
	4=Most or all of the time		0 (0.00%)	0 (0.00%)
10.18	Four categories: I felt sad.	38/38		
	1=Rarely or none of the time		25 (65.79%)	28 (73.68%)
	2=Some or a little of the time		11 (28.95%)	9 (23.68%)
	3=Occasionally or a moderate amount of time		2 (5.26%)	0 (0.00%)
	4=Most or all of the time		0 (0.00%)	1 (2.63%)
10.19	Four categories: I felt that people disliked me.	38/38		
	1=Rarely or none of the time		31 (81.58%)	32 (84.21%)
	2=Some or a little of the time		6 (15.79%)	4 (10.53%)
	3=Occasionally or a moderate amount of time		0 (0.00%)	2 (5.26%)
	4=Most or all of the time		1 (2.63%)	0 (0.00%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
10.20	Four categories: I could not get going.	38/38		
	1=Rarely or none of the time		23 (60.53%)	24 (63.16%)
	2=Some or a little of the time		9 (23.68%)	11 (28.95%)
	3=Occasionally or a moderate amount of time		4 (10.53%)	1 (2.63%)
	4=Most or all of the time		2 (5.26%)	2 (5.26%)

Section 3. About Your Intergenerational and Other Social Activities (All)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
11.1	Your home or your neighbor's home (indoor)	38/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		9 (23.68%); 29 (76.32%)	13 (35.14%); 24 (64.86%)
	Binary: 1=No interaction; 0=Otherwise		5 (13.16%); 33 (86.84%)	1 (2.70%); 36 (97.30%)
	Binary: 1=Children; 0=Otherwise		8 (21.05%); 30 (78.95%)	8 (21.62%); 29 (78.38%)
	Binary: 1=Teenagers; 0=Otherwise		2 (5.26%); 36 (94.74%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Adults; 0=Otherwise		19 (50.00%); 19 (50.00%)	19 (51.35%); 18 (48.65%)
	Binary: 1=Older adults; 0=Otherwise		14 (36.84%); 24 (63.16%)	11 (29.73%); 26 (70.27%)
11.2	Your home or your neighbor's home (outdoor)	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		6 (16.22%); 31 (83.78%)	7 (19.44%); 29 (80.56%)
	Binary: 1=No interaction; 0=Otherwise		7 (18.92%); 30 (81.08%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Children; 0=Otherwise		6 (16.22%); 31 (83.78%)	11 (30.56%); 25 (69.44%)
	Binary: 1=Teenagers; 0=Otherwise		3 (8.11%); 34 (91.89%)	5 (13.89%); 31 (86.11%)
	Binary: 1=Adults; 0=Otherwise		23 (62.16%); 14 (37.84%)	25 (69.44%); 11 (30.56%)
	Binary: 1=Interaction with older adults; 0=Otherwise		7 (18.92%); 30 (81.08%)	18 (50.00%); 18 (50.00%)
11.3	Street (on the street / sidewalks)	37/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		5 (13.51%); 32 (86.49%)	9 (4.32%); 28 (75.68%)
	Binary: 1=No interaction; 0=Otherwise		8 (21.62%); 29 (78.38%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Children; 0=Otherwise		6 (16.22%); 31 (83.78%)	9 (24.32%); 28 (75.68%)
	Binary: 1=Teenagers; 0=Otherwise		3 (8.11%); 34 (91.89%)	5 (13.51%); 32 (86.49%)
	Binary: 1=Adults; 0=Otherwise		24 (64.86%); 13 (35.14%)	26 (70.27%); 11 (29.73%)
	Binary: 1=Older adults; 0=Otherwise		9 (24.32%); 28 (75.68%)	11 (29.73%); 26 (70.27%)
11.4	Park / trail	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		13 (35.14%); 24 (64.86%)	16 (44.44%); 20 (55.56%)
	Binary: 1=No interaction; 0=Otherwise		7 (18.92%); 30 (81.08%)	6 (16.67%); 30 (83.33%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Teenagers; 0=Otherwise		1 (2.70%); 36 (97.30%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Adults; 0=Otherwise		16 (43.24%); 21 (56.76%)	13 (36.11%); 23 (63.89%)
	Binary: 1=Older adults; 0=Otherwise		6 (16.22%); 31 (83.78%)	9 (25.00%); 27 (75.00%)
11.5	Restaurant	36/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		3 (8.33%); 33 (91.67%)	9 (24.32%); 28 (75.68%)
	Binary: 1=No interaction; 0=Otherwise		6 (16.67%); 30 (83.33%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Children; 0=Otherwise		5 (13.89%); 31 (86.11%)	7 (18.92%); 30 (81.08%)
	Binary: 1=Teenagers; 0=Otherwise		2 (5.56%); 34 (94.44%)	4 (10.81%); 33 (89.19%)
	Binary: 1=Adults; 0=Otherwise		25 (69.44%); 11 (30.56%)	23 (62.16%); 14 (37.84%)
	Binary: 1=Older adults; 0=Otherwise		10 (27.78%); 26 (72.22%)	18 (48.65%); 19 (51.35%)
11.6	Coffee place / bakery	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		13 (35.14%); 24 (64.86%)	19 (52.78%); 17 (47.22%)
	Binary: 1=No interaction; 0=Otherwise		7 (18.92%); 30 (81.08%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		2 (5.41%); 35 (94.59%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Adults; 0=Otherwise		17 (45.95%); 20 (54.05%)	12 (33.33%); 24 (66.67%)
	Binary: 1=Older adults; 0=Otherwise		7 (18.92%); 30 (81.08%)	8 (22.22%); 28 (77.78%)
11.7	Community center / senior center	38/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		16 (42.11%); 22 (57.89%)	19 (51.35%); 18 (48.65%)
	Binary: 1=No interaction; 0=Otherwise		7 (18.42%); 31 (81.58%)	4 (10.81%); 33 (89.19%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Adults; 0=Otherwise		7 (18.42%); 31 (81.58%)	8 (21.62%); 29 (78.38%)
	Binary: 1=Older adults; 0=Otherwise		12 (31.58%); 26 (68.42%)	12 (32.43%); 25 (67.57%)
11.8	Church	37/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		17 (45.95%); 20 (54.05%)	21 (56.76%); 16 (43.24%)
	Binary: 1=No interaction; 0=Otherwise		4 (10.81%); 33 (89.19%)	1 (2.70%); 36 (97.30%)
	Binary: 1=Children; 0=Otherwise		4 (10.81%); 33 (89.19%)	6 (16.22%); 31 (83.78%)
	Binary: 1=Teenagers; 0=Otherwise		5 (13.51%); 32 (86.49%)	3 (8.11%); 34 (91.89%)
	Binary: 1=Adults; 0=Otherwise		15 (40.54%); 22 (59.46%)	14 (37.84%); 23 (62.16%)
	Binary: 1=Older adults; 0=Otherwise		12 (32.43%); 25 (67.57%)	12 (32.43%); 25 (67.57%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
11.9	Child daycare	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		24 (64.86%); 13 (35.14%)	30 (83.33%); 6 (16.67%)
	Binary: 1=No interaction; 0=Otherwise		11 (29.73%); 26 (70.27%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Children; 0=Otherwise		2 (5.41%); 35 (94.59%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Adults; 0=Otherwise		2 (5.41%); 35 (94.59%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Older adults; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
11.10	School / university	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		18 (48.65%); 19 (51.35%)	23 (63.89%); 13 (36.11%)
	Binary: 1=No interaction; 0=Otherwise		10 (27.03%); 27 (72.97%)	5 (13.89%); 31 (86.11%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Adults; 0=Otherwise		8 (21.62%); 29 (78.38%)	7 (19.44%); 29 (80.56%)
	Binary: 1=Older adults; 0=Otherwise		6 (16.22%); 31 (83.78%)	4 (11.11%); 32 (88.89%)
11.11	Library / book store	37/34		
	Binary: 1=Rarely or don't visit; 0=Otherwise		12 (32.43%); 25 (67.57%)	16 (47.06%); 18 (52.94%)
	Binary: 1=No interaction; 0=Otherwise		13 (35.14%); 24 (64.86%)	5 (14.71%); 29 (85.29%)
	Binary: 1=Children; 0=Otherwise		2 (5.41%); 35 (94.59%)	1 (2.94%); 33 (97.06%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	1 (2.94%); 33 (97.06%)
	Binary: 1=Adults; 0=Otherwise		10 (27.03%); 27 (72.97%)	12 (35.29%); 22 (64.71%)
	Binary: 1=Older adults; 0=Otherwise		4 (10.81%); 33 (89.19%)	7 (20.59%); 27 (79.41%)
11.12	Convenience store / small grocery store	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		19 (51.35%); 18 (48.65%)	19 (52.78%); 17 (47.22%)
	Binary: 1=No interaction; 0=Otherwise		6 (16.22%); 31 (83.78%)	1 (2.78%); 35(97.22%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		1 (2.70%); 36 (97.30%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Adults; 0=Otherwise		12 (32.43%); 25 (67.57%)	15 (41.67%); 21 (58.33%)
	Binary: 1=Older adults; 0=Otherwise		4 (10.81%); 33 (89.19%)	8 (22.22%); 28 (77.78%)
11.13	Supermarket	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		7 (18.92%); 30 (81.08%)	8 (22.22%); 28 (77.78%)
	Binary: 1=No interaction; 0=Otherwise		3 (8.11%); 34 (91.89%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Teenagers; 0=Otherwise		3 (8.11%); 34 (91.89%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Adults; 0=Otherwise		27 (72.97%); 10 (27.03%)	23 (63.89%); 13 (36.11%)
	Binary: 1=Older adults; 0=Otherwise		10 (27.03%); 27 (72.97%)	14 (38.89%); 22 (61.11%)
11.14	Fruit / vegetable market	37/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		17 (45.95%); 20 (54.05%)	30 (81.08%); 7 (18.92%)
	Binary: 1=No interaction; 0=Otherwise		12 (32.43%); 25 (67.57%)	3 (8.11%); 34 (91.89%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Adults; 0=Otherwise		8 (21.62%); 29 (78.38%)	4 (10.81%); 33 (89.19%)
	Binary: 1=Older adults; 0=Otherwise		3 (8.11%); 34 (91.89%)	2 (5.41%); 35 (94.59%)
11.15	Laundry / dry cleaner	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		21 (56.76%); 16 (43.24%)	30 (83.33%); 6 (16.67%)
	Binary: 1=No interaction; 0=Otherwise		11 (29.73%); 26 (70.27%)	2 (5.56%); 34 (94.44%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		1 (2.70%); 36 (97.30%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Adults; 0=Otherwise		4 (10.81%); 33 (89.19%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Older adults; 0=Otherwise		0 (0.00%); 37 (100.00%)	1 (2.78%); 35 (97.22%)
11.16	Clothing store	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		15 (40.54%); 22 (59.46%)	21 (58.33%); 15 (41.67%)
	Binary: 1=No interaction; 0=Otherwise		6 (16.22%); 31 (83.78%)	3 (8.33%); 33 (91.67%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Teenagers; 0=Otherwise		1 (2.70%); 36 (97.30%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Adults; 0=Otherwise		16 (43.24%); 21 (56.76%)	12 (33.33%); 24 (66.67%)
	Binary: 1=Older adults; 0=Otherwise		5 (13.51%); 32 (86.49%)	4 (11.11%); 32 (88.89%)
11.17	Post office / bank / credit union	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		10 (27.03%); 27 (72.97%)	12 (33.33%); 24 (66.67%)
	Binary: 1=No interaction; 0=Otherwise		5 (13.51%); 32 (86.49%)	5 (13.89%); 31 (86.11%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Adults; 0=Otherwise		21 (56.76%); 16 (43.24%)	19 (52.78%); 17 (47.22%)
	Binary: 1=Older adults; 0=Otherwise		4 (10.81%); 33 (89.19%)	8 (22.22%); 28 (77.78%)
11.18	Pharmacy / drug store	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		10 (27.03%); 27 (72.97%)	16 (44.44%); 20 (55.56%)
	Binary: 1=No interaction; 0=Otherwise		5 (13.51%); 32 (86.49%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		2 (5.41%); 35 (94.59%)	0 (0.00%); 36 (100.00%)
	Binary: 1=Adults; 0=Otherwise		19 (51.35%); 18 (48.65%)	16 (44.44%); 20 (55.56%)
	Binary: 1=Older adults; 0=Otherwise		7 (18.92%); 30 (81.08%)	6 (16.67%); 30 (83.33%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
11.19	Salon / barber shop	37/35		
	Binary: 1=Rarely or don't visit; 0=Otherwise		15 (40.54%); 22 (59.46%)	19 (54.29%); 16 (45.71%)
	Binary: 1=No interaction; 0=Otherwise		6 (16.22%); 31 (83.78%)	3 (8.57%); 32 (91.43%)
	Binary: 1=Children; 0=Otherwise		1 (2.70%); 36 (97.30%)	1 (2.86%); 34 (97.14%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 35 (100.00%)
	Binary: 1=Adults; 0=Otherwise		15 (40.54%); 22 (59.46%)	13 (37.14%); 22 (62.86%)
	Binary: 1=Older adults; 0=Otherwise		3 (8.11%); 34 (91.89%)	6 (17.14%); 29 (82.86%)
11.20	Bus stop / light rail station	37/36		
	Binary: 1=Rarely or don't visit; 0=Otherwise		23 (62.16%); 14 (37.84%)	31 (86.11%); 5 (13.89%)
	Binary: 1=No interaction; 0=Otherwise		11 (29.73%); 26 (70.27%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	1 (2.78%); 35 (97.22%)
	Binary: 1=Adults; 0=Otherwise		3 (8.11%); 34 (91.89%)	3 (8.33%); 33 (91.67%)
	Binary: 1=Older adults; 0=Otherwise		0 (0.00%); 37 (100.00%)	3 (8.33%); 33 (91.67%)
11.21	Gym / fitness facility / recreation center	37/37		
	Binary: 1=Rarely or don't visit; 0=Otherwise		8 (21.62%); 29 (78.38%)	14 (37.84%); 23 (62.16%)
	Binary: 1=No interaction; 0=Otherwise		6 (16.22%); 31 (83.78%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Children; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Teenagers; 0=Otherwise		0 (0.00%); 37 (100.00%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Adults; 0=Otherwise		19 (51.35%); 18 (48.65%)	18 (48.65%); 19 (51.35%)
	Binary: 1=Older adults; 0=Otherwise		13 (35.14%); 24 (64.86%)	17 (45.95%); 20 (54.05%)
12.1	Three categories: Time spending with children	37/36		
	1=Too much		0 (0.00%)	0 (0.00%)
	2=About enough		20 (54.05%)	25 (69.44%)
	3=No enough		17 (45.95%)	11 (30.56%)
12.2	Three categories: Time spending with teenagers	36/36		
	1=Too much		2 (5.56%)	0 (0.00%)
	2=About enough		15 (41.67%)	21 (58.33%)
	3=No enough		19 (52.78%)	15 (41.67%)
12.3	Three categories: Time spending with adults	38/38		
	1=Too much		0 (0.00%)	0 (0.00%)
	2=About enough		29 (76.32%)	30 (78.95%)
	3=No enough		9 (23.68%)	8 (21.05%)
12.4	Three categories: Time spending with older adults	38/38		
	1=Too much		1 (2.63%)	0 (0.00%)
	2=About enough		29 (76.32%)	30 (78.95%)
	3=No enough		8 (21.05%)	8 (21.05%)
13.1	Two categories: Any volunteer work	38/38		
	0=No		13 (34.21%)	13 (34.21%)
	1=Yes		25 (65.79%)	25 (65.79%)
13.2	Continuous: Volunteer work time (hours/month)	38/38	14.83 (31.08) 0-180	15.7 (30.27) 0-160
14.1	Social interactions in the neighborhood while doing volunteer work	38/38		
	Binary: 1=None; 0=Otherwise		24 (63.16%); 14 (36.84%)	27 (71.05%); 11 (28.95%)
	Binary: 1=Interaction with children; 0=Otherwise		1 (2.63%); 37 (97.37%)	2 (5.26%); 36 (94.74%)
	Binary: 1=Interaction with teenagers; 0=Otherwise		2 (5.26%); 36 (94.74%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Interaction with adults; 0=Otherwise		12 (31.58%); 26 (68.42%)	10 (26.32%); 28 (73.68%)
	Binary: 1=Interaction with older adults; 0=Otherwise		11 (28.95%); 27 (71.05%)	8 (21.05%); 30 (78.95%)
14.2	Social interactions outside the neighborhood while doing volunteer work	38/36		
	Binary: 1=None; 0=Otherwise		15 (39.47%); 23 (60.53%)	13 (36.11%); 23 (63.89%)
	Binary: 1=Interaction with children; 0=Otherwise		6 (15.79%); 32 (84.21%)	4 (11.11%); 32 (88.89%)
	Binary: 1=Interaction with teenagers; 0=Otherwise		2 (5.26%); 36 (94.74%)	3 (8.33%); 33 (91.67%)
	Binary: 1=Interaction with adults; 0=Otherwise		21 (55.26%); 17 (44.74%)	18 (50.00%); 18 (50.00%)
	Binary: 1=Interaction with older adults; 0=Otherwise		16 (42.11%); 22 (57.89%)	18 (50.00%); 18 (50.00%)
15.1	Four categories: Digital communication with children	38/38		
	1=0 days		27 (71.05%)	27 (71.05%)
	2=1-2 days		7 (18.42%)	9 (23.68%)
	3=3-4 days		2 (5.26%)	2 (5.26%)
	4=5-7 days		2 (5.26%)	0 (0.00%)
15.2	Four categories: Digital communication with teenagers	38/38		
	1=0 days		32 (84.21%)	31 (81.58%)
	2=1-2 days		5 (13.16%)	5 (13.16%)
	3=3-4 days		0 (0.00%)	0 (0.00%)
	4=5-7 days		1 (2.63%)	2 (5.26%)
15.3	Four categories: Digital communication with adults	38/38		
	1=0 days		1 (2.63%)	0 (0.00%)
	2=1-2 days		6 (15.79%)	9 (23.68%)
	3=3-4 days		7 (18.42%)	10 (26.32%)
	4=5-7 days		24 (63.16%)	19 (50.00%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
15.4	Four categories: Digital communication with older adults	37/38		
	1=0 days		8 (21.62%)	3 (7.89%)
	2=1-2 days		7 (18.92%)	11 (28.95%)
	3=3-4 days		10 (27.03%)	10 (26.32%)
	4=5-7 days		12 (32.43%)	14 (36.84%)

Section 3. About Your Intergenerational and Other Social Activities (In the Neighborhood)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
16	Social Interactions in the neighborhood	38/38		
	1=None		5 (13.16%)	2 (5.26%)
	2=A few/some		19 (50.00%)	19 (50.00%)
	3=Half		9 (23.68%)	7 (18.42%)
	4=Most		5 (13.16%)	10 (26.32%)
	5=All		0 (0.00%)	0 (0.00%)
17	Continuous: Outdoor time (minutes/week)	38/37	348.68 (421.49) 0-1800	268.38 (290.79) 0-1470
18.1	Seven categories: Say hello to a neighbor	38/38		
	1=Seldom/never		3 (7.89%)	2 (5.26%)
	2=Once a month		0 (0.00%)	1 (2.63%)
	3=Twice a month		0 (0.00%)	4 (10.53%)
	4=Once a week		4 (10.53%)	3 (7.89%)
	5=A few days a week		14 (36.84%)	13 (34.21%)
	6=Every day		14 (36.84%)	8 (21.05%)
	7=More than once a day		3 (7.89%)	7 (18.42%)
18.2	Seven categories: Stop and talk with a neighbor	38/38		
	1=Seldom/never		5 (13.16%)	2 (5.26%)
	2=Once a month		1 (2.63%)	4 (10.53%)
	3=Twice a month		2 (5.26%)	4 (10.53%)
	4=Once a week		6 (15.79%)	6 (15.79%)
	5=A few days a week		19 (50.00%)	14 (36.84%)
	6=Every day		4 (10.53%)	6 (15.79%)
	7=More than once a day		1 (2.63%)	2 (5.26%)
18.3	Seven categories: Socialize with a neighbor	38/38		
	1=Seldom/never		16 (42.11%)	14 (36.84%)
	2=Once a month		4 (10.53%)	3 (7.89%)
	3=Twice a month		5 (13.16%)	3 (7.89%)
	4=Once a week		3 (7.89%)	8 (21.05%)
	5=A few days a week		7 (18.42%)	7 (18.42%)
	6=Every day		2 (5.26%)	2 (5.26%)
	7=More than once a day		1 (2.63%)	1 (2.63%)
18.4	Seven categories: Ask for help	38/38		
	1=Seldom/never		14 (36.84%)	16 (42.11%)
	2=Once a month		13 (34.21%)	11 (28.95%)
	3=Twice a month		2 (5.26%)	2 (5.26%)
	4=Once a week		4 (10.53%)	5 (13.16%)
	5=A few days a week		3 (7.89%)	4 (10.53%)
	6=Every day		1 (2.63%)	0 (0.00%)
	7=More than once a day		1 (2.63%)	0 (0.00%)
19.1	Five categories: Number of children you know	36/38		
	1=0		16 (44.44%)	14 (36.84%)
	2=1-2		10 (27.78%)	15 (39.47%)
	3=3-5		7 (19.44%)	5 (13.16%)
	4=6-10		2 (5.56%)	3 (7.89%)
	5=11 or over		1 (2.78%)	1 (2.63%)
19.2	Five categories: Number of teenagers you know	35/38		
	1=0		23 (65.71%)	19 (50.00%)
	2=1-2		8 (22.86%)	12 (31.58%)
	3=3-5		4 (11.43%)	4 (10.53%)
	4=6-10		0 (0.00%)	1 (2.63%)
	5=11 or over		0 (0.00%)	2 (5.26%)
19.3	Five categories: Number of adults you know	38/38		
	1=0		0 (0.00%)	0 (0.00%)
	2=1-2		2 (5.26%)	3 (7.89%)
	3=3-5		12 (31.58%)	9 (23.68%)
	4=6-10		6 (15.79%)	10 (26.32%)
	5=11 or over		18 (47.37%)	16 (42.11%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
19.4	Five categories: Number of older adults you know	36/38		
	1=0		4 (11.11%)	3 (7.89%)
	2=1-2		9 (25.00%)	4 (10.53%)
	3=3-5		6 (16.67%)	10 (26.32%)
	4=6-10		10 (27.78%)	10 (26.32%)
	5=11 or over		7 (19.44%)	11 (28.95%)
20.1	Four categories: Days spent watching children	36/38		
	1=0 days		27 (75.00%)	27 (71.05%)
	2=1-2 days		8 (22.22%)	8 (21.05%)
	3=3-4 days		1 (2.78%)	1 (2.63%)
	4=5-7 days		0 (0.00%)	2 (5.26%)
20.2	Four categories: Days spent watching teenagers	34/37		
	1=0 days		28 (82.35%)	29 (78.38%)
	2=1-2 days		5 (14.71%)	5 (13.51%)
	3=3-4 days		1 (2.94%)	2 (5.41%)
	4=5-7 days		0 (0.00%)	1 (2.70%)
20.3	Four categories: Days spent watching adults	38/38		
	1=0 days		16 (42.11%)	21 (55.26%)
	2=1-2 days		14 (36.84%)	6 (15.79%)
	3=3-4 days		7 (18.42%)	7 (18.42%)
	4=5-7 days		1 (2.63%)	4 (10.53%)
20.4	Four categories: Days spent watching older adults	34/38		
	1=0 days		20 (58.82%)	23 (60.53%)
	2=1-2 days		8 (23.53%)	6 (15.79%)
	3=3-4 days		6 (17.65%)	7 (18.42%)
	4=5-7 days		0 (0.00%)	2 (5.26%)
21.1	Four categories: Days spent interacting with children	36/36		
	1=0 days		27 (75.00%)	22 (61.11%)
	2=1-2 days		5 (13.89%)	10 (27.78%)
	3=3-4 days		4 (11.11%)	3 (8.33%)
	4=5-7 days		0 (0.00%)	1 (2.78%)
21.2	Four categories: Days spent interacting with teenagers	34/35		
	1=0 days		31 (91.18%)	26 (74.29%)
	2=1-2 days		3 (8.82%)	8 (22.86%)
	3=3-4 days		0 (0.00%)	1 (2.86%)
	4=5-7 days		0 (0.00%)	0 (0.00%)
21.3	Four categories: Days spent interacting with adults	38/38		
	1=0 days		6 (15.79%)	5 (13.16%)
	2=1-2 days		13 (34.21%)	14 (36.84%)
	3=3-4 days		15 (39.47%)	13 (34.21%)
	4=5-7 days		4 (10.53%)	6 (15.79%)
21.4	Four categories: Days spent interacting with old adults	35/38		
	1=0 days		6 (17.14%)	5 (13.16%)
	2=1-2 days		16 (45.71%)	16 (42.11%)
	3=3-4 days		10 (28.57%)	14 (36.84%)
	4=5-7 days		3 (8.57%)	3 (7.89%)
22.1	Walking you see in your neighborhood	38/38		
	Binary: 1=None; 0=Otherwise		2 (5.26%); 36 (94.74%)	3 (7.89%); 35 (92.11%)
	Binary: 1=Children walking; 0=Otherwise		17 (44.74%); 21 (55.26%)	20 (52.63%); 18 (47.37%)
	Binary: 1=Teenagers walking; 0=Otherwise		17 (44.74%); 21 (55.26%)	17 (44.74%); 21 (55.26%)
	Binary: 1=Adults walking; 0=Otherwise		34 (89.47%); 4 (10.53%)	32 (84.21%); 6 (15.79%)
	Binary: 1=Older adults walking; 0=Otherwise		29(76.32%); 9 (23.68%)	28 (73.68%); 10 (26.32%)
22.2	Biking you see in your neighborhood	37/37		
	Binary: 1=None; 0=Otherwise		5 (13.51%); 32 (86.49%)	4 (10.81%); 33 (89.19%)
	Binary: 1=Children biking; 0=Otherwise		16 (43.24%); 21 (56.76%)	12 (32.43%); 25 (67.57%)
	Binary: 1=Teenagers biking; 0=Otherwise		14 (37.84%); 23 (62.16%)	17 (45.95%); 20 (54.05%)
	Binary: 1=Adults biking; 0=Otherwise		29 (78.38%); 8 (21.62%)	29 (78.38%); 8 (21.62%)
	Binary: 1=Older adults biking; 0=Otherwise		5 (13.51%); 32 (86.49%)	10 (27.03%); 27 (72.97%)
22.3	Playing you see in your neighborhood	35/38		
	Binary: 1=None; 0=Otherwise		7 (20.00%); 28 (80.00%)	11 (28.95%); 27 (71.05%)
	Binary: 1=Children playing; 0=Otherwise		26 (74.29%); 9 (25.71%)	25 (65.79%); 13 (34.21%)
	Binary: 1=Teenagers playing; 0=Otherwise		8 (22.86%); 27 (77.14%)	7 (18.42%); 31 (81.58%)
	Binary: 1=Adults playing; 0=Otherwise		5 (14.29%); 30 (85.71%)	4 (10.53%); 34 (89.47%)
	Binary: 1=Older adults playing; 0=Otherwise		1 (2.86%); 34 (97.14%)	0 (0.00%); 38 (100%)
22.4	Sitting you see in your neighborhood	35/37		
	Binary: 1=None; 0=Otherwise		21 (60.00%); 14 (40.00%)	22 (59.46%); 15 (40.54%)
	Binary: 1=Children sitting; 0=Otherwise		4 (11.43%); 31 (88.57%)	5 (13.51%); 32 (86.49%)
	Binary: 1=Teenagers sitting; 0=Otherwise		1 (2.86%); 34 (97.14%)	2 (5.41%); 35 (94.59%)
	Binary: 1=Adults sitting; 0=Otherwise		11 (31.43%); 24 (68.57%)	12 (32.43%); 25 (67.57%)
	Binary: 1=Older adults sitting; 0=Otherwise		5 (14.29%); 30 (85.71%)	10 (27.03%); 27 (72.97%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
22.5	Working you see in your neighborhood			
	Binary: 1=None; 0=Otherwise	35/38	4 (11.43%); 31 (88.57%)	6 (15.79%); 32 (84.21%)
	Binary: 1=Children working; 0=Otherwise		1 (2.86%); 34 (97.14%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Teenagers working; 0=Otherwise		1 (2.86%); 34 (97.14%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Adults working; 0=Otherwise		28 (80.00%); 7 (20.00%)	32 (84.21%); 6 (15.79%)
	Binary: 1=Older adults working; 0=Otherwise		17 (48.57%); 18 (51.43%)	24 (63.16%); 14 (36.84%)
22.6	Socializing you see in your neighborhood	37/38		
	Binary: 1=None; 0=Otherwise		3 (8.11%); 34 (91.89%)	6 (15.79%); 32 (84.21%)
	Binary: 1=Children socializing; 0=Otherwise		11 (29.73%); 26 (70.27%)	11 (28.95%); 27 (71.05%)
	Binary: 1=Teenagers socializing; 0=Otherwise		8 (21.62%); 29 (78.38%)	10 (26.32%); 28 (73.68%)
	Binary: 1=Adults socializing; 0=Otherwise		32 (86.49%); 5 (13.51%)	32 (84.21%); 6 (15.79%)
	Binary: 1=Older adults socializing; 0=Otherwise		18 (48.65%); 19 (51.35%)	22 (57.89%); 16 (42.11%)

Section 3. About Your Intergenerational and Other Social Activities (Outside the Neighborhood)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
23.1	Four categories: Days spent watching children	36/37		
	1=0 days		25 (69.44%)	24 (64.86%)
	2=1-2 days		8 (22.22%)	12 (32.43%)
	3=3-4 days		3 (8.33%)	0 (0.00%)
	4=5-7 days		0 (0.00%)	1 (2.70%)
23.2	Four categories: Days spent watching teenagers	35/37		
	1=0 days		31 (88.57%)	31 (83.78%)
	2=1-2 days		3 (8.57%)	5 (13.51%)
	3=3-4 days		1 (2.86%)	0 (0.00%)
	4=5-7 days		0 (0.00%)	1 (2.70%)
23.3	Four categories: Days spent watching adults	37/38		
	1=0 days		12 (32.43%)	12 (31.58%)
	2=1-2 days		12 (32.43%)	12 (31.58%)
	3=3-4 days		9 (24.32%)	10 (26.32%)
	4=5-7 days		4 (10.81%)	4 (10.53%)
23.4	Four categories: Days spent watching older adults	37/38		
	1=0 days		15 (40.54%)	13 (34.21%)
	2=1-2 days		13 (35.14%)	15 (39.47%)
	3=3-4 days		7 (18.92%)	8 (21.05%)
	4=5-7 days		2 (5.41%)	2 (5.26%)
24.1	Four categories: Days spent interacting with children	36/37		
	1=0 days		26 (72.22%)	22 (59.46%)
	2=1-2 days		9 (25.00%)	13 (35.14%)
	3=3-4 days		0 (0.00%)	1 (2.70%)
	4=5-7 days		1 (2.78%)	1 (2.70%)
24.2	Four categories: Days spent interacting with teenagers	36/36		
	1=0 days		30 (83.33%)	32 (88.89%)
	2=1-2 days		5 (13.89%)	2 (5.56%)
	3=3-4 days		1 (2.78%)	1 (2.78%)
	4=5-7 days		0 (0.00%)	1 (2.78%)
24.3	Four categories: Days spent interacting with adults	37/38		
	1=0 days		5 (13.51%)	6 (15.79%)
	2=1-2 days		10 (27.03%)	11 (28.95%)
	3=3-4 days		12 (32.43%)	10 (26.32%)
	4=5-7 days		10 (27.03%)	11 (28.95%)
24.4	Four categories: Days spent interacting with old adults	38/37		
	1=0 days		7 (18.42%)	7 (18.92%)
	2=1-2 days		13 (34.21%)	12 (32.43%)
	3=3-4 days		10 (26.32%)	11 (29.73%)
	4=5-7 days		8 (21.05%)	7 (18.92%)

Section 4. About Your Neighborhood Environment

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
25_Y	Continuous: Move-in time (year)	35/36	1997.69 (12.97) 1971-2017	1998.28 (12.09) 1971-2017
25_M	Twelve categories: Move-in time (month)	33/36		
	1=January		1 (3.03%)	1 (2.78%)
	2=February		5 (15.15%)	1 (2.78%)
	3=March		4 (12.12%)	5 (13.89%)
	4=April		1 (3.03%)	4 (11.11%)
	5=May		1 (3.03%)	2 (5.56%)
	6=June		2 (6.06%)	2 (5.56%)
	7=July		5 (15.15%)	6 (16.67%)
	8=August		4 (12.12%)	3 (8.33%)
	9=September		3 (9.09%)	3 (8.33%)
	10=October		4 (12.12%)	4 (11.11%)
	11=November		0 (0.00%)	2 (5.56%)
	12=December		3 (9.09%)	3 (8.33%)
26	Neighborhood characteristics	38/38		
	Binary: 1=Gated community; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Newly built neighborhood; 0=Otherwise		2 (5.26%); 36 (94.74%)	4 (10.53%); 34 (89.47%)
	Binary: 1=Retirement community; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Age restricted neighborhood; 0=Otherwise		1 (2.63%); 37 (97.37%)	2 (5.26%); 36 (94.74%)
	Binary: 1=Many senior residents; 0=Otherwise		13 (34.21%); 25 (65.79%)	15 (39.47%); 23 (60.53%)
	Binary: 1=Mixed land uses; 0=Otherwise		11 (28.95%); 27 (71.05%)	13 (34.21%); 25 (65.79%)
	Binary: 1=None of the above; 0=Otherwise		17 (44.74%); 21 (55.26%)	12 (31.58%); 26 (68.42%)
27.1	Four categories: Affordability (cost of housing)	37/37		
	1=Not at all important		1 (2.70%)	3 (8.11%)
	2=Slightly important		5 (13.51%)	2 (5.41%)
	3=Moderately important		6 (16.22%)	12 (32.43%)
	4=Very important		25 (67.57%)	20 (54.05%)
27.2	Four categories: Close to park and natural open space	38/38		
	1=Not at all important		3 (7.89%)	3 (7.89%)
	2=Slightly important		7 (18.42%)	10 (26.32%)
	3=Moderately important		12 (31.58%)	11 (28.95%)
	4=Very important		16 (42.11%)	14 (36.84%)
27.3	Four categories: Close to entertainment facilities	38/38		
	1=Not at all important		13 (34.21%)	9 (23.68%)
	2=Slightly important		6 (15.79%)	16 (42.11%)
	3=Moderately important		11 (28.95%)	8 (21.05%)
	4=Very important		8 (21.05%)	5 (13.16%)
27.4	Four categories: Close to public transportation	37/37		
	1=Not at all important		13 (35.14%)	17 (45.95%)
	2=Slightly important		8 (21.62%)	10 (27.03%)
	3=Moderately important		11 (29.73%)	6 (16.22%)
	4=Very important		5 (13.51%)	4 (10.81%)
27.5	Four categories: Close to shops and services	38/38		
	1=Not at all important		4 (10.53%)	4 (10.53%)
	2=Slightly important		6 (15.79%)	6 (15.79%)
	3=Moderately important		11 (28.95%)	13 (34.21%)
	4=Very important		17 (44.74%)	15 (39.47%)
27.6	Four categories: Close to family members	37/38		
	1=Not at all important		19 (51.35%)	17 (44.74%)
	2=Slightly important		6 (16.22%)	7 (18.42%)
	3=Moderately important		5 (13.51%)	6 (15.79%)
	4=Very important		7 (18.92%)	8 (21.05%)
27.7	Four categories: Close to friends	38/38		
	1=Not at all important		10 (26.32%)	11 (28.95%)
	2=Slightly important		15 (39.47%)	11 (28.95%)
	3=Moderately important		5 (13.16%)	8 (21.05%)
	4=Very important		8 (21.05%)	8 (21.05%)
27.8	Four categories: Presence of other older residents	38/38		
	1=Not at all important		13 (34.21%)	12 (31.58%)
	2=Slightly important		11 (28.95%)	14 (36.84%)
	3=Moderately important		12 (31.58%)	8 (21.05%)
	4=Very important		2 (5.26%)	4 (10.53%)
27.9	Four categories: Ease of walking	38/38		
	1=Not at all important		3 (7.89%)	5 (13.16%)
	2=Slightly important		8 (21.05%)	6 (15.79%)
	3=Moderately important		11 (28.95%)	8 (21.05%)
	4=Very important		16 (42.11%)	19 (50.00%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
27.10	Four categories: Sense of community	38/38		
	1=Not at all important		4 (10.53%)	6 (15.79%)
	2=Slightly important		8 (21.05%)	5 (13.16%)
	3=Moderately important		11 (28.95%)	9 (23.68%)
	4=Very important		15 (39.47%)	18 (47.37%)
27.11	Four categories: Neighborhood safety	38/38		
	1=Not at all important		1 (2.63%)	2 (5.26%)
	2=Slightly important		2 (5.26%)	3 (7.89%)
	3=Moderately important		15 (39.47%)	7 (18.42%)
	4=Very important		20 (52.63%)	26 (68.42%)
27.12	Four categories: Close to healthcare/medical facilities	37/37		
	1=Not at all important		4 (10.81%)	4 (10.81%)
	2=Slightly important		8 (21.62%)	13 (35.14%)
	3=Moderately important		15 (40.54%)	8 (21.62%)
	4=Very important		10 (27.03%)	12 (32.43%)
27.13	Four categories: Neighborhood aesthetics	38/38		
	1=Not at all important		3 (7.89%)	3 (7.89%)
	2=Slightly important		4 (10.53%)	5 (13.16%)
	3=Moderately important		13 (34.21%)	11 (28.95%)
	4=Very important		18 (47.37%)	19 (50.00%)
27.14	Four categories: Diversity of age groups	38/38		
	1=Not at all important		7 (18.42%)	9 (23.68%)
	2=Slightly important		10 (26.32%)	6 (15.79%)
	3=Moderately important		11 (28.95%)	13 (34.21%)
	4=Very important		10 (26.32%)	10 (26.32%)
27.15	Four categories: Diversity of ethnic groups	38/38		
	1=Not at all important		10 (26.32%)	10 (26.32%)
	2=Slightly important		7 (18.42%)	7 (18.42%)
	3=Moderately important		15 (39.47%)	13 (34.21%)
	4=Very important		6 (15.79%)	8 (21.05%)
27.16	Four categories: Access to supportive programs	38/36		
	1=Not at all important		24 (63.16%)	19 (52.78%)
	2=Slightly important		8 (21.05%)	10 (27.78%)
	3=Moderately important		5 (13.16%)	5 (13.89%)
	4=Very important		1 (2.63%)	2 (5.56%)
28.1	Four categories: I see many people being physically active in my neighborhood.	38/38		
	1=Strongly disagree		0 (0.00%)	2 (5.26%)
	2=Somewhat disagree		4 (10.53%)	3 (7.89%)
	3=Somewhat agree		11 (28.95%)	9 (23.68%)
	4=Strongly agree		23 (60.53%)	24 (63.16%)
28.2	Four categories: My neighbors could be counted on to help in case of need.	38/38		
	1=Strongly disagree		2 (5.26%)	1 (2.63%)
	2=Somewhat disagree		3 (7.89%)	2 (5.26%)
	3=Somewhat agree		11 (28.95%)	15 (39.47%)
	4=Strongly agree		22 (57.89%)	20 (52.63%)
28.3	Four categories: This is a close-knit neighborhood.	38/38		
	1=Strongly disagree		2 (5.26%)	2 (5.26%)
	2=Somewhat disagree		8 (21.05%)	10 (26.32%)
	3=Somewhat agree		13 (34.21%)	12 (31.58%)
	4=Strongly agree		15 (39.47%)	14 (36.84%)
28.4	Four categories: People in my neighborhood are willing to help their neighbors.	37/37		
	1=Strongly disagree		0 (0.00%)	0 (0.00%)
	2=Somewhat disagree		2 (5.41%)	3 (8.11%)
	3=Somewhat agree		16 (43.24%)	13 (35.14%)
	4=Strongly agree		19 (51.35%)	21 (56.76%)
28.5	Four categories: People in my neighborhood can be trusted.	37/38		
	1=Strongly disagree		1 (2.70%)	0 (0.00%)
	2=Somewhat disagree		1 (2.70%)	2 (5.26%)
	3=Somewhat agree		11 (29.73%)	12 (31.58%)
	4=Strongly agree		24 (64.86%)	24 (63.16%)
28.6	Four categories: People in my neighborhood generally do NOT get along with each other.	37/38		
	1=Strongly disagree		30 (81.08%)	23 (60.53%)
	2=Somewhat disagree		7 (18.92%)	13 (34.21%)
	3=Somewhat agree		0 (0.00%)	2 (5.26%)
	4=Strongly agree		0 (0.00%)	0 (0.00%)
28.7	Four categories: People in my neighborhood do NOT share the same values.	37/38		
	1=Strongly disagree		20 (54.05%)	16 (42.11%)
	2=Somewhat disagree		7 (18.92%)	14 (36.84%)
	3=Somewhat agree		7 (18.92%)	7 (18.42%)
	4=Strongly agree		3 (8.11%)	1 (2.63%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
29.1	Four categories: I can do most of my shopping at local stores.	38/38		
	1=Strongly disagree		0 (0.00%)	1 (2.63%)
	2=Somewhat disagree		1 (2.63%)	1 (2.63%)
	3=Somewhat agree		9 (23.68%)	9 (23.68%)
	4=Strongly agree		28 (73.68%)	27 (71.05%)
29.2	Four categories: Stores are within easy walking distance of my home.	38/38		
	1=Strongly disagree		14 (36.84%)	17 (44.74%)
	2=Somewhat disagree		10 (26.32%)	6 (15.79%)
	3=Somewhat agree		10 (26.32%)	9 (23.68%)
	4=Strongly agree		4 (10.53%)	6 (15.79%)
29.3	Four categories: Parking is difficult in local shopping areas.	38/38		
	1=Strongly disagree		14 (36.84%)	10 (26.32%)
	2=Somewhat disagree		10 (26.32%)	15 (39.47%)
	3=Somewhat agree		12 (31.58%)	10 (26.32%)
	4=Strongly agree		2 (5.26%)	3 (7.89%)
29.4	Four categories: There are many places to go within easy walking distance of my home.	38/38		
	1=Strongly disagree		10 (26.32%)	11 (28.95%)
	2=Somewhat disagree		13 (34.21%)	12 (31.58%)
	3=Somewhat agree		8 (21.05%)	10 (26.32%)
	4=Strongly agree		7 (18.42%)	5 (13.16%)
29.5	Four categories: It is easy to walk to a transit stop (bus, train) from my home.	38/37		
	1=Strongly disagree		7 (18.42%)	9 (24.32%)
	2=Somewhat disagree		7 (18.42%)	6 (16.22%)
	3=Somewhat agree		7 (18.42%)	11 (29.73%)
	4=Strongly agree		17 (44.74%)	11 (29.73%)
29.6	Four categories: It is easy to walk to healthcare/medical services (e.g. hospital, doctor's office, pharmacy).	38/38		
	1=Strongly disagree		22 (57.89%)	19 (50.00%)
	2=Somewhat disagree		12 (31.58%)	10 (26.32%)
	3=Somewhat agree		3 (7.89%)	7 (18.42%)
	4=Strongly agree		1 (2.63%)	2 (5.26%)
29.7	Four categories: The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.	37/38		
	1=Strongly disagree		17 (45.95%)	16 (42.11%)
	2=Somewhat disagree		8 (21.62%)	10 (26.32%)
	3=Somewhat agree		9 (24.32%)	8 (21.05%)
	4=Strongly agree		3 (8.11%)	4 (10.53%)
29.8	Four categories: There are many canyons/hillsides in my neighborhood.	37/38		
	1=Strongly disagree		26 (70.27%)	28 (73.68%)
	2=Somewhat disagree		9 (24.32%)	5 (13.16%)
	3=Somewhat agree		1 (2.70%)	5 (13.16%)
	4=Strongly agree		1 (2.70%)	0 (0.00%)
30.1	Four categories: The streets in my neighborhood do not have many, or any, dead-end streets	38/38		
	1=Strongly disagree		7 (18.42%)	7 (18.42%)
	2=Somewhat disagree		10 (26.32%)	14 (36.84%)
	3=Somewhat agree		9 (23.68%)	6 (15.79%)
	4=Strongly agree		12 (31.58%)	11 (28.95%)
30.2	Four categories: There are walkways in my neighborhood that connect dead-end streets to streets, trails, or other dead-end streets.	38/38		
	1=Strongly disagree		17 (44.74%)	11 (28.95%)
	2=Somewhat disagree		9 (23.68%)	13 (34.21%)
	3=Somewhat agree		10 (26.32%)	10 (26.32%)
	4=Strongly agree		2 (5.26%)	4 (10.53%)
30.3	Four categories: The distance between intersections in my neighborhood is usually short.	37/38		
	1=Strongly disagree		2 (5.41%)	4 (10.53%)
	2=Somewhat disagree		8 (21.62%)	7 (18.42%)
	3=Somewhat agree		17 (45.95%)	18 (47.37%)
	4=Strongly agree		10 (27.03%)	9 (23.68%)
30.4	Four categories: There are many four-way intersections in my neighborhood.	38/38		
	1=Strongly disagree		5 (13.16%)	7 (18.42%)
	2=Somewhat disagree		10 (26.32%)	6 (15.79%)
	3=Somewhat agree		17 (44.74%)	14 (36.84%)
	4=Strongly agree		6 (15.79%)	11 (28.95%)
30.5	Four categories: There are many alternative routes for getting from place to place in my neighborhood.	38/38		
	1=Strongly disagree		1 (2.63%)	2 (5.26%)
	2=Somewhat disagree		9 (23.68%)	3 (7.89%)
	3=Somewhat agree		15 (39.47%)	20 (52.63%)
	4=Strongly agree		13 (34.21%)	13 (34.21%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
31.1	Four categories: There are sidewalks on most of the streets in my neighborhood.	38/38		
	1=Strongly disagree		11 (28.95%)	8 (21.05%)
	2=Somewhat disagree		10 (26.32%)	12 (31.58%)
	3=Somewhat agree		8 (21.05%)	9 (23.68%)
	4=Strongly agree		9 (23.68%)	9 (23.68%)
31.2	Four categories: The sidewalks in my neighborhood are well maintained.	38/38		
	1=Strongly disagree		7 (18.42%)	8 (21.05%)
	2=Somewhat disagree		12 (31.58%)	11 (28.95%)
	3=Somewhat agree		14 (36.84%)	16 (42.11%)
	4=Strongly agree		5 (13.16%)	3 (7.89%)
31.3	Four categories: There are bicycle or pedestrian trails in or near my neighborhood that are easy to get to.	38/38		
	1=Strongly disagree		6 (15.79%)	2 (5.26%)
	2=Somewhat disagree		5 (13.16%)	9 (23.68%)
	3=Somewhat agree		17 (44.74%)	18 (47.37%)
	4=Strongly agree		10 (26.32%)	9 (23.68%)
31.4	Four categories: Sidewalks are separated from the road/traffic in my neighborhood by parked cars.	38/38		
	1=Strongly disagree		14 (36.84%)	12 (31.58%)
	2=Somewhat disagree		9 (23.68%)	7 (18.42%)
	3=Somewhat agree		7 (18.42%)	16 (42.11%)
	4=Strongly agree		8 (21.05%)	3 (7.89%)
31.5	Four categories: There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.	38/37		
	1=Strongly disagree		12 (31.58%)	13 (35.14%)
	2=Somewhat disagree		7 (18.42%)	5 (13.51%)
	3=Somewhat agree		13 (34.21%)	14 (37.84%)
	4=Strongly agree		6 (15.79%)	5 (13.51%)
31.6	Four categories: There are benches on most of the sidewalks in my neighborhood.	38/37		
	1=Strongly disagree		31 (81.58%)	30 (81.08%)
	2=Somewhat disagree		4 (10.53%)	5 (13.51%)
	3=Somewhat agree		2 (5.26%)	1 (2.70%)
	4=Strongly agree		1 (2.63%)	1 (2.70%)
32.1	Four categories: There are trees along the streets in my neighborhood.	38/38		
	1=Strongly disagree		1 (2.63%)	1 (2.63%)
	2=Somewhat disagree		1 (2.63%)	0 (0.00%)
	3=Somewhat agree		6 (15.79%)	11 (28.95%)
	4=Strongly agree		30 (78.95%)	26 (68.42%)
32.2	Four categories: Trees give shade for the sidewalks in my neighborhood.	38/38		
	1=Strongly disagree		2 (5.26%)	4 (10.53%)
	2=Somewhat disagree		3 (7.89%)	0 (0.00%)
	3=Somewhat agree		15 (39.47%)	20 (52.63%)
	4=Strongly agree		18 (47.37%)	14 (36.84%)
32.3	Four categories: There are many interesting things to look at while walking in my neighborhood.	38/38		
	1=Strongly disagree		0 (0.00%)	1 (2.63%)
	2=Somewhat disagree		6 (15.79%)	7 (18.42%)
	3=Somewhat agree		14 (36.84%)	15 (39.47%)
	4=Strongly agree		18 (47.37%)	15 (39.47%)
32.4	Four categories: My neighborhood is generally free from litter.	38/38		
	1=Strongly disagree		1 (2.63%)	0 (0.00%)
	2=Somewhat disagree		1 (2.63%)	6 (15.79%)
	3=Somewhat agree		13 (34.21%)	12 (31.58%)
	4=Strongly agree		23 (60.53%)	20 (52.63%)
32.5	Four categories: There are many attractive natural sights in my neighborhood.	38/38		
	1=Strongly disagree		1 (2.63%)	0 (0.00%)
	2=Somewhat disagree		6 (15.79%)	8 (21.05%)
	3=Somewhat agree		14 (36.84%)	14 (36.84%)
	4=Strongly agree		17 (44.74%)	16 (42.11%)
32.6	Four categories: There are attractive buildings/homes in my neighborhood.	38/38		
	1=Strongly disagree		2 (5.26%)	0 (0.00%)
	2=Somewhat disagree		0 (0.00%)	4 (10.53%)
	3=Somewhat agree		16 (42.11%)	12 (31.58%)
	4=Strongly agree		20 (52.63%)	22 (57.89%)
33.1	Four categories: There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.	38/38		
	1=Strongly disagree		18 (47.37%)	18 (47.37%)
	2=Somewhat disagree		9 (23.68%)	13 (34.21%)
	3=Somewhat agree		7 (18.42%)	5 (13.16%)
	4=Strongly agree		4 (10.53%)	2 (5.26%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
33.2	Four categories: There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.	38/38		
	1=Strongly disagree		11 (28.95%)	14 (36.84%)
	2=Somewhat disagree		10 (26.32%)	12 (31.58%)
	3=Somewhat agree		14 (36.84%)	11 (28.95%)
	4=Strongly agree		3 (7.89%)	1 (2.63%)
33.3	Four categories: The speed of traffic on the street I live on is usually slow (30 mph or less).	38/38		
	1=Strongly disagree		3 (7.89%)	3 (7.89%)
	2=Somewhat disagree		5 (13.16%)	4 (10.53%)
	3=Somewhat agree		16 (42.11%)	17 (44.74%)
	4=Strongly agree		14 (36.84%)	14 (36.84%)
33.4	Four categories: The speed of traffic on most nearby streets is usually slow (30 mph or less).	38/38		
	1=Strongly disagree		4 (10.53%)	4 (10.53%)
	2=Somewhat disagree		13 (34.21%)	10 (26.32%)
	3=Somewhat agree		13 (34.21%)	15 (39.47%)
	4=Strongly agree		8 (21.05%)	9 (23.68%)
33.5	Four categories: Most drivers exceed the posted speed limits while driving in my neighborhood.	38/38		
	1=Strongly disagree		4 (10.53%)	6 (15.79%)
	2=Somewhat disagree		9 (23.68%)	10 (26.32%)
	3=Somewhat agree		17 (44.74%)	16 (42.11%)
	4=Strongly agree		8 (21.05%)	6 (15.79%)
33.6	Four categories: There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.	38/37		
	1=Strongly disagree		7 (18.42%)	9 (24.32%)
	2=Somewhat disagree		9 (23.68%)	9 (24.32%)
	3=Somewhat agree		12 (31.58%)	11 (29.73%)
	4=Strongly agree		10 (26.32%)	8 (21.62%)
33.7	Four categories: The crosswalks in my neighborhood help walkers feel safe crossing busy streets.	36/36		
	1=Strongly disagree		6 (16.67%)	7 (19.44%)
	2=Somewhat disagree		8 (22.22%)	12 (33.33%)
	3=Somewhat agree		15 (41.67%)	11 (30.56%)
	4=Strongly agree		7 (19.44%)	6 (16.67%)
33.8	Four categories: When walking in my neighborhood, there are a lot of exhaust fumes.	38/38		
	1=Strongly disagree		15 (39.47%)	19 (50.00%)
	2=Somewhat disagree		14 (36.84%)	13 (34.21%)
	3=Somewhat agree		8 (21.05%)	5 (13.16%)
	4=Strongly agree		1 (2.63%)	1 (2.63%)
34.1	Four categories: My neighborhood streets are well lit at night.	38/38		
	1=Strongly disagree		2 (5.26%)	1 (2.63%)
	2=Somewhat disagree		11 (28.95%)	8 (21.05%)
	3=Somewhat agree		16 (42.11%)	16 (42.11%)
	4=Strongly agree		9 (23.68%)	13 (34.21%)
34.2	Four categories: Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.	38/38		
	1=Strongly disagree		0 (0.00%)	0 (0.00%)
	2=Somewhat disagree		7 (18.42%)	7 (18.42%)
	3=Somewhat agree		16 (42.11%)	23 (60.53%)
	4=Strongly agree		15 (39.47%)	8 (21.05%)
34.3	Four categories: I see and speak to other people when I am walking in my neighborhood.	38/38		
	1=Strongly disagree		2 (5.26%)	2 (5.26%)
	2=Somewhat disagree		4 (10.53%)	6 (15.79%)
	3=Somewhat agree		15 (39.47%)	13 (34.21%)
	4=Strongly agree		17 (44.74%)	17 (44.74%)
34.4	Four categories: There is a high crime rate in my neighborhood.	38/38		
	1=Strongly disagree		22 (57.89%)	24 (63.16%)
	2=Somewhat disagree		12 (31.58%)	11 (28.95%)
	3=Somewhat agree		3 (7.89%)	2 (5.26%)
	4=Strongly agree		1 (2.63%)	1 (2.63%)
34.5	Four categories: The crime rate in my neighborhood makes it unsafe to go on walks during the day.	38/38		
	1=Strongly disagree		30 (78.95%)	34 (89.47%)
	2=Somewhat disagree		6 (15.79%)	4 (10.53%)
	3=Somewhat agree		0 (0.00%)	0 (0.00%)
	4=Strongly agree		2 (5.26%)	0 (0.00%)
34.6	Four categories: The crime rate in my neighborhood makes it unsafe to go on walks at night.	38/38		
	1=Strongly disagree		19 (50.00%)	21 (55.26%)
	2=Somewhat disagree		10 (26.32%)	10 (26.32%)
	3=Somewhat agree		7 (18.42%)	6 (15.79%)
	4=Strongly agree		2 (5.26%)	1 (2.63%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
35.1	Four categories: Highway access from your home	38/38		
	1=Strongly dissatisfied		0 (0.00%)	0 (0.00%)
	2=Somewhat dissatisfied		1 (2.63%)	1 (2.63%)
	3=Somewhat satisfied		15 (39.47%)	15 (39.47%)
	4=Strongly satisfied		22 (57.89%)	22 (57.89%)
35.2	Four categories: Access to public transportation in your neighborhood	37/36		
	1=Strongly dissatisfied		4 (10.81%)	4 (11.11%)
	2=Somewhat dissatisfied		5 (13.51%)	6 (16.67%)
	3=Somewhat satisfied		17 (45.95%)	12 (33.33%)
	4=Strongly satisfied		11 (29.73%)	14 (38.89%)
35.3	Four categories: Access to shopping in your neighborhood	37/38		
	1=Strongly dissatisfied		5 (13.51%)	0 (0.00%)
	2=Somewhat dissatisfied		4 (10.81%)	6 (15.79%)
	3=Somewhat satisfied		15 (40.54%)	21 (55.26%)
	4=Strongly satisfied		13 (35.14%)	11 (28.95%)
35.4	Four categories: Number of friends you have in your neighborhood	38/38		
	1=Strongly dissatisfied		1 (2.63%)	2 (5.26%)
	2=Somewhat dissatisfied		8 (21.05%)	6 (15.79%)
	3=Somewhat satisfied		15 (39.47%)	20 (52.63%)
	4=Strongly satisfied		14 (36.84%)	10 (26.32%)
35.5	Four categories: Number of people you know in your neighborhood	37/38		
	1=Strongly dissatisfied		1 (2.7%)	1 (2.63%)
	2=Somewhat dissatisfied		4 (10.81%)	5 (13.16%)
	3=Somewhat satisfied		17 (45.95%)	19 (50.00%)
	4=Strongly satisfied		15 (40.54%)	13 (34.21%)
35.6	Four categories: How easy and pleasant it is to walk in your neighborhood	37/38		
	1=Strongly dissatisfied		0 (0.00%)	0 (0.00%)
	2=Somewhat dissatisfied		4 (10.81%)	3 (7.89%)
	3=Somewhat satisfied		12 (32.43%)	16 (42.11%)
	4=Strongly satisfied		21 (56.76%)	19 (50%)
35.7	Four categories: Access to entertainment in your neighborhood (restaurants, movies, clubs, etc.)	38/38		
	1=Strongly dissatisfied		6 (15.79%)	6 (15.79%)
	2=Somewhat dissatisfied		11 (28.95%)	9 (23.68%)
	3=Somewhat satisfied		15 (39.47%)	16 (42.11%)
	4=Strongly satisfied		6 (15.79%)	7 (18.42%)
35.8	Four categories: Access to healthcare/medical services	38/38		
	1=Strongly dissatisfied		5 (13.16%)	6 (15.79%)
	2=Somewhat dissatisfied		12 (31.58%)	15 (39.47%)
	3=Somewhat satisfied		13 (34.21%)	8 (21.05%)
	4=Strongly satisfied		8 (21.05%)	9 (23.68%)
35.9	Four categories: Safety from threat of crime in your neighborhood	38/38		
	1=Strongly dissatisfied		1 (2.63%)	2 (5.26%)
	2=Somewhat dissatisfied		5 (13.16%)	3 (7.89%)
	3=Somewhat satisfied		16 (42.11%)	16 (42.11%)
	4=Strongly satisfied		16 (42.11%)	17 (44.74%)
35.10	Four categories: Amount and speed of traffic in your neighborhood	38/38		
	1=Strongly dissatisfied		2 (5.26%)	3 (7.89%)
	2=Somewhat dissatisfied		12 (31.58%)	11 (28.95%)
	3=Somewhat satisfied		15 (39.47%)	17 (44.74%)
	4=Strongly satisfied		9 (23.68%)	7 (18.42%)
35.11	Four categories: Noise from traffic in your neighborhood	38/38		
	1=Strongly dissatisfied		4 (10.53%)	5 (13.16%)
	2=Somewhat dissatisfied		10 (26.32%)	8 (21.05%)
	3=Somewhat satisfied		13 (34.21%)	16 (42.11%)
	4=Strongly satisfied		11 (28.95%)	9 (23.68%)
35.12	Four categories: Number and quality of food stores in your neighborhood?	38/38		
	1=Strongly dissatisfied		5 (13.16%)	5 (13.16%)
	2=Somewhat dissatisfied		8 (21.05%)	5 (13.16%)
	3=Somewhat satisfied		15 (39.47%)	18 (47.37%)
	4=Strongly satisfied		10 (26.32%)	10 (26.32%)
35.13	Four categories: Number and quality of restaurants in your neighborhood?	36/38		
	1=Strongly dissatisfied		4 (10.53%)	7 (18.42%)
	2=Somewhat dissatisfied		8 (21.05%)	5 (13.16%)
	3=Somewhat satisfied		16 (42.11%)	17 (44.74%)
	4=Strongly satisfied		8 (21.05%)	9 (23.68%)
35.14	Four categories: Your neighborhood as a good place to live?	38/38		
	1=Strongly dissatisfied		0 (0.00%)	0 (0.00%)
	2=Somewhat dissatisfied		2 (5.26%)	1 (2.63%)
	3=Somewhat satisfied		10 (26.32%)	12 (31.58%)
	4=Strongly satisfied		26 (68.42%)	25 (65.79%)

Section 5. About Supportive Services or Programs

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
36	Services/programs you use or participate in	36/38		
	Binary: 1=Health related; 0=Otherwise		2 (5.56%); 34 (94.44%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Meal related; 0=Otherwise		1 (2.78%); 35 (97.22%)	1 (2.63%); 37 (97.37%)
	Binary: 1=House and homemaker; 0=Otherwise		2 (5.56%); 34 (94.44%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Transportation related; 0=Otherwise		2 (5.56%); 34 (94.44%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Financial; 0=Otherwise		2 (5.56%); 34 (94.44%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Social; 0=Otherwise		3 (8.33%); 33 (91.67%)	4 (10.53%); 34 (89.47%)
	Binary: 1=Employment and education; 0=Otherwise		1 (2.78%); 35 (97.22%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Legal aid or free legal; 0=Otherwise		0 (0.00%); 36 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Other, specify; 0=Otherwise		4 (11.11%); 32 (88.89%)	2 (5.26%); 36 (94.74%)
	Binary: 1=None of the above; 0=Otherwise		27 (75.00%); 9 (25.00%)	32 (84.21%); 6 (15.79%)
37	Three categories: Intergenerational services/programs	38/38		
	0=No		6 (15.79%)	5 (13.16%)
	1=Yes		5 (13.16%)	1 (2.63%)
	2=Valid missing		27 (71.05%)	32 (84.21%)
38	Four categories: Services/programs satisfactions	38/38		
	1=Strongly dissatisfied		1 (2.63%)	0 (0.00%)
	2=Somewhat dissatisfied		2 (5.26%)	2 (5.26%)
	3=Somewhat satisfied		4 (10.53%)	1 (2.63%)
	4=Strongly satisfied		4 (10.53%)	3 (7.89%)
	5=Valid missing		27 (71.05%)	32 (84.21%)
39	Four categories: I would personally want to ride in a driverless vehicle if I had the opportunity.	38/38		
	1=Strongly disagree		14 (36.84%)	13 (34.21%)
	2=Somewhat disagree		8 (21.05%)	6 (15.79%)
	3=Somewhat agree		11 (28.95%)	15 (39.47%)
	4=Strongly agree		5 (13.16%)	4 (10.53%)
40	Four categories: If driverless vehicles become widespread, older adults and people with disabilities will be able to live more independently.	37/38		
	1=Strongly disagree		4 (10.81%)	6 (15.79%)
	2=Somewhat disagree		7 (18.92%)	6 (15.79%)
	3=Somewhat agree		19 (51.35%)	20 (52.63%)
	4=Strongly agree		7 (18.92%)	6 (15.79%)

Section 6. About Yourself

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
41	Continuous: Year of Born	38/38	1946.90 (4.58)	1946.87 (4.56)
			1937-1953	1937-1953
42	Two categories: Sex	38/38		
	1=Male		13 (34.21%)	13 (34.21%)
	2=Female		25 (65.79%)	25 (65.79%)
43	Two categories: Hispanic, Latino, or Spanish origin	38/38		
	0=No		35 (92.11%)	35 (92.11%)
	1=Yes		3 (7.89%)	3 (7.89%)
44	Six categories: Race	38/38		
	1=White		36 (94.74%)	36 (94.74%)
	2=Black or African American		0 (0.00%)	0 (0.00%)
	3=Asian		0 (0.00%)	0 (0.00%)
	4=Pacific Islander		0 (0.00%)	0 (0.00%)
	5=American Indian or Alaska Native		0 (0.00%)	0 (0.00%)
	6=Other, specify		2 (5.26%)	2 (5.26%)
45	Continuous: Weight (pounds)	38/38	163.58 (47.25)	163.47 (47.88)
			84-360	84-368
46	Continuous: Height (inches)	38/38	66.34 (3.34)	66.2 (3.35)
			61-72	61-72
47	Six categories: Marital status			
	1=Married		23 (60.53%)	23 (60.53%)
	2=Widowed		2 (5.26%)	2 (5.26%)
	3=Never married		1 (2.63%)	1 (2.63%)
	4=Divorced		10 (26.32%)	10 (26.32%)
	5=Separated		0 (0.00%)	0 (0.00%)
	6=A member of an unmarried couple		2 (5.26%)	2 (5.26%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
48	Six categories: Education	38/38		
	1=Less than high school		0 (0.00%)	0 (0.00%)
	2=Some high school, but no degree/diploma/GED		0 (0.00%)	0 (0.00%)
	3=High school diploma/GED		4 (10.53%)	4 (10.53%)
	4=Some college		7 (18.42%)	7 (18.42%)
	5=Associate degree		2 (5.26%)	1 (2.63%)
	6=Bachelor's degree		7 (18.42%)	7 (18.42%)
	7=Master's degree		11 (28.95%)	12 (31.58%)
	8=Professional degree		2 (5.26%)	2 (5.26%)
	9=Doctorate degree		5 (13.16%)	5 (13.16%)
49	Six categories: Home type	38/38		
	1=A one-family house detached		34 (89.47%)	34 (89.47%)
	2=A one-family house attached (e.g. townhouse)		1 (2.63%)	2 (5.26%)
	3=A building with 2 to 4 units (e.g. duplex, fourplex)		1 (2.63%)	0 (0.00%)
	4=A building with 5 or more units/apartments		0 (0.00%)	0 (0.00%)
	5=A mobile home or trailer		0 (0.00%)	0 (0.00%)
	6=Other, specify		2 (5.26%)	2 (5.26%)
50	Four categories: Home ownership	38/38		
	1=Own with a mortgage or loan		10 (26.32%)	10 (26.32%)
	2=Own without a mortgage or loan		28 (73.68%)	27 (71.05%)
	3=Rent		0 (0.00%)	0 (0.00%)
	4=Neither (living with relatives, etc.)		0 (0.00%)	1 (2.63%)
51	Pet(s) in the household	38/38		
	Binary: 1=No pet; 0=Otherwise		16 (42.11%); 22 (57.89%)	19 (50.00%); 19 (50.00%)
	Binary: 1=Dog; 0=Otherwise		9 (23.68%); 29 (76.32%)	8 (21.05%); 30 (78.95%)
	Binary: 1=Cat; 0=Otherwise		11 (28.95%); 27 (71.05%)	10 (26.32%); 28 (73.68%)
	Binary: 1=Bird; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Fish; 0=Otherwise		2 (5.26%); 36 (94.74%)	2 (5.26%); 36 (94.74%)
	Binary: 1=Other, specify; 0=Otherwise		3 (7.89%); 35 (92.11%)	2 (5.26%); 36 (94.74%)
52	Employment status			
	Binary: 1=Employed for wages; 0=Otherwise	38/38	2 (5.26%); 36 (94.74%)	2 (5.26%); 36 (94.74%)
	Binary: 1=Self-employed; 0=Otherwise		5 (13.16%); 33 (86.84%)	6 (15.79%); 32 (84.21%)
	Binary: 1=Retired; 0=Otherwise		34 (89.47%); 4 (10.53%)	34 (89.47%); 4 (10.53%)
	Binary: 1=Out of work (< 1 year); 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Out of work (>=1 year); 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=A homemaker; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=A student; 0=Otherwise		0 (0.00%); 38 (100.00%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Unable to work; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
53	Health or medical insurance coverage	38/38		
	Binary: 1=A plan through an employer; 0=Otherwise		12 (31.58%); 26 (68.42%)	14 (36.84%); 24 (63.16%)
	Binary: 1=A plan bought on your own; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Medicare; 0=Otherwise		33 (86.84%); 5 (13.16%)	31 (81.58%); 7 (18.42%)
	Binary: 1=Medicaid; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=TRICARE, VA, or Military; 0=Otherwise		2 (5.26%); 36 (94.74%)	3 (7.89%); 35 (92.11%)
	Binary: 1=Alaska Native; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
	Binary: 1=Other health insurance; 0=Otherwise		12 (31.58%); 26 (68.42%)	10 (26.32%); 28 (73.68%)
	Binary: 1=None (no coverage); 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 38 (100.00%)
54	Twelve categories: Income	38/38		
	1=Under $10,000		2 (5.26%)	2 (5.26%)
	2=$10,000 to $19,999		0 (0.00%)	0 (0.00%)
	3=$20,000 to $29,999		4 (10.53%)	3 (7.89%)
	4=$30,000 to $39,999		3 (7.89%)	5 (13.16%)
	5=$40,000 to $49,999		3 (7.89%)	2 (5.26%)
	6=$50,000 to $59,999		2 (5.26%)	2 (5.26%)
	7=$60,000 to $69,999		1 (2.63%)	2 (5.26%)
	8=$70,000 to $79,999		3 (7.89%)	2 (5.26%)
	9=$80,000 to $89,999		1 (2.63%)	0 (0.00%)
	10=$90,000 to $99,999		1 (2.63%)	1 (2.63%)
	11=$100,000 or more		11 (28.95%)	11 (28.95%)
	12=Don't know/prefer not to answer		7 (18.42%)	8 (21.05%)
55.1	Continuous: Number of additional people in household	38/37	0.84 (0.68) 0-3	0.84 (0.65) 0-3
55.2	Continuous: Ages of the other people in household	41/39*	46.73 (30.92) 0-79	47.87 (30.90) 0-79
55.3	Continuous: Number of children/grandchildren under 18	36/37	0.03 (0.17) 0-1	0.03 (0.16) 0-1

* Number of the other people in household with age information provided by the participants

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
56	People living with you in the household			
	Binary: 1=Valid missing; 0 = Otherwise	38/37	11 (28.95%); 27 (71.05%)	10 (27.03%); 27 (72.97%)
	Binary: 1=Your spouse or partner; 0=Otherwise		24 (63.16%); 14 (36.84%)	25 (67.57%); 12 (32.43%)
	Binary: 1=Your parent; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Your child; 0=Otherwise		1 (2.63%); 37 (97.37%)	3 (8.11%); 34 (91.89%)
	Binary: 1=A brother or sister; 0=Otherwise		0 (0.00%); 38 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=A grandchild; 0=Otherwise		1 (2.63%); 37 (97.37%)	0 (0.00%); 37 (100.00%)
	Binary: 1= Other relatives; 0=Otherwise		1 (2.63%); 37 (97.37%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Friends; 0=Otherwise		2 (5.26%); 36 (94.74%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Someone else; 0=Otherwise		1 (2.63%); 37 (97.37%)	2 (5.41%); 35 (94.59%)
57.1	Two categories: Caregivers	38/38		
	0=No		35 (92.11%)	34 (89.47%)
	1=Yes		3 (7.89%)	4 (10.53%)
57.2	Continuous: time spent caring for others (years)	38/38	0.58 (2.09)	0.41 (1.38)
			0-10	0-6
57.3	Continuous: time spent caring for others (hours/week)	38/38	0.45 (1.78)	0.32 (1.07)
			0-10	0-5
58	Five categories: Health	38/37		
	1=Poor		1 (2.63%)	2 (5.41%)
	2=Fair		3 (7.89%)	4 (10.81%)
	3=Good		12 (31.58%)	10 (27.03%)
	4=Very Good		14 (36.84%)	12 (32.43%)
	5=Excellent		8 (21.05%)	9 (24.32%)
59	Continuous: Sleep time (Hours/day)	38/38	7.37 (0.84)	7.57 (0.86)
			5.5-9	6-9.5
60	Has your health care provider ever told you that you have any of the following conditions?	38/38		
	Binary: 1=Anxiety; 0=Otherwise		2 (5.26%); 36 (94.74%)	3 (7.89%); 35 (92.11%)
	Binary: 1=Depression; 0=Otherwise		3 (7.89%); 35 (92.11%)	5 (13.16%); 33 (86.84%)
	Binary: 1=Memory loss; 0=Otherwise		0 (0.00%); 38 (100.00%)	2 (5.26%); 36 (94.74%)
	Binary: 1=Obesity; 0=Otherwise		3 (7.89%); 35 (92.11%)	3 (7.89%); 35 (92.11%)
	Binary: 1=Low vision/blindness; 0=Otherwise		0 (0.00%); 38 (100.00%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Hearing loss or deafness; 0=Otherwise		8 (21.05%); 30 (78.95%)	9 (23.68%); 29 (76.32%)
	Binary: 1=Asthma; 0=Otherwise		4 (10.53%); 34 (89.47%)	4 (10.53%); 34 (89.47%)
	Binary: 1=Diabetes; 0=Otherwise		3 (7.89%); 35 (92.11%)	2 (5.26%); 36 (94.74%)
	Binary: 1=High cholesterol; 0=Otherwise		13 (34.21%); 25 (65.79%)	12 (31.58%); 26 (68.42%)
	Binary: 1=Hypertension; 0=Otherwise		7 (18.42%); 31 (81.58%)	8 (21.05%); 30 (78.95%)
	Binary: 1=Stroke; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Cancer; 0=Otherwise		5 (13.16%); 33 (86.84%)	5 (13.16%); 33 (86.84%)
	Binary: 1=Osteoporosis/brittle bones; 0=Otherwise		7 (18.42%); 31 (81.58%)	8 (21.05%); 30 (78.95%)
	Binary: 1=Arthritis; 0=Otherwise		16 (42.11%); 22 (57.89%)	12 (31.58%); 26 (68.42%)
	Binary: 1=Spinal/back disorder; 0=Otherwise		4 (10.53%); 34 (89.47%)	4 (10.53%); 34 (89.47%)
	Binary: 1=ENT disorder; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Thyroid disease; 0=Otherwise		5 (13.16%); 33 (86.84%)	7 (18.42%); 31 (81.58%)
	Binary: 1=Heart disease; 0=Otherwise		2 (5.26%); 36 (94.74%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Sleep disorders; 0=Otherwise		3 (7.89%); 35 (92.11%)	4 (10.53%); 34 (89.47%)
	Binary: 1=C.O.P.D.; 0=Otherwise		2 (5.26%); 36 (94.74%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Kidney disease; 0=Otherwise		1 (2.63%); 37 (97.37%)	1 (2.63%); 37 (97.37%)
	Binary: 1=Urinary incontinence; 0=Otherwise		5 (13.16%); 33 (86.84%)	3 (7.89%); 35 (92.11%)
	Binary: 1=Other, specify; 0=Otherwise		7 (18.42%); 31 (81.58%)	6 (15.79%); 32 (84.21%)
	Binary: 1=None of the above; 0=Otherwise		4 (10.53%); 34 (89.47%)	2 (5.26%); 36 (94.74%)
61	Three categories: Difficulty hearing	38/38		
	0=No		30 (78.95%)	33 (86.84%)
	1=Yes		6 (15.79%)	5 (13.16%)
	2=Don't know/prefer not to answer		2 (5.26%)	0 (0.00%)
62	Three categories: Difficulty seeing	38/37		
	0=No		36 (94.74%)	37 (100%)
	1=Yes		1 (2.63%)	0 (0.00%)
	2=Don't know/prefer not to answer		1 (2.63%)	0 (0.00%)
63	Three categories: Difficulty walking or climbing stairs	38/38		
	0=No		34 (89.47%)	36 (94.74%)
	1=Yes		4 (10.53%)	2 (5.26%)
	2=Don't know/prefer not to answer		0 (0.00%)	0 (0.00%)
64	Three categories: Difficulty dressing or bathing	38/37		
	0=No		36 (94.74%)	36 (97.3%)
	1=Yes		2 (5.26%)	1 (2.7%)
	2=Don't know/prefer not to answer		0 (0.00%)	0 (0.00%)
65	Three categories: Difficulty concentrating, remembering, or making decisions	38/38		
	0=No		35 (92.11%)	34 (89.47%)
	1=Yes		2 (5.26%)	3 (7.89%)
	2=Don't know/prefer not to answer		1 (2.63%)	1 (2.63%)

Q	Description	Obs T/RT	Test (n=38) Mean/Frequency (SD/%) Minimum-Maximum	Retest (n=38) Mean/Frequency (SD/%) Minimum-Maximum
66	Three categories: Difficulty doing errands alone	38/38		
	0=No		36 (94.74%)	37 (97.37%)
	1=Yes		2 (5.26%)	1 (2.63%)
	2=Don't know/prefer not to answer		0 (0.00%)	0 (0.00%)
67	Continuous: Alcoholic beverages (drinks/week)	38/38	3.16 (4.16)	2.89 (4.27)
			0-14	0-14
68	Two categories: Smoking	38/38		
	0=No		38 (100.00%)	38 (100.00%)
	1=Yes		0 (0.00%)	0 (0.00%)
69	Seven categories: Which of the following do you use MOST OFTEN to get around?	38/36		
	1=Need no assistance to get around		36 (94.74%)	34 (94.44%)
	2=Power scooter		0 (0.00%)	0 (0.00%)
	3=Wheelchair		0 (0.00%)	0 (0.00%)
	4=Walker with seat		1 (2.63%)	0 (0.00%)
	5=Walker		1 (2.63%)	1 (2.78%)
	6=Cane		0 (0.00%)	1 (2.78%)
70	Two categories: Do you have a valid driver's license?	38/37		
	0=No		0 (0.00%)	0 (0.00%)
	1=Yes		38 (100%)	37 (100%)
71.1	Two categories: Have you fallen in the past 12 months?	38/37		
	0=No		30 (78.95%)	30 (81.08%)
	1=Yes		8 (21.05%)	7 (18.92%)
71.2	Continuous: Number of falls that caused an injury		0.21 (0.58)	0.11 (0.32)
			0-3	0-1
72.1	Four categories: Fall indoors at home	38/37		
	0=0 times		36 (94.74%)	35 (94.59%)
	1=1-2 times		2 (5.26%)	1 (2.70%)
	2=3-5 times		0 (0.00%)	1 (2.70%)
	3=6 times or more		0 (0.00%)	0 (0.00%)
72.2	Four categories: Fall indoors in other buildings	38/37		
	0=0 times		37 (97.37%)	36 (97.30%)
	1=1-2 times		1 (2.63%)	1 (2.70%)
	2=3-5 times		0 (0.00%)	0 (0.00%)
	3=6 times or more		0 (0.00%)	0 (0.00%)
72.3	Four categories: Fall outdoors at home	38/37		
	0=0 times		34 (89.47%)	34 (91.89%)
	1=1-2 times		4 (10.53%)	2 (5.41%)
	2=3-5 times		0 (0.00%)	1 (2.70%)
	3=6 times or more		0 (0.00%)	0 (0.00%)
72.4	Four categories: Fall outdoors in your neighborhood	38/37		
	0=0 times		38 (100.00%)	36 (97.30%)
	1=1-2 times		0 (0.00%)	1 (2.70%)
	2=3-5 times		0 (0.00%)	0 (0.00%)
	3=6 times or more		0 (0.00%)	0 (0.00%)
72.5	Four categories: Fall outdoors outside your neighborhood	38/37		
	0=0 times		34 (89.47%)	35 (94.59%)
	1=1-2 times		4 (10.53%)	1 (2.70%)
	2=3-5 times		0 (0.00%)	1 (2.70%)
	3=6 times or more		0 (0.00%)	0 (0.00%)
73	Have you experienced any of the following life events during the past three years?	37/37		
	Binary: 1=Personal illness; 0=Otherwise		18 (48.65%); 19 (51.35%)	19 (51.35%); 18 (48.65%)
	Binary: 1=Death of a spouse; 0=Otherwise		0 (0.00%); 37 (100.00%)	0 (0.00%); 37 (100.00%)
	Binary: 1=Death of a family member; 0=Otherwise		17 (45.95%); 20 (54.05%)	15 (40.54%); 22 (59.46%)
	Binary: 1=Illness of a spouse; 0=Otherwise		10 (27.03%); 27 (72.97%)	8 (21.62%); 29 (78.38%)
	Binary: 1=Illness of a family member; 0=Otherwise		15 (40.54%); 22 (59.46%)	13 (35.14%); 24 (64.86%)
	Binary: 1=Non-medical events; 0=Otherwise		2 (5.41%); 35 (94.59%)	1 (2.70%); 36 (97.30%)
	Binary: 1=Other, specify; 0=Otherwise		1 (2.70%); 36 (97.30%)	1 (2.70%); 36 (97.30%)
	Binary: 1=None of the above; 0=Otherwise		8 (21.62%); 29 (78.38%)	8 (21.62%); 29 (78.38%)
75	Two categories: Did you complete the survey by yourself?	38/36		
	0=No		0 (0.00%)	0 (0.00%)
	1=Yes		38 (100.00%)	36 (100.00%)
76.1	Two categories: Is the neighborhood definition in the survey consistent with how you may define your neighborhood personally?	38/37		
	0=No		5 (13.16%)	6 (16.22%)
	1=Yes		33 (86.84%)	31 (83.78%)
76.2	Six categories: Neighborhood definition	38/37		
	1=An area immediately surrounding my house		1 (2.63%)	0 (0.00%)
	2=My subdivision (if applicable)		0 (0.00%)	0 (0.00%)
	3=An area within a 5-minute walk from my home		0 (0.00%)	0 (0.00%)
	4=An area within a 10-15 minute walk from my home		33 (86.84%)	31 (83.78%)
	5=An area within a 20-30 minute walk from my home		3 (7.89%)	3 (8.11%)
	6=Others, specify		1 (2.63%)	3 (8.11%)

APPENDIX D

FULL SURVEY DESCRIPTIVE STATISTICS

Section 1. About Your Physical Activities and Walking

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
1.1	Eight categories: Days spending on light physical activity in a typical week	449	
	0=No Day		7 (1.6%)
	1=1 Day		6 (1.3%)
	2=2 Days		8 (1.8%)
	3=3 Days		23 (5.1%)
	4=4 Days		20 (4.5%)
	5=5 Days		35 (7.8%)
	6= 6 Days		21 (4.7%)
	7=7 Days		329 (73.3%)
1.2	Continuous: Light physical activity time (minutes/day)	449	111.85 (114.95)
			0-720
2.1	Eight categories: Days spending on moderate physical activity in a typical week	448	
	0=No Day		36 (8%)
	1=1 Day		34 (7.6%)
	2=2 Days		61 (13.6%)
	3=3 Days		86 (19.2%)
	4=4 Days		66 (14.7%)
	5=5 Days		50 (11.2%)
	6= 6 Days		26 (5.8%)
	7=7 Days		89 (19.9%)
2.2	Continuous: Moderate physical activity time (minutes/day)	445	77.16 (80.17)
			0-720
3.1	Eight categories: Days spending on vigorous physical activity in a typical week	446	
	0=No Day		248 (55.6%)
	1=1 Day		67 (15.0%)
	2=2 Days		49 (11%)
	3=3 Days		36 (8.1%)
	4=4 Days		12 (2.7%)
	5=5 Days		15 (3.4%)
	6= 6 Days		6 (1.3%)
	7=7 Days		13 (2.9%)
3.2	Continuous: Vigorous physical activity time (minutes/day)	449	31.31 (53.95)
			0-380
4.1	Eight categories: Days spending on all-purpose walking in a typical week	442	
	0=No Day		20 (4.5%)
	1=1 Day		11 (2.5%)
	2=2 Days		31 (7%)
	3=3 Days		42 (9.5%)
	4=4 Days		26 (5.9%)
	5=5 Days		53 (12%)
	6= 6 Days		26 (5.9%)
	7=7 Days		233 (52.7%)
4.2	Continuous: All-purpose walking time (minutes/day)	440	78.9 (87.65)
			0-540
5.1	Eight categories: Days spending on transportation walking in a typical week	441	
	0=No Day		246 (55.8%)
	1=1 Day		43 (9.8%)
	2=2 Days		31 (7%)
	3=3 Days		30 (6.8%)
	4=4 Days		18 (4.1%)
	5=5 Days		27 (6.1%)
	6= 6 Days		8 (1.8%)
	7=7 Days		38 (8.6%)
5.2	Continuous: Transportation walking time (minutes/day)	443	24.5 (55.37)
			0-510

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
6.1	Eight categories: Days spending on recreational walking in a typical week	442	
	0=No Day		118 (26.7%)
	1=1 Day		46 (10.4%)
	2=2 Days		51 (11.5%)
	3=3 Days		62 (14%)
	4=4 Days		37 (8.4%)
	5=5 Days		32 (7.2%)
	6= 6 Days		26 (5.9%)
	7=7 Days		70 (15.8%)
6.2	Continuous: Recreational walking time (minutes/day)	441	40.78 (50.07)
			0-360
7.1	Continuous: Sedentary activity time on a week day (hours/day)	450	5.71 (3.46)
			0-23.5
7.2	Continuous: Sedentary activity time on a weekend day (hours/day)	444	5.32 (3.24)
			0-24

Section 2. About Your Quality of Life and Mental Health

Q	Description	T/RT	Mean/Frequency (SD/%) Minimum-Maximum
8	Five categories: Quality of life	454	
	1=Very poor		3 (0.7%)
	2=Poor		11 (2.4%)
	3=Neither poor nor good		32 (7%)
	4=Good		224 (49.3%)
	5=Very good		184 (40.5%)
9	Five categories: Health	454	
	1=Very dissatisfied		9 (2%)
	2=Dissatisfied		60 (13.2%)
	3=Neither satisfied nor dissatisfied		79 (17.4%)
	4=Satisfied		200 (44.1%)
	5=Very satisfied		106 (23.3%)
10.1	Four categories: I was bothered by things that usually don't bother me.	453	
	1=Rarely or none of the time		304 (67.1%)
	2=Some or a little of the time		109 (24.1%)
	3=Occasionally or a moderate amount of time		32 (7.1%)
	4=Most or all of the time		8 (1.8%)
10.2	Four categories: I did not feel like eating; my appetite was poor.	451	
	1=Rarely or none of the time		372 (82.5%)
	2=Some or a little of the time		49 (10.9%)
	3=Occasionally or a moderate amount of time		23 (5.1%)
	4=Most or all of the time		7 (1.6%)
10.3	Four categories: I felt that I could not shake off the blues even with help from my family or friends.	450	
	1=Rarely or none of the time		355 (78.9%)
	2=Some or a little of the time		57 (12.7%)
	3=Occasionally or a moderate amount of time		25 (5.6%)
	4=Most or all of the time		13 (2.9%)
10.4	Four categories: I felt I was just as good as other people.	451	
	1=Rarely or none of the time		75 (16.6%)
	2=Some or a little of the time		34 (7.5%)
	3=Occasionally or a moderate amount of time		41 (9.1%)
	4=Most or all of the time		301 (66.7%)
10.5	Four categories: I had trouble keeping my mind on what I was doing.	452	
	1=Rarely or none of the time		247 (54.6%)
	2=Some or a little of the time		123 (27.2%)
	3=Occasionally or a moderate amount of time		69 (15.3%)
	4=Most or all of the time		13 (2.9%)
10.6	Four categories: I felt depressed.	453	
	1=Rarely or none of the time		319 (70.4%)
	2=Some or a little of the time		95 (21%)
	3=Occasionally or a moderate amount of time		24 (5.3%)
	4=Most or all of the time		15 (3.3%)
10.7	Four categories: I felt that everything I did was an effort.	450	
	1=Rarely or none of the time		268 (59.6%)
	2=Some or a little of the time		122 (27.1%)
	3=Occasionally or a moderate amount of time		34 (7.6%)
	4=Most or all of the time		26 (5.8%)
10.8	Four categories: I felt hopeful about the future.	449	
	1=Rarely or none of the time		70 (15.6%)
	2=Some or a little of the time		54 (12%)
	3=Occasionally or a moderate amount of time		105 (23.4%)
	4=Most or all of the time		220 (49%)

Q	Description	T/RT	Mean/Frequency (SD/%) Minimum-Maximum
10.9	Four categories: I thought my life had been a failure.	451	
	1=Rarely or none of the time		371 (82.3%)
	2=Some or a little of the time		43 (9.5%)
	3=Occasionally or a moderate amount of time		22 (4.9%)
	4=Most or all of the time		15 (3.3%)
10.10	Four categories: I felt fearful.	452	
	1=Rarely or none of the time		354 (78.3%)
	2=Some or a little of the time		68 (15%)
	3=Occasionally or a moderate amount of time		18 (4%)
	4=Most or all of the time		12 (2.7%)
10.11	Four categories: My sleep was restless.	452	
	1=Rarely or none of the time		166 (36.7%)
	2=Some or a little of the time		149 (33%)
	3=Occasionally or a moderate amount of time		96 (21.2%)
	4=Most or all of the time		41 (9.1%)
10.12	Four categories: I was happy.	447	
	1=Rarely or none of the time		38 (8.5%)
	2=Some or a little of the time		41 (9.2%)
	3=Occasionally or a moderate amount of time		116 (26%)
	4=Most or all of the time		252 (56.4%)
10.13	Four categories: I talked less than usual.	449	
	1=Rarely or none of the time		276 (61.5%)
	2=Some or a little of the time		95 (21.2%)
	3=Occasionally or a moderate amount of time		55 (12.2%)
	4=Most or all of the time		23 (5.1%)
10.14	Four categories: I felt lonely.	449	
	1=Rarely or none of the time		294 (65.5%)
	2=Some or a little of the time		92 (20.5%)
	3=Occasionally or a moderate amount of time		46 (10.2%)
	4=Most or all of the time		17 (3.8%)
10.15	Four categories: People were unfriendly.	450	
	1=Rarely or none of the time		366 (81.3%)
	2=Some or a little of the time		60 (13.3%)
	3=Occasionally or a moderate amount of time		18 (4%)
	4=Most or all of the time		6 (1.3%)
10.16	Four categories: I enjoyed life.	453	
	1=Rarely or none of the time		33 (7.3%)
	2=Some or a little of the time		37 (8.2%)
	3=Occasionally or a moderate amount of time		104 (23%)
	4=Most or all of the time		279 (61.6%)
10.17	Four categories: I had crying spells.	449	
	1=Rarely or none of the time		404 (90%)
	2=Some or a little of the time		31 (6.9%)
	3=Occasionally or a moderate amount of time		10 (2.2%)
	4=Most or all of the time		4 (0.9%)
10.18	Four categories: I felt sad.	450	
	1=Rarely or none of the time		307 (68.2%)
	2=Some or a little of the time		106 (23.6%)
	3=Occasionally or a moderate amount of time		30 (6.7%)
	4=Most or all of the time		7 (1.6%)
10.19	Four categories: I felt that people disliked me.	451	
	1=Rarely or none of the time		378 (83.8%)
	2=Some or a little of the time		44 (9.8%)
	3=Occasionally or a moderate amount of time		20 (4.4%)
	4=Most or all of the time		9 (2%)
10.20	Four categories: I could not get going.	452	
	1=Rarely or none of the time		294 (65%)
	2=Some or a little of the time		102 (22.6%)
	3=Occasionally or a moderate amount of time		39 (8.6%)
	4=Most or all of the time		17 (3.8%)

Section 3. About Your Intergenerational and Other Social Activities (All)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
11.1	Your home or your neighbor's home (indoor)	442	
	Binary: 1=Rarely or don't visit; 0=Otherwise		79 (17.9%); 363 (82.1%)
	Binary: 1=Children; 0=Otherwise		84 (19%); 358 (81%)
	Binary: 1=Teenagers; 0=Otherwise		39 (8.8%); 403 (91.2%)
	Binary: 1=Adults; 0=Otherwise		239 (54.1%); 203 (45.9%)
	Binary: 1=Older adults; 0=Otherwise		172 (38.9%); 270 (61.1%)
	Binary: 1=No interaction; 0=Otherwise		44 (10%); 398 (90%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
11.2	Your home or your neighbor's home (outdoor)	442	
	Binary: 1=Rarely or don't visit; 0=Otherwise		74 (16.7%); 368 (83.3%)
	Binary: 1=Children; 0=Otherwise		75 (17%); 367 (83%)
	Binary: 1=Teenagers; 0=Otherwise		35 (7.9%); 407 (92.1%)
	Binary: 1=Adults; 0=Otherwise		252 (57%); 190 (43%)
	Binary: 1=Older adults; 0=Otherwise		154 (34.8%); 288 (65.2%)
	Binary: 1=No interaction; 0=Otherwise		50 (11.3%); 392 (88.7%)
11.3	Street (on the street / sidewalks)	436	
	Binary: 1=Rarely or don't visit; 0=Otherwise		111 (25.5%); 325 (74.5%)
	Binary: 1=Children; 0=Otherwise		73 (16.7%); 363 (83.3%)
	Binary: 1=Teenagers; 0=Otherwise		51 (11.7%); 385 (88.3%)
	Binary: 1=Adults; 0=Otherwise		225 (51.6%); 211 (48.4%)
	Binary: 1=Older adults; 0=Otherwise		122 (28%); 314 (72%)
	Binary: 1=No interaction; 0=Otherwise		64 (14.7%); 372 (85.3%)
11.4	Park / trail	432	
	Binary: 1=Rarely or don't visit; 0=Otherwise		171 (39.6%); 261 (60.4%)
	Binary: 1=Children; 0=Otherwise		35 (8.1%); 397 (91.9%)
	Binary: 1=Teenagers; 0=Otherwise		27 (6.3%); 405 (93.8%)
	Binary: 1=Adults; 0=Otherwise		139 (32.2%); 293 (67.8%)
	Binary: 1=Older adults; 0=Otherwise		65 (15%); 367 (85%)
	Binary: 1=No interaction; 0=Otherwise		99 (22.9%); 333 (77.1%)
11.5	Restaurant	440	
	Binary: 1=Rarely or don't visit; 0=Otherwise		75 (17%); 365 (83%)
	Binary: 1=Children; 0=Otherwise		47 (10.7%); 393 (89.3%)
	Binary: 1=Teenagers; 0=Otherwise		48 (10.9%); 392 (89.1%)
	Binary: 1=Adults; 0=Otherwise		267 (60.7%); 173 (39.3%)
	Binary: 1=Older adults; 0=Otherwise		154 (35%); 286 (65%)
	Binary: 1=No interaction; 0=Otherwise		45 (10.2%); 395 (89.8%)
11.6	Coffee place / bakery	432	
	Binary: 1=Rarely or don't visit; 0=Otherwise		178 (41.2%); 254 (58.8%)
	Binary: 1=Children; 0=Otherwise		12 (2.8%); 420 (97.2%)
	Binary: 1=Teenagers; 0=Otherwise		17 (3.9%); 415 (96.1%)
	Binary: 1=Adults; 0=Otherwise		148 (34.3%); 284 (65.7%)
	Binary: 1=Older adults; 0=Otherwise		78 (18.1%); 354 (81.9%)
	Binary: 1=No interaction; 0=Otherwise		81 (18.8%); 351 (81.3%)
11.7	Community center / senior center	434	
	Binary: 1=Rarely or don't visit; 0=Otherwise		140 (32.3%); 294 (67.7%)
	Binary: 1=Children; 0=Otherwise		5 (1.2%); 429 (98.8%)
	Binary: 1=Teenagers; 0=Otherwise		6 (1.4%); 428 (98.6%)
	Binary: 1=Adults; 0=Otherwise		131 (30.2%); 303 (69.8%)
	Binary: 1=Older adults; 0=Otherwise		201 (46.3%); 233 (53.7%)
	Binary: 1=No interaction; 0=Otherwise		49 (11.3%); 385 (88.7%)
11.8	Church	441	
	Binary: 1=Rarely or don't visit; 0=Otherwise		155 (35.1%); 286 (64.9%)
	Binary: 1=Children; 0=Otherwise		70 (15.9%); 371 (84.1%)
	Binary: 1=Teenagers; 0=Otherwise		63 (14.3%); 378 (85.7%)
	Binary: 1=Adults; 0=Otherwise		187 (42.4%); 254 (57.6%)
	Binary: 1=Older adults; 0=Otherwise		147 (33.3%); 294 (66.7%)
	Binary: 1=No interaction; 0=Otherwise		68 (15.4%); 373 (84.6%)
11.9	Child daycare	428	
	Binary: 1=Rarely or don't visit; 0=Otherwise		272 (63.6%); 156 (36.4%)
	Binary: 1=Children; 0=Otherwise		12 (2.8%); 416 (97.2%)
	Binary: 1=Teenagers; 0=Otherwise		1 (0.2%); 427 (99.8%)
	Binary: 1=Adults; 0=Otherwise		6 (1.4%); 422 (98.6%)
	Binary: 1=Older adults; 0=Otherwise		3 (0.7%); 425 (99.3%)
	Binary: 1=No interaction; 0=Otherwise		141 (32.9%); 287 (67.1%)
11.10	School / university	430	
	Binary: 1=Rarely or don't visit; 0=Otherwise		227 (52.8%); 203 (47.2%)
	Binary: 1=Children; 0=Otherwise		19 (4.4%); 411 (95.6%)
	Binary: 1=Teenagers; 0=Otherwise		20 (4.7%); 410 (95.3%)
	Binary: 1=Adults; 0=Otherwise		65 (15.1%); 365 (84.9%)
	Binary: 1=Older adults; 0=Otherwise		35 (8.1%); 395 (91.9%)
	Binary: 1=No interaction; 0=Otherwise		121 (28.1%); 309 (71.9%)
11.11	Library / book store	436	
	Binary: 1=Rarely or don't visit; 0=Otherwise		170 (39%); 266 (61%)
	Binary: 1=Children; 0=Otherwise		21 (4.8%); 415 (95.2%)
	Binary: 1=Teenagers; 0=Otherwise		19 (4.4%); 417 (95.6%)
	Binary: 1=Adults; 0=Otherwise		147 (33.7%); 289 (66.3%)
	Binary: 1=Older adults; 0=Otherwise		72 (16.5%); 364 (83.5%)
	Binary: 1=No interaction; 0=Otherwise		98 (22.5%); 338 (77.5%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
11.12	Convenience store / small grocery store	434	
	Binary: 1=Rarely or don't visit; 0=Otherwise		158 (36.4%); 276 (63.6%)
	Binary: 1=Children; 0=Otherwise		26 (6%); 408 (94%)
	Binary: 1=Teenagers; 0=Otherwise		31 (7.1%); 403 (92.9%)
	Binary: 1=Adults; 0=Otherwise		178 (41%); 256 (59%)
	Binary: 1=Older adults; 0=Otherwise		75 (17.3%); 359 (82.7%)
	Binary: 1=No interaction; 0=Otherwise		78 (18%); 356 (82%)
11.13	Supermarket	446	
	Binary: 1=Rarely or don't visit; 0=Otherwise		66 (14.8%); 380 (85.2%)
	Binary: 1=Children; 0=Otherwise		46 (10.3%); 400 (89.7%)
	Binary: 1=Teenagers; 0=Otherwise		66 (14.8%); 380 (85.2%)
	Binary: 1=Adults; 0=Otherwise		315 (70.6%); 131 (29.4%)
	Binary: 1=Older adults; 0=Otherwise		145 (32.5%); 301 (67.5%)
	Binary: 1=No interaction; 0=Otherwise		41 (9.2%); 405 (90.8%)
11.14	Fruit / vegetable market	429	
	Binary: 1=Rarely or don't visit; 0=Otherwise		201 (46.9%); 228 (53.1%)
	Binary: 1=Children; 0=Otherwise		18 (4.2%); 411 (95.8%)
	Binary: 1=Teenagers; 0=Otherwise		20 (4.7%); 409 (95.3%)
	Binary: 1=Adults; 0=Otherwise		115 (26.8%); 314 (73.2%)
	Binary: 1=Older adults; 0=Otherwise		54 (12.6%); 375 (87.4%)
	Binary: 1=No interaction; 0=Otherwise		100 (23.3%); 329 (76.7%)
11.15	Laundry / dry cleaner	433	
	Binary: 1=Rarely or don't visit; 0=Otherwise		246 (56.8%); 187 (43.2%)
	Binary: 1=Children; 0=Otherwise		2 (0.5%); 431 (99.5%)
	Binary: 1=Teenagers; 0=Otherwise		3 (0.7%); 430 (99.3%)
	Binary: 1=Adults; 0=Otherwise		74 (17.1%); 359 (82.9%)
	Binary: 1=Older adults; 0=Otherwise		19 (4.4%); 414 (95.6%)
	Binary: 1=No interaction; 0=Otherwise		102 (23.6%); 331 (76.4%)
11.16	Clothing store	430	
	Binary: 1=Rarely or don't visit; 0=Otherwise		178 (41.4%); 252 (58.6%)
	Binary: 1=Children; 0=Otherwise		9 (2.1%); 421 (97.9%)
	Binary: 1=Teenagers; 0=Otherwise		16 (3.7%); 414 (96.3%)
	Binary: 1=Adults; 0=Otherwise		166 (38.6%); 264 (61.4%)
	Binary: 1=Older adults; 0=Otherwise		61 (14.2%); 369 (85.8%)
	Binary: 1=No interaction; 0=Otherwise		72 (16.7%); 358 (83.3%)
11.17	Post office / bank / credit union	439	
	Binary: 1=Rarely or don't visit; 0=Otherwise		134 (30.5%); 305 (69.5%)
	Binary: 1=Children; 0=Otherwise		4 (0.9%); 435 (99.1%)
	Binary: 1=Teenagers; 0=Otherwise		8 (1.8%); 431 (98.2%)
	Binary: 1=Adults; 0=Otherwise		228 (51.9%); 211 (48.1%)
	Binary: 1=Older adults; 0=Otherwise		68 (15.5%); 371 (84.5%)
	Binary: 1=No interaction; 0=Otherwise		53 (12.1%); 386 (87.9%)
11.18	Pharmacy / drug store	438	
	Binary: 1=Rarely or don't visit; 0=Otherwise		115 (26.3%); 323 (73.7%)
	Binary: 1=Children; 0=Otherwise		8 (1.8%); 430 (98.2%)
	Binary: 1=Teenagers; 0=Otherwise		18 (4.1%); 420 (95.9%)
	Binary: 1=Adults; 0=Otherwise		245 (55.9%); 193 (44.1%)
	Binary: 1=Older adults; 0=Otherwise		81 (18.5%); 357 (81.5%)
	Binary: 1=No interaction; 0=Otherwise		51 (11.6%); 387 (88.4%)
11.19	Salon / barber shop	431	
	Binary: 1=Rarely or don't visit; 0=Otherwise		170 (39.4%); 261 (60.6%)
	Binary: 1=Children; 0=Otherwise		4 (0.9%); 427 (99.1%)
	Binary: 1=Teenagers; 0=Otherwise		2 (0.5%); 429 (99.5%)
	Binary: 1=Adults; 0=Otherwise		189 (43.9%); 242 (56.1%)
	Binary: 1=Older adults; 0=Otherwise		50 (11.6%); 381 (88.4%)
	Binary: 1=No interaction; 0=Otherwise		53 (12.3%); 378 (87.7%)
11.20	Bus stop / light rail station	431	
	Binary: 1=Rarely or don't visit; 0=Otherwise		257 (59.6%); 174 (40.4%)
	Binary: 1=Children; 0=Otherwise		8 (1.9%); 423 (98.1%)
	Binary: 1=Teenagers; 0=Otherwise		10 (2.3%); 421 (97.7%)
	Binary: 1=Adults; 0=Otherwise		48 (11.1%); 383 (88.9%)
	Binary: 1=Older adults; 0=Otherwise		24 (5.6%); 407 (94.4%)
	Binary: 1=No interaction; 0=Otherwise		119 (27.6%); 312 (72.4%)
11.21	Gym / fitness facility / recreation center	433	
	Binary: 1=Rarely or don't visit; 0=Otherwise		121 (27.9%); 312 (72.1%)
	Binary: 1=Children; 0=Otherwise		11 (2.5%); 422 (97.5%)
	Binary: 1=Teenagers; 0=Otherwise		16 (3.7%); 417 (96.3%)
	Binary: 1=Adults; 0=Otherwise		187 (43.2%); 246 (56.8%)
	Binary: 1=Older adults; 0=Otherwise		150 (34.6%); 283 (65.4%)
	Binary: 1=No interaction; 0=Otherwise		73 (16.9%); 360 (83.1%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
12.1	Three categories: Time spending with children	436	
	1=Too much		3 (0.7%)
	2=About enough		251 (57.6%)
	3=No enough		182 (41.7%)
12.2	Three categories: Time spending with teenagers	429	
	1=Too much		4 (0.9%)
	2=About enough		225 (52.4%)
	3=No enough		200 (46.6%)
12.3	Three categories: Time spending with adults	453	
	1=Too much		8 (1.8%)
	2=About enough		348 (76.8%)
	3=No enough		97 (21.4%)
12.4	Three categories: Time spending with older adults	450	
	1=Too much		14 (3.1%)
	2=About enough		361 (80.2%)
	3=No enough		75 (16.7%)
13.1	Two categories: Any volunteer work		
	0=No	452	176 (38.9%)
	1=Yes		276 (61.1%)
13.2	Continuous: Volunteer work time (hours/month)	441	10.6 (18.35)
			0-180
14.1	Social interactions in the neighborhood while doing volunteer work	389	
	Binary: 1=Interaction with children; 0=Otherwise		34 (8.7%); 355 (91.3%)
	Binary: 1=Interaction with teenagers; 0=Otherwise		24 (6.2%); 365 (93.8%)
	Binary: 1=Interaction with adults; 0=Otherwise		112 (28.8%); 277 (71.2%)
	Binary: 1=Interaction with older adults; 0=Otherwise		89 (22.9%); 300 (77.1%)
	Binary: 1=None; 0=Otherwise		245 (63%); 144 (37%)
14.2	Social interactions outside the neighborhood while doing volunteer work	441	
	Binary: 1=Interaction with children; 0=Otherwise		64 (14.5%); 377 (85.5%)
	Binary: 1=Interaction with teenagers; 0=Otherwise		50 (11.3%); 391 (88.7%)
	Binary: 1=Interaction with adults; 0=Otherwise		198 (44.9%); 243 (55.1%)
	Binary: 1=Interaction with older adults; 0=Otherwise		163 (37%); 278 (63%)
	Binary: 1=None; 0=Otherwise		198 (44.9%); 243 (55.1%)
15.1	Four categories: Digital communication with children	374	
	1=0 days		280 (74.9%)
	2=1-2 days		59 (15.8%)
	3=3-4 days		14 (3.7%)
	4=5-7 days		21 (5.6%)
15.2	Four categories: Digital communication with teenagers	377	
	1=0 days		275 (72.9%)
	2=1-2 days		69 (18.3%)
	3=3-4 days		17 (4.5%)
	4=5-7 days		16 (4.2%)
15.3	Four categories: Digital communication with adults	448	
	1=0 days		33 (7.4%)
	2=1-2 days		98 (21.9%)
	3=3-4 days		79 (17.6%)
	4=5-7 days		238 (53.1%)
15.4	Four categories: Digital communication with older adults	430	
	1=0 days		89 (20.7%)
	2=1-2 days		79 (18.4%)
	3=3-4 days		92 (21.4%)
	4=5-7 days		170 (39.5%)

Section 3. About Your Intergenerational and Other Social Activities (In the Neighborhood)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
16	Social Interactions in the neighborhood	452	
	1=None		92 (20.4%)
	2=A few/some		181 (40%)
	3=Half		77 (17%)
	4=Most		80 (17.7%)
	5=All		22 (4.9%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
17.1	Eight categories: Days spending outdoor in your neighborhood in a typical week	443	
	0=No Day		46 (10.4%)
	1=1 Day		30 (6.8%)
	2=2 Days		32 (7.2%)
	3=3 Days		52 (11.7%)
	4=4 Days		30 (6.8%)
	5=5 Days		59 (13.3%)
	6= 6 Days		25 (5.6%)
	7=7 Days		169 (38.1%)
17.2	Continuous: Outdoor time in the neighborhood (minutes/day)	436	63.63 (84.76)
			0-1080
18.1	Seven categories: Say hello to a neighbor	455	
	1=Seldom/never		18 (4%)
	2=Once a month		13 (2.9%)
	3=Twice a month		13 (2.9%)
	4=Once a week		50 (11%)
	5=A few days a week		173 (38%)
	6=Every day		114 (25.1%)
	7=More than once a day		74 (16.3%)
18.2	Seven categories: Stop and talk with a neighbor	455	
	1=Seldom/never		48 (10.5%)
	2=Once a month		35 (7.7%)
	3=Twice a month		31 (6.8%)
	4=Once a week		88 (19.3%)
	5=A few days a week		157 (34.5%)
	6=Every day		66 (14.5%)
	7=More than once a day		30 (6.6%)
18.3	Seven categories: Socialize with a neighbor	453	
	1=Seldom/never		188 (41.5%)
	2=Once a month		50 (11%)
	3=Twice a month		42 (9.3%)
	4=Once a week		61 (13.5%)
	5=A few days a week		64 (14.1%)
	6=Every day		27 (6%)
	7=More than once a day		21 (4.6%)
18.4	Seven categories: Ask for help	452	
	1=Seldom/never		225 (49.8%)
	2=Once a month		96 (21.2%)
	3=Twice a month		43 (9.5%)
	4=Once a week		34 (7.5%)
	5=A few days a week		30 (6.6%)
	6=Every day		14 (3.1%)
	7=More than once a day		10 (2.2%)
19.1	Five categories: Number of children you know	420	
	1=0		188 (44.8%)
	2=1-2		112 (26.7%)
	3=3-5		78 (18.6%)
	4=6-10		27 (6.4%)
	5=11 or over		15 (3.6%)
19.2	Five categories: Number of teenagers you know	421	
	1=0		241 (57.2%)
	2=1-2		103 (24.5%)
	3=3-5		51 (12.1%)
	4=6-10		8 (1.9%)
	5=11 or over		18 (4.3%)
19.3	Five categories: Number of adults you know	447	
	1=0		10 (2.2%)
	2=1-2		48 (10.7%)
	3=3-5		132 (29.5%)
	4=6-10		137 (30.6%)
	5=11 or over		120 (26.8%)
19.4	Five categories: Number of older adults you know	439	
	1=0		60 (13.7%)
	2=1-2		95 (21.6%)
	3=3-5		113 (25.7%)
	4=6-10		86 (19.6%)
	5=11 or over		85 (19.4%)
20.1	Four categories: Days spent watching children	438	
	1=0 days		296 (67.6%)
	2=1-2 days		97 (22.1%)
	3=3-4 days		30 (6.8%)
	4=5-7 days		15 (3.4%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
20.2	Four categories: Days spent watching teenagers	430	
	1=0 days		326 (75.8%)
	2=1-2 days		68 (15.8%)
	3=3-4 days		23 (5.3%)
	4=5-7 days		13 (3%)
20.3	Four categories: Days spent watching adults	447	
	1=0 days		224 (50.1%)
	2=1-2 days		100 (22.4%)
	3=3-4 days		79 (17.7%)
	4=5-7 days		44 (9.8%)
20.4	Four categories: Days spent watching older adults	435	
	1=0 days		248 (57%)
	2=1-2 days		68 (15.6%)
	3=3-4 days		74 (17%)
	4=5-7 days		45 (10.3%)
21.1	Four categories: Days spent interacting with children	428	
	1=0 days		301 (70.3%)
	2=1-2 days		90 (21%)
	3=3-4 days		22 (5.1%)
	4=5-7 days		15 (3.5%)
21.2	Four categories: Days spent interacting with teenagers	420	
	1=0 days		321 (76.4%)
	2=1-2 days		72 (17.1%)
	3=3-4 days		14 (3.3%)
	4=5-7 days		13 (3.1%)
21.3	Four categories: Days spent interacting with adults	448	
	1=0 days		89 (19.9%)
	2=1-2 days		158 (35.3%)
	3=3-4 days		117 (26.1%)
	4=5-7 days		84 (18.8%)
21.4	Four categories: Days spent interacting with old adults	435	
	1=0 days		132 (30.3%)
	2=1-2 days		131 (30.1%)
	3=3-4 days		93 (21.4%)
	4=5-7 days		79 (18.2%)
22.1	Walking you see in your neighborhood	449	
	Binary: 1=Children walking; 0=Otherwise		194 (43.2%); 255 (56.8%)
	Binary: 1=Teenagers walking; 0=Otherwise		176 (39.2%); 273 (60.8%)
	Binary: 1=Adults walking; 0=Otherwise		384 (85.5%); 65 (14.5%)
	Binary: 1=Older adults walking; 0=Otherwise		265 (59%); 184 (41%)
	Binary: 1=None; 0=Otherwise		22 (4.9%); 427 (95.1%)
22.2	Biking you see in your neighborhood	438	
	Binary: 1=Children biking; 0=Otherwise		182 (41.6%); 256 (58.4%)
	Binary: 1=Teenagers biking; 0=Otherwise		169 (38.6%); 269 (61.4%)
	Binary: 1=Adults biking; 0=Otherwise		298 (68%); 140 (32%)
	Binary: 1=Older adults biking; 0=Otherwise		81 (18.5%); 357 (81.5%)
	Binary: 1=None; 0=Otherwise		72 (16.4%); 366 (83.6%)
22.3	Playing you see in your neighborhood	431	
	Binary: 1=Children playing; 0=Otherwise		282 (65.4%); 149 (34.6%)
	Binary: 1=Teenagers playing; 0=Otherwise		98 (22.7%); 333 (77.3%)
	Binary: 1=Adults playing; 0=Otherwise		64 (14.8%); 367 (85.2%)
	Binary: 1=Older adults playing; 0=Otherwise		28 (6.5%); 403 (93.5%)
	Binary: 1=None; 0=Otherwise		104 (24.1%); 327 (75.9%)
22.4	Sitting you see in your neighborhood	412	
	Binary: 1=Children sitting; 0=Otherwise		20 (4.9%); 392 (95.1%)
	Binary: 1=Teenagers sitting; 0=Otherwise		20 (4.9%); 392 (95.1%)
	Binary: 1=Adults sitting; 0=Otherwise		138 (33.5%); 274 (66.5%)
	Binary: 1=Older adults sitting; 0=Otherwise		95 (23.1%); 317 (76.9%)
	Binary: 1=None; 0=Otherwise		222 (53.9%); 190 (46.1%)
22.5	Working you see in your neighborhood	439	
	Binary: 1=Children working; 0=Otherwise		11 (2.5%); 428 (97.5%)
	Binary: 1=Teenagers working; 0=Otherwise		20 (4.6%); 419 (95.4%)
	Binary: 1=Adults working; 0=Otherwise		349 (79.5%); 90 (20.5%)
	Binary: 1=Older adults working; 0=Otherwise		177 (40.3%); 262 (59.7%)
	Binary: 1=None; 0=Otherwise		55 (12.5%); 384 (87.5%)
22.6	Socializing you see in your neighborhood	445	
	Binary: 1=Children socializing; 0=Otherwise		100 (22.5%); 345 (77.5%)
	Binary: 1=Teenagers socializing; 0=Otherwise		97 (21.8%); 348 (78.2%)
	Binary: 1=Adults socializing; 0=Otherwise		330 (74.2%); 115 (25.8%)
	Binary: 1=Older adults socializing; 0=Otherwise		207 (46.5%); 238 (53.5%)
	Binary: 1=None; 0=Otherwise		60 (13.5%); 385 (86.5%)

Section 3. About Your Intergenerational and Other Social Activities (Outside the Neighborhood)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
23.1	Four categories: Days spent watching children	426	
	1=0 days		281 (66%)
	2=1-2 days		97 (22.8%)
	3=3-4 days		36 (8.5%)
	4=5-7 days		12 (2.8%)
23.2	Four categories: Days spent watching teenagers	421	
	1=0 days		297 (70.5%)
	2=1-2 days		75 (17.8%)
	3=3-4 days		34 (8.1%)
	4=5-7 days		15 (3.6%)
23.3	Four categories: Days spent watching adults	444	
	1=0 days		168 (37.8%)
	2=1-2 days		110 (24.8%)
	3=3-4 days		102 (23%)
	4=5-7 days		64 (14.4%)
23.4	Four categories: Days spent watching older adults	438	
	1=0 days		190 (43.4%)
	2=1-2 days		103 (23.5%)
	3=3-4 days		94 (21.5%)
	4=5-7 days		51 (11.6%)
24.1	Four categories: Days spent interacting with children	419	
	1=0 days		277 (66.1%)
	2=1-2 days		100 (23.9%)
	3=3-4 days		23 (5.5%)
	4=5-7 days		19 (4.5%)
24.2	Four categories: Days spent interacting with teenagers	412	
	1=0 days		299 (72.6%)
	2=1-2 days		79 (19.2%)
	3=3-4 days		21 (5.1%)
	4=5-7 days		13 (3.2%)
24.3	Four categories: Days spent interacting with adults	451	
	1=0 days		73 (16.2%)
	2=1-2 days		142 (31.5%)
	3=3-4 days		130 (28.8%)
	4=5-7 days		106 (23.5%)
24.4	Four categories: Days spent interacting with old adults	439	
	1=0 days		92 (21%)
	2=1-2 days		133 (30.3%)
	3=3-4 days		118 (26.9%)
	4=5-7 days		96 (21.9%)

Section 4. About Your Neighborhood Environment

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
25_Y	Continuous: Move-in time (year)	435	1998.15 (15.59) 1953-2019
25_M	Twelve categories: Move-in time (month)	382	
	1=January		21 (5.5%)
	2=February		25 (6.5%)
	3=March		22 (5.8%)
	4=April		30 (7.9%)
	5=May		37 (9.7%)
	6=June		47 (12.3%)
	7=July		43 (11.3%)
	8=August		44 (11.5%)
	9=September		42 (11%)
	10=October		27 (7.1%)
	11=November		25 (6.5%)
	12=December		19 (5%)
26	Neighborhood characteristics	448	
	Binary: 1=Gated community; 0=Otherwise		27 (6%); 421 (94%)
	Binary: 1=Newly built neighborhood; 0=Otherwise		50 (11.2%); 398 (88.8%)
	Binary: 1=Retirement community; 0=Otherwise		13 (2.9%); 435 (97.1%)
	Binary: 1=Age restricted neighborhood; 0=Otherwise		19 (4.2%); 429 (95.8%)
	Binary: 1=Many senior residents; 0=Otherwise		120 (26.8%); 328 (73.2%)
	Binary: 1=Mixed land uses; 0=Otherwise		156 (34.8%); 292 (65.2%)
	Binary: 1=None of the above; 0=Otherwise		174 (38.8%); 274 (61.2%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
27.1	Four categories: Affordability (cost of housing)	444	
	1=Not at all important		24 (5.4%)
	2=Slightly important		41 (9.2%)
	3=Moderately important		95 (21.4%)
	4=Very important		284 (64%)
27.2	Four categories: Close to park and natural open space	434	
	1=Not at all important		70 (16.1%)
	2=Slightly important		85 (19.6%)
	3=Moderately important		121 (27.9%)
	4=Very important		158 (36.4%)
27.3	Four categories: Close to entertainment facilities	434	
	1=Not at all important		148 (34.1%)
	2=Slightly important		99 (22.8%)
	3=Moderately important		104 (24%)
	4=Very important		83 (19.1%)
27.4	Four categories: Close to public transportation	440	
	1=Not at all important		172 (39.1%)
	2=Slightly important		94 (21.4%)
	3=Moderately important		74 (16.8%)
	4=Very important		100 (22.7%)
27.5	Four categories: Close to shops and services	440	
	1=Not at all important		56 (12.7%)
	2=Slightly important		82 (18.6%)
	3=Moderately important		136 (30.9%)
	4=Very important		166 (37.7%)
27.6	Four categories: Close to family members	439	
	1=Not at all important		175 (39.9%)
	2=Slightly important		62 (14.1%)
	3=Moderately important		72 (16.4%)
	4=Very important		130 (29.6%)
27.7	Four categories: Close to friends	438	
	1=Not at all important		122 (27.9%)
	2=Slightly important		118 (26.9%)
	3=Moderately important		105 (24%)
	4=Very important		93 (21.2%)
27.8	Four categories: Presence of other older residents	438	
	1=Not at all important		188 (42.9%)
	2=Slightly important		102 (23.3%)
	3=Moderately important		93 (21.2%)
	4=Very important		55 (12.6%)
27.9	Four categories: Ease of walking	439	
	1=Not at all important		64 (14.6%)
	2=Slightly important		76 (17.3%)
	3=Moderately important		135 (30.8%)
	4=Very important		164 (37.4%)
27.10	Four categories: Sense of community	438	
	1=Not at all important		65 (14.8%)
	2=Slightly important		86 (19.6%)
	3=Moderately important		142 (32.4%)
	4=Very important		145 (33.1%)
27.11	Four categories: Neighborhood safety	441	
	1=Not at all important		22 (5%)
	2=Slightly important		41 (9.3%)
	3=Moderately important		115 (26.1%)
	4=Very important		263 (59.6%)
27.12	Four categories: Close to healthcare/medical facilities	438	
	1=Not at all important		73 (16.7%)
	2=Slightly important		93 (21.2%)
	3=Moderately important		144 (32.9%)
	4=Very important		128 (29.2%)
27.13	Four categories: Neighborhood aesthetics	438	
	1=Not at all important		41 (9.4%)
	2=Slightly important		79 (18%)
	3=Moderately important		157 (35.8%)
	4=Very important		161 (36.8%)
27.14	Four categories: Diversity of age groups	442	
	1=Not at all important		115 (26%)
	2=Slightly important		93 (21%)
	3=Moderately important		144 (32.6%)
	4=Very important		90 (20.4%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
27.15	Four categories: Diversity of ethnic groups	437	
	1=Not at all important		120 (27.5%)
	2=Slightly important		106 (24.3%)
	3=Moderately important		138 (31.6%)
	4=Very important		73 (16.7%)
27.16	Four categories: Access to supportive programs	437	
	1=Not at all important		237 (54.2%)
	2=Slightly important		84 (19.2%)
	3=Moderately important		53 (12.1%)
	4=Very important		63 (14.4%)
28.1	Four categories: I see many people being physically active in my neighborhood.	447	
	1=Strongly disagree		17 (3.8%)
	2=Somewhat disagree		31 (6.9%)
	3=Somewhat agree		173 (38.7%)
	4=Strongly agree		226 (50.6%)
28.2	Four categories: My neighbors could be counted on to help in case of need.	449	
	1=Strongly disagree		28 (6.2%)
	2=Somewhat disagree		42 (9.4%)
	3=Somewhat agree		176 (39.2%)
	4=Strongly agree		203 (45.2%)
28.3	Four categories: This is a close-knit neighborhood.	447	
	1=Strongly disagree		44 (9.8%)
	2=Somewhat disagree		120 (26.8%)
	3=Somewhat agree		187 (41.8%)
	4=Strongly agree		96 (21.5%)
28.4	Four categories: People in my neighborhood are willing to help their neighbors.	450	
	1=Strongly disagree		16 (3.6%)
	2=Somewhat disagree		58 (12.9%)
	3=Somewhat agree		214 (47.6%)
	4=Strongly agree		162 (36%)
28.5	Four categories: People in my neighborhood can be trusted.	444	
	1=Strongly disagree		13 (2.9%)
	2=Somewhat disagree		48 (10.8%)
	3=Somewhat agree		211 (47.5%)
	4=Strongly agree		172 (38.7%)
28.6	Four categories: People in my neighborhood generally do NOT get along with each other.	443	
	1=Strongly disagree		283 (63.9%)
	2=Somewhat disagree		116 (26.2%)
	3=Somewhat agree		39 (8.8%)
	4=Strongly agree		5 (1.1%)
28.7	Four categories: People in my neighborhood do NOT share the same values.	444	
	1=Strongly disagree		190 (42.8%)
	2=Somewhat disagree		154 (34.7%)
	3=Somewhat agree		86 (19.4%)
	4=Strongly agree		14 (3.2%)
29.1	Four categories: I can do most of my shopping at local stores.	454	
	1=Strongly disagree		13 (2.9%)
	2=Somewhat disagree		26 (5.7%)
	3=Somewhat agree		122 (26.9%)
	4=Strongly agree		293 (64.5%)
29.2	Four categories: Stores are within easy walking distance of my home.	451	
	1=Strongly disagree		149 (33%)
	2=Somewhat disagree		107 (23.7%)
	3=Somewhat agree		105 (23.3%)
	4=Strongly agree		90 (20%)
29.3	Four categories: Parking is difficult in local shopping areas.	452	
	1=Strongly disagree		179 (39.6%)
	2=Somewhat disagree		139 (30.8%)
	3=Somewhat agree		95 (21%)
	4=Strongly agree		39 (8.6%)
29.4	Four categories: There are many places to go within easy walking distance of my home.	453	
	1=Strongly disagree		138 (30.5%)
	2=Somewhat disagree		96 (21.2%)
	3=Somewhat agree		122 (26.9%)
	4=Strongly agree		97 (21.4%)
29.5	Four categories: It is easy to walk to a transit stop (bus, train) from my home.	451	
	1=Strongly disagree		94 (20.8%)
	2=Somewhat disagree		54 (12%)
	3=Somewhat agree		134 (29.7%)
	4=Strongly agree		169 (37.5%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
29.6	Four categories: It is easy to walk to healthcare/medical services (e.g. hospital, doctor's office, pharmacy).	452	
	1=Strongly disagree		244 (54%)
	2=Somewhat disagree		106 (23.5%)
	3=Somewhat agree		61 (13.5%)
	4=Strongly agree		41 (9.1%)
29.7	Four categories: The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.	453	
	1=Strongly disagree		213 (47%)
	2=Somewhat disagree		102 (22.5%)
	3=Somewhat agree		99 (21.9%)
	4=Strongly agree		39 (8.6%)
29.8	Four categories: There are many canyons/hillsides in my neighborhood.	453	
	1=Strongly disagree		307 (67.8%)
	2=Somewhat disagree		70 (15.5%)
	3=Somewhat agree		47 (10.4%)
	4=Strongly agree		29 (6.4%)
30.1	Four categories: The streets in my neighborhood do not have many, or any, dead-end streets	451	
	1=Strongly disagree		109 (24.2%)
	2=Somewhat disagree		113 (25.1%)
	3=Somewhat agree		113 (25.1%)
	4=Strongly agree		116 (25.7%)
30.2	Four categories: There are walkways in my neighborhood that connect dead-end streets to streets, trails, or other dead-end streets.	450	
	1=Strongly disagree		151 (33.6%)
	2=Somewhat disagree		116 (25.8%)
	3=Somewhat agree		124 (27.6%)
	4=Strongly agree		59 (13.1%)
30.3	Four categories: The distance between intersections in my neighborhood is usually short.	454	
	1=Strongly disagree		55 (12.1%)
	2=Somewhat disagree		114 (25.1%)
	3=Somewhat agree		174 (38.3%)
	4=Strongly agree		111 (24.4%)
30.4	Four categories: There are many four-way intersections in my neighborhood.	453	
	1=Strongly disagree		85 (18.8%)
	2=Somewhat disagree		106 (23.4%)
	3=Somewhat agree		149 (32.9%)
	4=Strongly agree		113 (24.9%)
30.5	Four categories: There are many alternative routes for getting from place to place in my neighborhood.	453	
	1=Strongly disagree		50 (11%)
	2=Somewhat disagree		68 (15%)
	3=Somewhat agree		183 (40.4%)
	4=Strongly agree		152 (33.6%)
31.1	Four categories: There are sidewalks on most of the streets in my neighborhood.	454	
	1=Strongly disagree		84 (18.5%)
	2=Somewhat disagree		70 (15.4%)
	3=Somewhat agree		115 (25.3%)
	4=Strongly agree		185 (40.7%)
31.2	Four categories: The sidewalks in my neighborhood are well maintained.	452	
	1=Strongly disagree		76 (16.8%)
	2=Somewhat disagree		99 (21.9%)
	3=Somewhat agree		150 (33.2%)
	4=Strongly agree		127 (28.1%)
31.3	Four categories: There are bicycle or pedestrian trails in or near my neighborhood that are easy to get to.	453	
	1=Strongly disagree		62 (13.7%)
	2=Somewhat disagree		81 (17.9%)
	3=Somewhat agree		163 (36%)
	4=Strongly agree		147 (32.5%)
31.4	Four categories: Sidewalks are separated from the road/traffic in my neighborhood by parked cars.	451	
	1=Strongly disagree		103 (22.8%)
	2=Somewhat disagree		112 (24.8%)
	3=Somewhat agree		148 (32.8%)
	4=Strongly agree		88 (19.5%)
31.5	Four categories: There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.	453	
	1=Strongly disagree		112 (24.7%)
	2=Somewhat disagree		74 (16.3%)
	3=Somewhat agree		162 (35.8%)
	4=Strongly agree		105 (23.2%)
31.6	Four categories: There are benches on most of the sidewalks in my neighborhood.	452	
	1=Strongly disagree		306 (67.7%)
	2=Somewhat disagree		83 (18.4%)
	3=Somewhat agree		43 (9.5%)
	4=Strongly agree		20 (4.4%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
32.1	Four categories: There are trees along the streets in my neighborhood.	455	
	1=Strongly disagree		16 (3.5%)
	2=Somewhat disagree		23 (5.1%)
	3=Somewhat agree		123 (27%)
	4=Strongly agree		293 (64.4%)
32.2	Four categories: Trees give shade for the sidewalks in my neighborhood.	454	
	1=Strongly disagree		32 (7%)
	2=Somewhat disagree		50 (11%)
	3=Somewhat agree		148 (32.6%)
	4=Strongly agree		224 (49.3%)
32.3	Four categories: There are many interesting things to look at while walking in my neighborhood.	454	
	1=Strongly disagree		26 (5.7%)
	2=Somewhat disagree		75 (16.5%)
	3=Somewhat agree		166 (36.6%)
	4=Strongly agree		187 (41.2%)
32.4	Four categories: My neighborhood is generally free from litter.	453	
	1=Strongly disagree		18 (4%)
	2=Somewhat disagree		50 (11%)
	3=Somewhat agree		171 (37.7%)
	4=Strongly agree		214 (47.2%)
32.5	Four categories: There are many attractive natural sights in my neighborhood.	454	
	1=Strongly disagree		30 (6.6%)
	2=Somewhat disagree		74 (16.3%)
	3=Somewhat agree		184 (40.5%)
	4=Strongly agree		166 (36.6%)
32.6	Four categories: There are attractive buildings/homes in my neighborhood.	451	
	1=Strongly disagree		20 (4.4%)
	2=Somewhat disagree		52 (11.5%)
	3=Somewhat agree		199 (44.1%)
	4=Strongly agree		180 (39.9%)
33.1	Four categories: There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.	454	
	1=Strongly disagree		207 (45.6%)
	2=Somewhat disagree		117 (25.8%)
	3=Somewhat agree		85 (18.7%)
	4=Strongly agree		45 (9.9%)
33.2	Four categories: There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.	453	
	1=Strongly disagree		153 (33.8%)
	2=Somewhat disagree		128 (28.3%)
	3=Somewhat agree		118 (26%)
	4=Strongly agree		54 (11.9%)
33.3	Four categories: The speed of traffic on the street I live on is usually slow (30 mph or less).	452	
	1=Strongly disagree		48 (10.6%)
	2=Somewhat disagree		68 (15%)
	3=Somewhat agree		167 (36.9%)
	4=Strongly agree		169 (37.4%)
33.4	Four categories: The speed of traffic on most nearby streets is usually slow (30 mph or less).	452	
	1=Strongly disagree		70 (15.5%)
	2=Somewhat disagree		102 (22.6%)
	3=Somewhat agree		173 (38.3%)
	4=Strongly agree		107 (23.7%)
33.5	Four categories: Most drivers exceed the posted speed limits while driving in my neighborhood.	450	
	1=Strongly disagree		56 (12.4%)
	2=Somewhat disagree		118 (26.2%)
	3=Somewhat agree		172 (38.2%)
	4=Strongly agree		104 (23.1%)
33.6	Four categories: There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.	453	
	1=Strongly disagree		125 (27.6%)
	2=Somewhat disagree		93 (20.5%)
	3=Somewhat agree		137 (30.2%)
	4=Strongly agree		98 (21.6%)
33.7	Four categories: The crosswalks in my neighborhood help walkers feel safe crossing busy streets.	445	
	1=Strongly disagree		106 (23.8%)
	2=Somewhat disagree		103 (23.1%)
	3=Somewhat agree		159 (35.7%)
	4=Strongly agree		77 (17.3%)
33.8	Four categories: When walking in my neighborhood, there are a lot of exhaust fumes.	451	
	1=Strongly disagree		162 (35.9%)
	2=Somewhat disagree		150 (33.3%)
	3=Somewhat agree		102 (22.6%)
	4=Strongly agree		37 (8.2%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
34.1	Four categories: My neighborhood streets are well lit at night.	454	
	1=Strongly disagree		38 (8.4%)
	2=Somewhat disagree		98 (21.6%)
	3=Somewhat agree		220 (48.5%)
	4=Strongly agree		98 (21.6%)
34.2	Four categories: Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.	449	
	1=Strongly disagree		30 (6.7%)
	2=Somewhat disagree		90 (20%)
	3=Somewhat agree		223 (49.7%)
	4=Strongly agree		106 (23.6%)
34.3	Four categories: I see and speak to other people when I am walking in my neighborhood.	451	
	1=Strongly disagree		33 (7.3%)
	2=Somewhat disagree		45 (10%)
	3=Somewhat agree		208 (46.1%)
	4=Strongly agree		165 (36.6%)
34.4	Four categories: There is a high crime rate in my neighborhood.	454	
	1=Strongly disagree		245 (54%)
	2=Somewhat disagree		137 (30.2%)
	3=Somewhat agree		52 (11.5%)
	4=Strongly agree		20 (4.4%)
34.5	Four categories: The crime rate in my neighborhood makes it unsafe to go on walks during the day.	454	
	1=Strongly disagree		330 (72.7%)
	2=Somewhat disagree		83 (18.3%)
	3=Somewhat agree		26 (5.7%)
	4=Strongly agree		15 (3.3%)
34.6	Four categories: The crime rate in my neighborhood makes it unsafe to go on walks at night.	452	
	1=Strongly disagree		232 (51.3%)
	2=Somewhat disagree		115 (25.4%)
	3=Somewhat agree		74 (16.4%)
	4=Strongly agree		31 (6.9%)
35.1	Four categories: Highway access from your home	451	
	1=Strongly dissatisfied		12 (2.7%)
	2=Somewhat dissatisfied		25 (5.5%)
	3=Somewhat satisfied		170 (37.7%)
	4=Strongly satisfied		244 (54.1%)
35.2	Four categories: Access to public transportation in your neighborhood	453	
	1=Strongly dissatisfied		46 (10.2%)
	2=Somewhat dissatisfied		61 (13.5%)
	3=Somewhat satisfied		193 (42.6%)
	4=Strongly satisfied		153 (33.8%)
35.3	Four categories: Access to shopping in your neighborhood	453	
	1=Strongly dissatisfied		35 (7.7%)
	2=Somewhat dissatisfied		59 (13%)
	3=Somewhat satisfied		183 (40.4%)
	4=Strongly satisfied		176 (38.9%)
35.4	Four categories: Number of friends you have in your neighborhood	452	
	1=Strongly dissatisfied		33 (7.3%)
	2=Somewhat dissatisfied		92 (20.4%)
	3=Somewhat satisfied		212 (46.9%)
	4=Strongly satisfied		115 (25.4%)
35.5	Four categories: Number of people you know in your neighborhood	451	
	1=Strongly dissatisfied		32 (7.1%)
	2=Somewhat dissatisfied		88 (19.5%)
	3=Somewhat satisfied		214 (47.5%)
	4=Strongly satisfied		117 (25.9%)
35.6	Four categories: How easy and pleasant it is to walk in your neighborhood	450	
	1=Strongly dissatisfied		13 (2.9%)
	2=Somewhat dissatisfied		34 (7.6%)
	3=Somewhat satisfied		180 (40%)
	4=Strongly satisfied		223 (49.6%)
35.7	Four categories: Access to entertainment in your neighborhood (restaurants, movies, clubs, etc.)	450	
	1=Strongly dissatisfied		57 (12.7%)
	2=Somewhat dissatisfied		92 (20.4%)
	3=Somewhat satisfied		183 (40.7%)
	4=Strongly satisfied		118 (26.2%)
35.8	Four categories: Access to healthcare/medical services	453	
	1=Strongly dissatisfied		57 (12.6%)
	2=Somewhat dissatisfied		104 (23%)
	3=Somewhat satisfied		173 (38.2%)
	4=Strongly satisfied		119 (26.3%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
35.9	Four categories: Safety from threat of crime in your neighborhood	448	
	1=Strongly dissatisfied		24 (5.4%)
	2=Somewhat dissatisfied		66 (14.7%)
	3=Somewhat satisfied		194 (43.3%)
	4=Strongly satisfied		164 (36.6%)
35.10	Four categories: Amount and speed of traffic in your neighborhood	450	
	1=Strongly dissatisfied		40 (8.9%)
	2=Somewhat dissatisfied		120 (26.7%)
	3=Somewhat satisfied		209 (46.4%)
	4=Strongly satisfied		81 (18%)
35.11	Four categories: Noise from traffic in your neighborhood	453	
	1=Strongly dissatisfied		39 (8.6%)
	2=Somewhat dissatisfied		107 (23.6%)
	3=Somewhat satisfied		205 (45.3%)
	4=Strongly satisfied		102 (22.5%)
35.12	Four categories: Number and quality of food stores in your neighborhood?	454	
	1=Strongly dissatisfied		56 (12.3%)
	2=Somewhat dissatisfied		69 (15.2%)
	3=Somewhat satisfied		176 (38.8%)
	4=Strongly satisfied		153 (33.7%)
35.13	Four categories: Number and quality of restaurants in your neighborhood?	453	
	1=Strongly dissatisfied		53 (11.7%)
	2=Somewhat dissatisfied		77 (17%)
	3=Somewhat satisfied		192 (42.4%)
	4=Strongly satisfied		131 (28.9%)
35.14	Four categories: Your neighborhood as a good place to live?	454	
	1=Strongly dissatisfied		1 (0.2%)
	2=Somewhat dissatisfied		15 (3.3%)
	3=Somewhat satisfied		159 (35%)
	4=Strongly satisfied		279 (61.5%)

Section 5. About Supportive Services or Programs

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
36	Services/programs you use or participate in	440	
	Binary: 1=Health related; 0=Otherwise		51 (11.6%); 389 (88.4%)
	Binary: 1=Meal related; 0=Otherwise		64 (14.5%); 376 (85.5%)
	Binary: 1=House and homemaker; 0=Otherwise		43 (9.8%); 397 (90.2%)
	Binary: 1=Transportation related; 0=Otherwise		70 (15.9%); 370 (84.1%)
	Binary: 1=Financial; 0=Otherwise		23 (5.2%); 417 (94.8%)
	Binary: 1=Social; 0=Otherwise		91 (20.7%); 349 (79.3%)
	Binary: 1=Employment and education; 0=Otherwise		20 (4.5%); 420 (95.5%)
	Binary: 1=Legal aid or free legal; 0=Otherwise		23 (5.2%); 417 (94.8%)
	Binary: 1=Other, specify; 0=Otherwise		20 (4.5%); 420 (95.5%)
	Binary: 1=None of the above; 0=Otherwise		273 (62%); 167 (38%)
37	Two categories: Intergenerational services/programs	437	
	0=No (include valid missing)		380 (87%)
	1=Yes		57 (13%)
38	Five categories: Services/programs satisfactions	442	
	1=Strongly dissatisfied		26 (5.9%)
	2=Somewhat dissatisfied		80 (18.1%)
	3=Somewhat satisfied		212 (48%)
	4=Strongly satisfied		82 (18.6%)
	5=Valid missing		42 (9.5%)
39	Four categories: I would personally want to ride in a driverless vehicle if I had the opportunity.	451	
	1=Strongly disagree		193 (42.8%)
	2=Somewhat disagree		78 (17.3%)
	3=Somewhat agree		117 (25.9%)
	4=Strongly agree		63 (14%)
40	Four categories: If driverless vehicles become widespread, older adults and people with disabilities will be able to live more independently.	451	
	1=Strongly disagree		91 (20.2%)
	2=Somewhat disagree		74 (16.4%)
	3=Somewhat agree		177 (39.2%)
	4=Strongly agree		109 (24.2%)

Section 6. About Yourself

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
41	Continuous: Year of Born	453	1945.68 (6.22)
			1924-1954
42	Two categories: Sex	453	
	1=Male		127 (28%)
	2=Female		326 (72%)
43	Two categories: Hispanic, Latino, or Spanish origin	451	
	0=No		390 (86.5%)
	1=Yes		61 (13.5%)
44	Six categories: Race	451	
	1=White		353 (78.3%)
	2=Black or African American		42 (9.3%)
	3=Asian		11 (2.4%)
	4=Pacific Islander		1 (0.2%)
	5=American Indian or Alaska Native		3 (0.7%)
	6=Other, specify		41 (9.1%)
45	Continuous: Weight (pounds)	446	166.05 (38.89)
			40-360
46	Continuous: Height (inches)	448	65.49 (3.81)
			53-78
47	Six categories: Marital status	452	
	1=Married		189 (41.8%)
	2=Widowed		87 (19.2%)
	3=Never married		35 (7.7%)
	4=Divorced		117 (25.9%)
	5=Separated		8 (1.8%)
	6=A member of an unmarried couple		16 (3.5%)
48	Six categories: Education	454	
	1=Less than high school		8 (1.8%)
	2=Some high school, but no degree/diploma/GED		12 (2.6%)
	3=High school diploma/GED		44 (9.7%)
	4=Some college		64 (14.1%)
	5=Associate degree		27 (5.9%)
	6=Bachelor's degree		122 (26.9%)
	7=Master's degree		110 (24.2%)
	8=Professional degree		25 (5.5%)
	9=Doctorate degree		42 (9.3%)
49	Six categories: Home type	453	
	1=A one-family house detached		338 (74.6%)
	2=A one-family house attached (e.g. townhouse)		15 (3.3%)
	3=A building with 2 to 4 units (e.g. duplex, fourplex)		20 (4.4%)
	4=A building with 5 or more units/apartments		63 (13.9%)
	5=A mobile home or trailer		2 (0.4%)
	6=Other, specify		15 (3.3%)
50	Four categories: Home ownership	453	
	1=Own with a mortgage or loan		133 (29.4%)
	2=Own without a mortgage or loan		216 (47.7%)
	3=Rent		89 (19.6%)
	4=Neither (living with relatives, etc.)		15 (3.3%)
51	Pet(s) in the household	449	
	Binary: 1=No pet; 0=Otherwise		238 (53%); 211 (47%)
	Binary: 1=Dog; 0=Otherwise		112 (24.9%); 337 (75.1%)
	Binary: 1=Cat; 0=Otherwise		116 (25.8%); 333 (74.2%)
	Binary: 1=Bird; 0=Otherwise		6 (1.3%); 443 (98.7%)
	Binary: 1=Fish; 0=Otherwise		9 (2%); 440 (98%)
	Binary: 1=Other, specify; 0=Otherwise		9 (2%); 440 (98%)
52	Employment status	454	
	Binary: 1=Employed for wages; 0=Otherwise		45 (9.9%); 409 (90.1%)
	Binary: 1=Self-employed; 0=Otherwise		42 (9.3%); 412 (90.7%)
	Binary: 1=Retired; 0=Otherwise		385 (84.8%); 69 (15.2%)
	Binary: 1=Out of work (< 1 year); 0=Otherwise		2 (0.4%); 452 (99.6%)
	Binary: 1=Out of work (>=1 year); 0=Otherwise		17 (3.7%); 437 (96.3%)
	Binary: 1=A homemaker; 0=Otherwise		22 (4.8%); 432 (95.2%)
	Binary: 1=A student; 0=Otherwise		1 (0.2%); 453 (99.8%)
	Binary: 1=Unable to work; 0=Otherwise		24 (5.3%); 430 (94.7%)

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
53	Health or medical insurance coverage	454	
	Binary: 1=A plan through an employer; 0=Otherwise		132 (29.1%); 322 (70.9%)
	Binary: 1=A plan bought on your own; 0=Otherwise		28 (6.2%); 426 (93.8%)
	Binary: 1=Medicare; 0=Otherwise		406 (89.4%); 48 (10.6%)
	Binary: 1=Medicaid; 0=Otherwise		32 (7%); 422 (93%)
	Binary: 1=TRICARE, VA, or Military; 0=Otherwise		40 (8.8%); 414 (91.2%)
	Binary: 1=Alaska Native; 0=Otherwise		0 (0%); 454 (100%)
	Binary: 1=Other health insurance; 0=Otherwise		83 (18.3%); 371 (81.7%)
	Binary: 1=None (no coverage); 0=Otherwise		2 (0.4%); 452 (99.6%)
54	Twelve categories: Income	441	
	1=Under $10,000		25 (5.7%)
	2=$10,000 to $19,999		39 (8.8%)
	3=$20,000 to $29,999		46 (10.4%)
	4=$30,000 to $39,999		40 (9.1%)
	5=$40,000 to $49,999		37 (8.4%)
	6=$50,000 to $59,999		35 (7.9%)
	7=$60,000 to $69,999		23 (5.2%)
	8=$70,000 to $79,999		30 (6.8%)
	9=$80,000 to $89,999		18 (4.1%)
	10=$90,000 to $99,999		17 (3.9%)
	11=$100,000 or more		64 (14.5%)
	12=Don't know/prefer not to answer		67 (15.2%)
55.1	Continuous: Number of additional people in household	450	0.76 (0.88)
			0-6
55.2	Continuous: Ages of the other people in household	346*	59.78 (19.2)
			3-91
55.3	Continuous: Number of children/grandchildren under 18	449	0.05 (0.29)
			0-4
56	People living with you in the household	449	
	Binary: 1=Valid missing; 0 = Otherwise		192 (42.8%); 257 (57.2%)
	Binary: 1=Your spouse or partner; 0=Otherwise		201 (44.8%); 248 (55.2%)
	Binary: 1=Your parent; 0=Otherwise		1 (0.2%); 448 (99.8%)
	Binary: 1=Your child; 0=Otherwise		51 (11.4%); 398 (88.6%)
	Binary: 1=A brother or sister; 0=Otherwise		7 (1.6%); 442 (98.4%)
	Binary: 1=A grandchild; 0=Otherwise		24 (5.3%); 425 (94.7%)
	Binary: 1= Other relatives; 0=Otherwise		6 (1.3%); 443 (98.7%)
	Binary: 1=Friends; 0=Otherwise		12 (2.7%); 437 (97.4%)
	Binary: 1=Someone else; 0=Otherwise		9 (2%); 440 (98%)
57.1	Two categories: Caregivers	454	
	0=No		409 (90.1%)
	1=Yes		45 (9.9%)
57.2	Continuous: time spent caring for others (years)	454	.69 (3.238)
			0-40
57.3	Continuous: time spent caring for others (hours/week)	454	2.20 (10.253)
			0-90
58	Five categories: Health	449	
	1=Poor		7 (1.6%)
	2=Fair		54 (12.0%)
	3=Good		159 (35.4%)
	4=Very Good		160 (35.6%)
	5=Excellent		69 (15.4%)
59	Continuous: Sleep time (Hours/day)	444	7.25 (1.36)
			2-16

* Number of the other people in household with age information provided by the participants

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
60	Has your health care provider ever told you that you have any of the following conditions?	443	
	Binary: 1=Anxiety; 0=Otherwise		60 (13.5%); 383 (86.5%)
	Binary: 1=Depression; 0=Otherwise		68 (15.3%); 375 (84.7%)
	Binary: 1=Memory loss; 0=Otherwise		22 (5%); 421 (95%)
	Binary: 1=Obesity; 0=Otherwise		63 (14.2%); 380 (85.8%)
	Binary: 1=Low vision/blindness; 0=Otherwise		26 (5.9%); 417 (94.1%)
	Binary: 1=Hearing loss or deafness; 0=Otherwise		86 (19.4%); 357 (80.6%)
	Binary: 1=Asthma; 0=Otherwise		42 (9.5%); 401 (90.5%)
	Binary: 1=Diabetes; 0=Otherwise		74 (16.7%); 369 (83.3%)
	Binary: 1=High cholesterol; 0=Otherwise		181 (40.9%); 262 (59.1%)
	Binary: 1=Hypertension; 0=Otherwise		147 (33.2%); 296 (66.8%)
	Binary: 1=Stroke; 0=Otherwise		11 (2.5%); 432 (97.5%)
	Binary: 1=Cancer; 0=Otherwise		66 (14.9%); 377 (85.1%)
	Binary: 1=Osteoporosis/brittle bones; 0=Otherwise		76 (17.2%); 367 (82.8%)
	Binary: 1=Arthritis; 0=Otherwise		148 (33.4%); 295 (66.6%)
	Binary: 1=Spinal/back disorder; 0=Otherwise		64 (14.4%); 379 (85.6%)
	Binary: 1=ENT disorder; 0=Otherwise		26 (5.9%); 417 (94.1%)
	Binary: 1=Thyroid disease; 0=Otherwise		86 (19.4%); 357 (80.6%)
	Binary: 1=Heart disease; 0=Otherwise		50 (11.3%); 393 (88.7%)
	Binary: 1=Sleep disorders; 0=Otherwise		74 (16.7%); 369 (83.3%)
	Binary: 1=C.O.P.D.; 0=Otherwise		11 (2.5%); 432 (97.5%)
	Binary: 1=Kidney disease; 0=Otherwise		27 (6.1%); 416 (93.9%)
	Binary: 1=Urinary incontinence; 0=Otherwise		60 (13.5%); 383 (86.5%)
	Binary: 1=Other, specify; 0=Otherwise		53 (12%); 390 (88%)
	Binary: 1=None of the above; 0=Otherwise		38 (8.6%); 405 (91.4%)
61	Three categories: Difficulty hearing	452	
	0=No		360 (79.6%)
	1=Yes		78 (17.3%)
	2=Don't know/prefer not to answer		14 (3.1%)
62	Three categories: Difficulty seeing		
	0=No	453	408 (90.1%)
	1=Yes		36 (7.9%)
	2=Don't know/prefer not to answer		9 (2%)
63	Three categories: Difficulty walking or climbing stairs	453	
	0=No		350 (77.3%)
	1=Yes		95 (21%)
	2=Don't know/prefer not to answer		8 (1.8%)
64	Three categories: Difficulty dressing or bathing	451	
	0=No		428 (94.9%)
	1=Yes		15 (3.3%)
	2=Don't know/prefer not to answer		8 (1.8%)
65	Three categories: Difficulty concentrating, remembering, or making decisions	452	
	0=No		407 (90%)
	1=Yes		30 (6.6%)
	2=Don't know/prefer not to answer		15 (3.3%)
66	Three categories: Difficulty doing errands alone	454	
	0=No		425 (93.6%)
	1=Yes		20 (4.4%)
	2=Don't know/prefer not to answer		9 (2%)
67	Continuous: Alcoholic beverages (drinks/week)	434	2.5 (4.48)
			0-30
68.1	Two categories: Smoking	455	
	0=No		437 (96%)
	1=Yes		18 (4%)
68.2	Continuous: Number of cigarettes per day	453	.23 (1.532)
			0-20
69	Seven categories: Which of the following do you use MOST OFTEN to get around?	442	
	1=Need no assistance to get around		385 (87.1%)
	2=Power scooter		0 (0%)
	3=Wheelchair		3 (0.7%)
	4=Walker with seat		13 (2.9%)
	5=Walker		4 (0.9%)
	6=Cane		36 (8.1%)
	7=Other, specify		1 (0.2%)
70	Two categories: Do you have a valid driver's license?	449	
	0=No		34 (7.6%)
	1=Yes		415 (92.4%)
71.1	Two categories: Have you fallen in the past 12 months?	454	
	0=No		346 (76.2%)
	1=Yes		108 (23.8%)
71.2	Continuous: Number of falls that caused an injury	443	0.21 (0.76)
			0-10

Q	Description	Obs	Mean/Frequency (SD/%) Minimum-Maximum
72.1	Four categories: Fall indoors at home	440	
	0=0 times		383 (87%)
	1=1-2 times		46 (10.5%)
	2=3-5 times		7 (1.6%)
	3=6 times or more		4 (0.9%)
72.2	Four categories: Fall indoors in other buildings	423	
	0=0 times		405 (95.7%)
	1=1-2 times		16 (3.8%)
	2=3-5 times		1 (0.2%)
	3=6 times or more		1 (0.2%)
72.3	Four categories: Fall outdoors at home		
	0=0 times	431	395 (91.6%)
	1=1-2 times		32 (7.4%)
	2=3-5 times		4 (0.9%)
	3=6 times or more		0 (0%)
72.4	Four categories: Fall outdoors in your neighborhood	429	
	0=0 times		404 (94.2%)
	1=1-2 times		22 (5.1%)
	2=3-5 times		3 (0.7%)
	3=6 times or more		0 (0%)
72.5	Four categories: Fall outdoors outside your neighborhood	431	
	0=0 times		396 (91.9%)
	1=1-2 times		34 (7.9%)
	2=3-5 times		1 (0.2%)
	3=6 times or more		0 (0%)
73	Have you experienced any of the following life events during the past three years?	448	
	Binary: 1=Personal illness; 0=Otherwise		184 (41.1%); 264 (58.9%)
	Binary: 1=Death of a spouse; 0=Otherwise		19 (4.2%); 429 (95.8%)
	Binary: 1=Death of a family member; 0=Otherwise		205 (45.8%); 243 (54.2%)
	Binary: 1=Illness of a spouse; 0=Otherwise		72 (16.1%); 376 (83.9%)
	Binary: 1=Illness of a family member; 0=Otherwise		132 (29.5%); 316 (70.5%)
	Binary: 1=Non-medical events; 0=Otherwise		32 (7.1%); 416 (92.9%)
	Binary: 1=Other, specify; 0=Otherwise		32 (7.1%); 416 (92.9%)
	Binary: 1=None of the above; 0=Otherwise		94 (21%); 354 (79%)
74	How did you hear about this study?	454	
	Binary: 1 = Families or friends; 0 = Otherwise		79 (17.4%); 375 (82.6%)
	Binary: 1 = Nextdoor; 0 = Otherwise		73 (16.1%); 381 (83.9%)
	Binary: 1 = AustinUp; 0 = Otherwise		19 (4.2%); 435 (95.8%)
	Binary: 1 = Aging is Cool; 0 = Otherwise		8 (1.8%); 446 (98.2%)
	Binary: 1 = Aging2.0 Austin; 0 = Otherwise		2 (0.4%); 452 (99.6%)
	Binary: 1 = WellMed Charitable Foundation; 0 = Otherwise		45 (9.9%); 409 (90.1%)
	Binary: 1 = Alamo Recreation Center; 0 = Otherwise		8 (1.8%); 446 (98.2%)
	Binary: 1 = Lamar Senior Activity Center; 0 = Otherwise		54 (11.9%); 400 (88.1%)
	Binary: 1 = Conley-Guerrero Senior Activity Center; 0 = Otherwise		46 (10.1%); 408 (89.9%)
	Binary: 1 = South Austin Senior Activity Center; 0 = Otherwise		55 (12.1%); 399 (87.9%)
	Binary: 1 = Lorraine “Grandma” Camacho Activity Center; 0 = Otherwise		9 (2.0%); 445 (98.0%)
	Binary: 1 = Virginia L. Brown Recreation Center; 0 = Otherwise		9 (2.0%); 445 (98.0%)
	Binary: 1 = Gustavo "Gus" L. Garcia Recreation Center; 0 = Otherwise		2 (0.4%); 452 (99.6%)
	Binary: 1 = Church; 0 = Otherwise		4(0.9%); 450 (99.1%)
	Binary: 1 = American Association of Retired Persons (AARP); 0 = Otherwise		4(0.9%); 450 (99.1%)
	Binary: 1 = AGE of Central Texas; 0 = Otherwise		5 (1.1%); 449 (98.9%)
	Binary: 1 = Capital City Village; 0 = Otherwise		3 (0.7%); 451 (99.3%)
	Binary: 1 = Registered Neighborhood Associations; 0 = Otherwise		16 (3.5%); 438 (96.5%)
	Binary: 1 = Facebook; 0 = Otherwise		5 (1.1%); 449 (98.9%)
	Binary: 1 = Austin Retired Teachers Association; 0 = Otherwise		3 (0.7%); 451 (99.3%)
	Binary: 1 = Oak Hill Senior Center; 0 = Otherwise		6 (1.3%); 448 (98.7%)
	Binary: 1 = Sunshine Community Gardens; 0 = Otherwise		1 (0.2%); 453 (99.8%)
	Binary: 1 = Email from Sinan Zhong; 0 = Otherwise		14 (3.1%); 440 (96.9%)
	Binary: 1 = Other, specify; 0 = Otherwise		3 (0.7%); 451 (99.3%)
75	Two categories: Did you complete the survey by yourself?	454	
	0=No		11 (2.4%)
	1=Yes		443 (97.6%)
76.1	Two categories: Is the neighborhood definition in the survey consistent with how you may define your neighborhood personally?	451	
	0=No		145 (32.2%)
	1=Yes		306 (67.8%)
76.2	Six categories: Neighborhood definition	442	
	Binary: 1=An area immediately surrounding my house; 0 = Otherwise		39 (8.8%); 403 (91.2%)
	Binary: 1=My subdivision (if applicable); 0 = Otherwise		28 (6.3%); 414 (93.7%)
	Binary: 1=5-minute walk from my home; 0 = Otherwise		14 (3.2%); 428 (96.8%)
	Binary: 1=10-15 minute walk from my home; 0 = Otherwise		306 (69.2%); 136 (30.8%)
	Binary: 1=20-30 minute walk from my home; 0 = Otherwise		41 (9.3%); 401 (90.7%)
	Binary: 1=Others, specify		23 (5.2%); 419 (94.8%)

APPENDIX E

FULL STUDY DESCRIPTIVE STATISTICS (RECODED)

Section 1. About Your Physical Activities and Walking

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
1	Q1_LPA	Light physical activity in a typical week (minutes/week)	441	726.74 (792.588) 0-5040
	Q1_ LPA_Binary	Light physical activity in a typical week	441	
		0=Less than 150		61 (13.8%)
		1=150 or more		380 (86.2%)
2	Q2_ MPA	Moderate physical activity in a typical week (minutes/week)	440	340.47 (477.435) 0-4200
	Q2_MPA_Binary	Moderate physical activity in a typical week	440	
		0=Less than 150		166 (37.7%)
		1=150 or more		274 (62.3%)
3	Q3_VPA_YesNo	Vigorous physical activity in a typical week	446	
		0=No		248 (55.6%)
		1=Yes		198 (44.4%)
	Q3_VPA_Binary	Vigorous physical activity in a typical week	446	
		0=Less than 150		365 (81.8%)
		1=150 or more		81 (18.2%)
1-3	Q1_2_3_LMVPA	Light, moderate, and vigorous physical activity in a typical week (minutes/week)	428	1136.64 (1175.060) 0-9660
2-3	Q2_3_MVPA	Moderate and vigorous physical activity in a typical week (minutes/week)	436	427.49 (603.691) 0-4620
	Q2_3_MVPA_Binary	Moderate and vigorous physical activity in a typical week	436	
		0=Less than 150		137 (31.4%)
		1=150 or more		299 (68.6%)
2-3	Q2_3_M2VPA	Moderate and two times of vigorous physical activity in a typical week (minutes/week)	436	514.62 (768.438) 0-7140
	Q2_3_M2VPA_Binary	Moderate and two times of vigorous physical activity in a typical week	436	
		0=Less than 150		132 (30.3%)
		1=150 or more		304 (69.7%)
4	Q4_AllWalking	All walking activity in a typical week (minutes/week)	438	466.87 (585.896) 0-3780
	Q4_AllWalking_Binary	All walking activity in a typical week	438	
		0=Less than 150		127 (29.0%)
		1=150 or more		311 (71.0%)
5	**Q5_TranWalking_YesNo***	Transportation walking in a typical week	441	
		0=No		248 (56.2%)
		1=Yes		193 (43.8%)
6	**Q6_RecWalking_YesNo_2***	Recreational walking in a typical week	442	
		0=No		118 (26.7%)
		1=Yes		324 (73.3%)
7	Q7.1_Sedentary_Weekday	Sedentary activity on a week day (minutes)	450	342.60 (207.545) 0-1410
	Q7.2_Sedentary_Weekend	Sedentary activity on a weekend day (minutes)	444	319.32 (194.442) 0-1440
	Q7_Sedentary	Sedentary activity on a day in a typical week (minutes)	444	2349.12 (1374.266) 0-9930

*Outcome variables

Section 2. About Your Quality of Life and Mental Health

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
8	Q8_QOL_GoodPoor	Quality of life	454	
		0=Very poor/poor/neither poor nor good		46 (10.1%)
		1=Good/very good		408 (89.9%)
	Q8_QOL_VeryGoodOthers	Quality of life	454	
		0= Very poor/poor/neither poor nor good/good		270 (59.5%)
		1=Very good		184 (40.5%)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
	Q8_QOL_GoodVeryGood	Quality of life	454	
		1= Very poor/poor/neither poor nor good		46 (10.1%)
		2=Good		224 (49.3%)
		3=Very good		184 (40.5%)
9	Q9_Health_SatisDissatis	Satisfaction on health	454	
		0=Very dissatisfied/dissatisfied/neither satisfied nor dissatisfied		148 (32.6%)
		1=Satisfied/very satisfied		306 (67.4%)
10	Q10_DepressionScore	Depression scores (0-60)	451	9.98 (8.785)
				0-49
	Q10_Depressed_Binary	Depression in a typical week in the past month	451	
		0=Non-depressed		349 (77.4%)
		1=Depressed (16+)		102 (22.6%)

Section 3. About Your Intergenerational and Other Social Activities (All)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
11	Q11_Interaction_Children_Binary	Social interactions with children at least once a week	452	
		0=No		232 (51.3%)
		1=Yes		220 (48.7%)
	Q11_Interaction_Teenagers_Binary	Social interactions with teenagers at least once a week	452	
		0=No		266 (58.8%)
		1=Yes		186 (41.2%)
	Q11_Interaction_Adults	Number of places for social interactions with adults	452	7.86 (4.743)
				0-21
	Q11_Interaction_OlderAdults	Number of places for peer interactions	452	4.27 (3.997)
				0-21
	Q11_Interaction_OlderAdults_Binary	Social interactions with older adults at least once a week	452	
		0=No		73 (16.2%)
		1=Yes		379 (83.8%)
	Q11_Interaction_Child_Teen_Binary	Social interactions with children or teenagers at least once a week	452	
		0=No		189 (41.8%)
		1=Yes		263 (58.2%)
	Q11_Interaction_Child_Teen_Adult	Number of places for social interactions with children+teenagers+adults	452	10.31 (7.289)
				0-46
	Q11_Interaction_Child_Teen_Adult_OldAdult	Number of places for social interactions with children+teenagers+adults+older adults	452	14.58 (9.797)
				0-63
	Q11_PlaceInteract	Number of places for social interactions	452	9.37 (4.454)
				0-21
12	Q12_1_SatisChild_Imp3	Satisfaction on social interactions with children	436	
		0=About enough		251 (57.6%)
		1=Not enough or too much		185 (42.4%)
	Q12_2_SatisTeen_Imp3	Satisfaction on social interactions with teenagers	429	
		0=About enough		225 (52.4%)
		1=Not enough or too much		204 (47.6%)
	Q12_3_SatisAdult_Imp3	Satisfaction on social interactions with adults	453	
		0=About enough		348 (76.8%)
		1=Not enough or too much		105 (23.2%)
	Q12_4_SatisOld_Imp3	Satisfaction on social interactions with older adults	450	
		0=About enough		361 (80.2%)
		1=Not enough or too much		89 (19.8%)
13	Q13_VolunteerWork	Volunteer work	452	
		0=No		176 (38.9%)
		1=Yes		276 (61.1%)
15	Q15_1_DigitalChildren_Binary	Digital communications with children in a typical week	452	
		0=No		358 (79.2%)
		1=Yes		94 (20.8%)
	Q15_2_DigitalTeenagers_Binary	Digital communications with teenagers in a typical week	452	
		0=No		350 (77.4%)
		1=Yes		102 (22.6%)
	Q15_DigitalChildrenTeenagers_Binary	Digital communications with children or teenagers in a typical week	452	
		0=No		312 (69.0%)
		1=Yes		140 (31.0%)
	Q15_3_DigitalAdults_Binary	Digital communications with adults in a typical week	452	
		0=0-4 days		214 (47.3%)
		1=5-7 days		238 (52.7%)
	Q15_4_DigitalOldAdults_Binary	Digital communications with older adults in a typical week	452	
		0=No		111 (24.6%)
		1=Yes		341 (75.4%)

Section 3. About Your Intergenerational and Other Social Activities (In the Neighborhood)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
16	Q16_SocialPlace_In	Social places in the neighborhood	452	
		0=None or a few/some		273 (60.4%)
		1=Half to all		179 (39.6%)
17	Q17_NeighborhoodOutdoor_Binary	Neighborhood outdoor time in a typical week	443	
		0=No		46 (10.4%)
		1=Yes		397 (89.6%)
	Q17_NeighborhoodOutdoor	Neighborhood outdoor time in a typical week (minutes/week)	428	341.07 (498.996)
				0-5400
18	Q18_Social_Neighbors_Impute	Social interactions with neighbors in a typical month	455	.0000 (1.00000)
				-2.11-2.49
19	Q19_1_Know_Children_Impute	Know children in the neighborhood	452	
		0=No		220 (48.7%)
		1=Yes		232 (51.3%)
	Q19_2_Know_Teenagers_Impute	Know teenagers in the neighborhood	452	
		0=No		272 (60.2%)
		1=Yes		180 (39.8%)
	Q19_3_Know_Adults_Impute	Know adults in the neighborhood	452	
		0=0-5		195 (43.1%)
		1=6 or over		257 (56.9%)
	Q19_4_Know_OlderAdults	Know older adults in the neighborhood	452	
		1=0		73 (16.2%)
		2=1-2		95 (21.0%)
		3=3-5		113 (25.0%)
		4=6-10		86 (19.0%)
		5=11 or over		85 (18.8%)
	Q19_Know_ChildTeen_Impute	Know children or teenagers in the neighborhood	452	
		0=No		191 (42.3%)
		1=Yes		261 (57.7%)
20	Q20_1_WatchChildren_In	Watch children doing activities in a typical week in the neighborhood	454	
		0=No		312 (68.7%)
		1=Yes		142 (31.3%)
	Q20_2_WatchTeenagers_In	Watch teenagers doing activities in a typical week in the neighborhood	454	
		0=No		350 (77.1%)
		1=Yes		104 (22.9%)
	Q20_3_WatchAdults_In	Watch adults doing activities in a typical week in the neighborhood	454	
		0=No		231 (50.9%)
		1=Yes		223 (49.1%)
	Q20_4_WatchOlderAdults_In	Watch older adults doing activities in a typical week in the neighborhood	454	
		0=No		267 (58.8%)
		1=Yes		187 (41.2%)
	Q20_WatchChildTeen_In_Binary	Watch children or teenagers doing activities in a typical week in the neighborhood	454	
		0=No		293 (64.5%)
		1=Yes		161 (35.5%)
	Q20_WatchChildTeenAdult_In_Binary	Watch younger generations doing activities in a typical week in the neighborhood	454	
		0=No		205 (45.2%)
		1=Yes		249 (54.8%)
	Q20_WatchChildTeenAdultOldAdult_In_Binary	Watch people doing activities in a typical week in the neighborhood	454	
		0=No		188 (41.4%)
		1=Yes		266 (58.6%)
21	**Q21_1_InteractChildren_In***	Interact with children in a typical week in the neighborhood	453	
		0=No		326 (72.0%)
		1=Yes		127 (28.0%)
	Q21_2_InteractTeenagers_In	Interact with teenagers in a typical week in the neighborhood	453	
		0=No		354 (78.1%)
		1=Yes		99 (21.9%)
	Q21_3_InteractAdults_In_Ordinal	Interact with adults in a typical week in the neighborhood	453	
		1=0 days		94 (20.8%)
		2=1-2 days		158 (34.9%)
		3=3-4 days		117 (25.8%)
		4=5-7 days		84 (18.5%)
	Q21_3_InteractAdults_In	Interact with adults in a typical week in the neighborhood	453	
		0=No		94 (20.8%)
		1=Yes		359 (79.2%)
	Q21_4_InteractOldAdults_In_Ordinal	Interact with older adults in a typical week in the neighborhood	453	
		1=0 days		150 (33.1%)
		2=1-2 days		131 (28.9%)
		3=3-4 days		93 (20.5%)
		4=5-7 days		79 (17.4%)
	Q21_4_InteractOldAdults_In*	Interact with older adults in a typical week in the neighborhood	453	
		0=No		150 (33.1%)
		1=Yes		303 (66.9%)

*Outcome variables

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
	Q21_InteractChildTeen_In_Binary	Interact with children or teenagers in a typical week in the neighborhood	453	
		0=No		298 (65.8%)
		1=Yes		155 (34.2%)
	Q21_InteractChildTeenAdult_In_Binary*	Interact with younger generations in a typical week in the neighborhood	453	
		0=No		90 (19.9%)
		1=Yes		363 (80.1%)
	Q21_InteractChildTeenAdultOldAdult_In_Binary*	Interact with people in a typical week in the neighborhood	453	
		0=No		70 (15.5%)
		1=Yes		383 (84.5%)
22_1	Q22_1_See_ChildrenWalking	See children walking at least once a week in the neighborhood	454	
		0=No		259 (57.0%)
		1=Yes		195 (43.0%)
	Q22_1_See_TeenagerWalking	See teenagers walking at least once a week in the neighborhood	454	
		0=No		277 (61.0%)
		1=Yes		177 (39.0%)
	Q22_1_See_AdultWalking	See adults walking at least once a week in the neighborhood	454	
		0=No		69 (15.2%)
		1=Yes		385 (84.8%)
	Q22_1_See_OldAdultWalking	See older adults walking at least once a week in the neighborhood	454	
		0=No		186 (41.0%)
		1=Yes		268 (59.0%)
	Q22_1_See_ChildTeenWalking	See children or teenagers walking at least once a week in the neighborhood	454	
		0=No		225 (49.6%)
		1=Yes		229 (50.4%)
	Q22_1_See_ChildTeenAdultWalking	See younger generations walking at least once a week in the neighborhood	454	
		0=No		52 (11.5%)
		1=Yes		402 (88.5%)
22_2	Q22_2_See_ChildrenBiking	See children biking at least once a week in the neighborhood	454	
		0=No		272 (59.9%)
		1=Yes		182 (40.1%)
	Q22_2_See_TeenagerBiking	See teenagers biking at least once a week in the neighborhood	454	
		0=No		285 (62.8%)
		1=Yes		169 (37.2%)
	Q22_2_See_AdultBiking	See adults biking at least once a week in the neighborhood	454	
		0=No		156 (34.4%)
		1=Yes		298 (65.6%)
	Q22_2_See_OldAdultBiking	See older adults biking at least once a week in the neighborhood	454	
		0=No		373 (82.2%)
		1=Yes		81 (17.8%)
	Q22_2_See_ChildTeenBiking	See children or teenagers biking at least once a week in the neighborhood	454	
		0=No		209 (46.0%)
		1=Yes		245 (54.0%)
	Q22_2_See_ChildTeenAdultBiking	See younger generations biking at least once a week in the neighborhood	454	
		0=No		93 (20.5%)
		1=Yes		361 (79.5%)
	Q22_2_See_PeopleBiking	See people biking at least once a week in the neighborhood	454	
		0=No		88 (19.4%)
		1=Yes		366 (80.6%)
22_3	Q22_3_See_ChildrenPlaying	See children playing at least once a week in the neighborhood	454	
		0=No		172 (37.9%)
		1=Yes		282 (62.1%)
	Q22_3_See_TeenagerPlaying	See teenagers playing at least once a week in the neighborhood	454	
		0=No		356 (78.4%)
		1=Yes		98 (21.6%)
	Q22_3_See_AdultPlaying	See adults playing at least once a week in the neighborhood	454	
		0=No		390 (85.9%)
		1=Yes		64 (14.1%)
	Q22_3_See_ChildTeenPlaying	See children or teenagers playing at least once a week in the neighborhood	454	
		0=No		154 (33.9%)
		1=Yes		300 (66.1%)
	Q22_3_See_ChildTeenAdultPlaying	See younger generations playing at least once a week in the neighborhood	454	
		0=No		134 (29.5%)
		1=Yes		320 (70.5%)
	Q22_3_See_PeoplePlaying	See people playing at least once a week in the neighborhood	454	
		0=No		127 (28.0%)
		1=Yes		327 (72.0%)
22_4	Q22_4_See_AdultSitting	See adults sitting at least once a week in the neighborhood	454	
		0=No		316 (69.6%)
		1=Yes		138 (30.4%)
	Q22_4_See_OlderAdultSitting	See older adults sitting at least once a week in the neighborhood	454	
		0=No		359 (79.1%)
		1=Yes		95 (20.9%)

*Outcome variables

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
	Q22_4_See_ChildTeenAdultSitting	See younger generations sitting at least once a week in the neighborhood	454	
		0=No		300 (66.1%)
		1=Yes		154 (33.9%)
	Q22_4_See_PeopleSitting	See people sitting at least once a week in the neighborhood	454	
		0=No		264 (58.1%)
		1=Yes		190 (41.9%)
22_5	Q22_5_See_AdultWorking	See adults working at least once a week in the neighborhood	454	
		0=No		104 (22.9%)
		1=Yes		350 (77.1%)
	Q22_5_See_OlderAdultWorking	See older adults working at least once a week in the neighborhood	454	
		0=No		277 (61.0%)
		1=Yes		177 (39.0%)
	Q22_5_See_ChildTeenAdultWorking	See younger generations working at least once a week in the neighborhood	454	
		0=No		97 (21.4%)
		1=Yes		357 (78.6%)
	Q22_5_See_PeopleWorking	See people working at least once a week in the neighborhood	454	
		0=No		69 (15.2%)
		1=Yes		385 (84.8%)
22_6	Q22_6_See_ChildrenSocializing	See children socializing at least once a week in the neighborhood	454	
		0=No		354 (78.0%)
		1=Yes		100 (22.0%)
	Q22_6_See_TeenagerSocializing	See teenagers socializing at least once a week in the neighborhood	454	
		0=No		357 (78.6%)
		1=Yes		97 (21.4%)
	Q22_6_See_AdultSocializing	See adults socializing at least once a week in the neighborhood	454	
		0=No		124 (27.3%)
		1=Yes		330 (72.7%)
	Q22_6_See_OlderAdultSocializing	See older adults socializing at least once a week in the neighborhood	454	
		0=No		247 (54.4%)
		1=Yes		207 (45.6%)
	Q22_6_See_ChildTeenSocializing	See children or teenagers socializing at least once a week in the neighborhood	454	
		0=No		319 (70.3%)
		1=Yes		135 (29.7%)
	Q22_6_See_ChildTeenAdultSocializing	See younger generations socializing at least once a week in the neighborhood	454	
		0=No		108 (23.8%)
		1=Yes		346 (76.2%)
	Q22_6_See_PeopleSocializing	See people socializing at least once a week in the neighborhood	454	
		0=No		69 (15.2%)
		1=Yes		385 (84.8%)
22_all	Q22_See_Children_In_Binary	See children doing outdoor activities at least once a week in the neighborhood	454	
		0=No		127 (28.0%)
		1=Yes		327 (72.0%)
	Q22_See_Teenagers_In_Binary	See teenagers doing outdoor activities at least once a week in the neighborhood	454	
		0=No		191 (42.1%)
		1=Yes		263 (57.9%)
	Q22_See_Adults_In	See adults doing outdoor activities at least once a week in the neighborhood (activity type count)	454	3.48 (1.577) 0-6
	Q22_See_OlderAdults_In_Binary	See older adults doing outdoor activities at least once a week in the neighborhood	454	
		0=No		125 (27.5%)
		1=Yes		329 (72.5%)
	Q22_See_ChildTeen_In_Binary	See children or teenagers doing outdoor activities at least once a week	454	
		0=No		101 (22.2%)
		1=Yes		353 (77.8%)

Section 3. About Your Intergenerational and Other Social Activities (Outside the Neighborhood)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
23	Q23_1_WatchChildren_Out	Watch children doing activities in a typical week outside the neighborhood	454	
		0=No		309 (68.1%)
		1=Yes		145 (31.9%)
	Q23_2_WatchTeenagers_Out	Watch teenagers doing activities in a typical week outside the neighborhood	454	
		0=No		330 (72.7%)
		1=Yes		124 (27.3%)
	Q23_3_WatchAdults_Out	Watch adults doing activities in a typical week outside the neighborhood	454	
		0=No		178 (39.2%)
		1=Yes		276 (60.8%)
	Q23_4_WatchOlderAdults_Out	Watch older adults doing activities in a typical week outside the neighborhood	454	
		0=No		206 (45.4%)
		1=Yes		248 (54.6%)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
	Q23_WatchChildTeen_Out_Binary	Watch children or teenagers doing activities in a typical week outside neighborhood	454	
		0=No		286 (63.0%)
		1=Yes		168 (37.0%)
	Q23_WatchChildTeenAdults_Out_Binary	Watch younger generations doing activities in a typical week outside the neighborhood	454	
		0=No		162 (35.7%)
		1=Yes		292 (64.3%)
	Q23_WatchChildTeenAdultsOldAdult_Out_Binary	Watch people doing activities in a typical week outside the neighborhood	454	
		0=No		147 (32.4%)
		1=Yes		307 (67.6%)
24	Q24_1_InteractChildren_Out_Binary	Interact with children in a typical week outside the neighborhood	454	
		0=No		312 (68.7%)
		1=Yes		142 (31.3%)
	Q24_2_InteractTeenagers_Out_Binary	Interact with teenagers in a typical week outside the neighborhood	454	
		0=No		341 (75.1%)
		1=Yes		113 (24.9%)
	Q24_3_InteractAdult_Out	Interact with adults in a typical week outside the neighborhood	454	
		1=0 days		76 (16.7%)
		2=1-2 days		142 (31.3%)
		3=3-4 days		130 (28.6%)
		4=5-7 days		106 (23.3%)
	Q24_3_InteractAdult_Out_Binary	Interact with adults in a typical week outside the neighborhood	454	
		0=No		76 (16.7%)
		1=Yes		378 (83.3%)
	Q24_4_InteractOldAdult_Out	Interact with older adults in a typical week outside the neighborhood	454	
		1=0 days		107 (23.6%)
		2=1-2 days		133 (29.3%)
		3=3-4 days		118 (26.0%)
		4=5-7 days		96 (21.1%)
	Q24_4_InteractOldAdult_Out_Binary	Interact with older adults in a typical week outside the neighborhood	454	
		0=No		107 (23.6%)
		1=Yes		347 (76.4%)
	Q24_InteractChildTeen_Out_Binary	Interact with children or teenagers in a typical week outside the neighborhood	454	
		0=No		286 (63.0%)
		1=Yes		168 (37.0%)
	Q24_InteractChildTeenAdults_Out_Binary	Interact with younger generations in a typical week outside the neighborhood	454	
		0=No		71 (15.6%)
		1=Yes		383 (84.4%)
	Q24_InteractChildTeenAdultsOldAdults_Out_Binary	Interact with people in a typical week outside the neighborhood	454	
		0=No		55 (12.1%)
		1=Yes		399 (87.9%)

Section 4. About Your Neighborhood Environment

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
25	Q25_MoveInYear_Impute	Number of years living in your current home	455	20.60 (15.281)
				0-66
26	Q26_New	Newly built neighborhood (built in the last 10-15 years)	455	
		0=No (or missing)		405 (89.0%)
		1=Yes		50 (11.0%)
	Q26_ManySenior	Neighborhood with many senior residents	455	
		0=No (or missing)		335 (73.6%)
		1=Yes		120 (26.4%)
	Q26_MixedLand	Neighborhood with mixed land uses	455	
		0=No (or missing)		299 (65.7%)
		1=Yes		156 (34.3%)
27	Q27_1_Affordability	Residential self-selection: affordability	455	
		0=Others		171 (37.6%)
		1=Very important		284 (62.4%)
	Q27_4_PublicTransportation	Residential self-selection: close to public transportation	455	
		0=Others		283 (62.2%)
		1=Not at all important		172 (37.8%)
	Q27_14_AgeGroups	Residential self-selection: diversity of age groups	455	
		1=Not at all important		115 (25.3%)
		2=Slightly important		106 (23.3%)
		3=Moderately important		144 (31.6%)
		4=Very important		90 (19.8%)
	Q27_NeighborEnvironment_IF1_New	Residential self-selection: neighborhood environments	455	.0000 (.99337)
				-2.71-1.54
	Q27_SocialCohesion_IF2_New	Residential self-selection: Social cohesion and support	455	.0000 (.99337)
				-1.74-2.40

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
28	Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support	455	.0000 (.99558) -3.27-1.33
	Q28_NeighCohesion_IF2	Neighborhood social cohesion	455	.0000 (.99558) -3.61-1.12
29	Q29_1_Shopping_StrAgree	Do most of my shopping at local stores	455	
		0=Others		161 (35.4%)
		1= Strongly agree		294 (64.6%)
	Q29_3_Parking_YesNo	Parking is difficult in local shopping areas	455	
		0=No (strongly disagree/somewhat disagree)		321 (70.5%)
		1=Yes (somewhat agree/strongly agree)		134 (29.5%)
	Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability	455	.0000 (1.00000) -1.50-1.94
	Q29_Terrain_IF2_NoShopPark	Topographic barriers/terrains/slopes	455	.0000 (1.00000) -2.69-1.01
30	Q30_StreetConnectivity_IF1_NoWalkways	Neighborhood street connectivity	455	.0000 (1.00000) -2.49-1.78
31	Q31_6_Benches_Final	Benches on most of the sidewalks in the neighborhood	455	
		0=Strongly disagree		306 (67.3%)
		1=Others (somewhat disagree/somewhat agree/strongly agree)		149 (32.7%)
	Q31_WalkFacilities_IF1_NoBench	Walking/cycling facilities	455	.0000 (1.00000) -2.11-1.59
32	Q32_Aesthetics_IF1	Neighborhood aesthetics	455	.0000 (1.00000) -3.22-1.31
	Q32_StreetTrees_IF2	Neighborhood street trees	455	.0000 (1.00000) -3.31-1.09
33	Q33_TrafficSafety_IF1	Traffic safety	455	.0000 (1.00000) -2.47-1.61
	Q33_CrossingSafety_IF2	Crossing safety	455	.0000 (1.00000) -1.73-1.82
	Q33_SafeSpeed_IF3	Safe traffic speed	455	.0000 (1.00000) -2.31-1.44
34	Q34_Crime_IF1	Neighborhood crime rate	455	.0000 (.99890) -3.47-0.94
	Q34_Surveillance_IF2	Neighborhood surveillance	455	.0000 (.99890) -3.09-1.80
35	Q35_SatiAccess_IF1_No35_5	Satisfaction on accessibility	455	.0000 (.99890) -2.78-1.51
	Q35_SatiSafety_IF2_No35_5	Satisfaction on safety	455	.0000 (.99890) -2.93-2.14
	Q35_SatiLivability_IF3_No35_5	Satisfaction on livability	455	.0000 (.99890) -3.57-1.53

Section 5. About Supportive Services or Programs

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
36	Q36_AllProgams	Use or participate in supportive services/programs at least once a month	455	
		0=No (or missing)		288 (63.3%)
		1=Yes		167 (36.7%)
	Q36_1_Health	Use or participate in health-related services/programs at least once a month	455	
		0=No (or missing)		404 (88.8%)
		1=Yes		51 (11.2%)
	Q36_2_Meal	Use or participate in meal related services/programs at least once a month	455	
		0=No (or missing)		391 (85.9%)
		1=Yes		64 (14.1%)
	Q36_4_Transportation	Use or participate in transportation related services/programs at least once a month	455	
		0=No (or missing)		383 (84.2%)
		1=Yes		72 (15.8%)
	Q36_6_Social	Use or participate in social related services/programs at least once a month	455	
		0=No (or missing)		362 (79.6%)
		1=Yes		93 (20.4%)
37	Q37_InterPrograms	Use or participate in services/programs involving intergenerational interactions	455	
		0=No (or missing)		398 (87.5%)
		1=Yes		57 (12.5%)
38	Q38_SatisPrograms	Satisfaction on supportive services/programs	455	
		0=No (or missing) (strongly dissatisfied/somewhat dissatisfied/missing)		161 (35.4%)
		1=Yes (somewhat satisfied/strongly satisfied)		294 (64.6%)
39	Q39_Driverless_Personally	Want to ride in a driverless vehicle	455	
		0=No (or missing) (strongly disagree/somewhat disagree/missing)		275 (60.4%)
		1=Yes (somewhat agree/strongly agree)		180 (39.6%)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
40	Q40_Driverless_General	People can live more independently with driverless vehicle	455	
		0=No (or missing) (strongly disagree/somewhat disagree/missing)		169 (37.1%)
		1=Yes (somewhat agree/strongly agree)		286 (62.9%)

Section 6. About Yourself

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
41	Q41_Age	Age in years	455	73.06 (6.189)
				65-95
42	Q42_Gender_Impute	Gender	455	
		0=Male		127 (27.9%)
		1=Female		328 (72.1%)
43-44	Q43_44_Race_Ethnicity	Race and ethnicity	452	
		0=Others		123 (27.2%)
		1=Non-Hispanic White		329 (72.8%)
45-46	Q45_Q46_BMI	Body mass index: weight divided by the square of height (kg/m^2)	443	27.195 (5.6423)
				15.4-61.8
	Q45_Q46_BMI_Categorical_UnderNormal	Body mass index	443	
		1= Normal or underweight: Below 25.0		176 (39.7%)
		2=Overweight: 25.0–29.9		152 (34.3%)
		3=Obesity: 30.0 and Above		115 (26.0%)
	Q45_Q46_BMI_Categorical_NoUnder	Body mass index	434	
		1=Normal: 18.5–24.9		167 (38.5%)
		2=Overweight: 25.0–29.9		152 (35.0%)
		3=Obesity: 30.0 and Above		115 (26.5%)
47	Q47_Marital_Status	Marital status	453	
		0=Others		248 (54.7%)
		1=Married or unmarried couple		205 (45.3%)
48	Q48_Education	Highest grade or year of school completed	455	
		1=Less than high school		8 (1.8%)
		2=Some high school, but no degree		12 (2.6%)
		3=High school diploma/GED		45 (9.9%)
		4=Some college		64 (14.1%)
		5=Associate degree		27 (5.9%)
		6=Bachelor's degree		122 (26.8%)
		7=Master's degree		110 (24.2%)
		8=Professional degree		25 (5.5%)
		9=Doctorate degree		42 (9.2%)
49	Q49_HousingType	Housing types	455	
		0=Others		111 (24.4%)
		1=One-family detached house		344 (75.6%)
50	Q50_Home_Ownership	Home ownership	454	
		1=Own without a mortgage or loan		216 (47.6%)
		2=Own with a mortgage or loan		133 (29.3%)
		3=Rent or live with relatives, etc.		105 (23.1%)
51	Q51_1_Pet	Pet in household	455	
		0=No or missing		245 (53.8%)
		1=Yes		210 (46.2%)
	Q51_2_Dog	Dog in household	455	
	0=No or missing	0=No or missing		342 (75.2%)
	1=Yes	1=Yes		113 (24.8%)
	Q51_3_Cat	Cat in household	455	
	0=No or missing	0=No or missing		339 (74.5%)
	1=Yes	1=Yes		116 (25.5%)
52	Q52_Employed	Employment status	455	
		0=No		373 (82.0%)
		1=Yes		82 (18.0%)
54	Q54_Income_Final	Total household income from all sources before taxes	455	
		1=Low income (below $20,000)		65 (14.3%)
		2=Lower-middle income ($20,000-$39,999)		86 (18.9%)
		3=Upper-middle income ($40,000-$79,999)		125 (27.5%)
		4=High income ($80,000 or more)		99 (21.8%)
		5=Don't know/prefer not to answer (or missing)		80 (17.6%)
55	Q55_LiveWithOthers	Living arrangement: live with others	453	
		0=No		192 (42.4%)
		1=Yes		261 (57.6%)
	Q55_LiveWithYoungerGeneration	Living arrangement: live with younger generations	451	
		0=No		361 (80.0%)
		1=Yes		90 (20.0%)

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
56	Q56_1_LiveWithSpouse	Living arrangement: live with spouse	450	
		0=No		249 (55.3%)
		1=Yes		201 (44.7%)
	Q56_3_LiveWithChild	Living arrangement: live with child	450	
		0=No		398 (88.4%)
		1=Yes		52 (11.6%)
	Q56_3_5_LiveWithChildGrandchild	Living arrangement: live with child/grandchild/great-grandchild	450	
		0=No		391 (86.9%)
		1=Yes		59 (13.1%)
57	Q57_Caregiving	Currently taking care of a sick or frail older relative or friend on a regular basis	454	
		0=No		409 (90.1%)
		1=Yes		45 (9.9%)
58	Q58_Health	General health conditions	449	
		1=Poor		7 (1.6%)
		2=Fair		54 (12.0%)
		3=Good		159 (35.4%)
		4=Very Good		160 (35.6%)
		5=Excellent		69 (15.4%)
59	Q59_SleepHour	Hours of sleep in a 24-hour period	444	7.247 (1.3611)
				2.0-16.0
60	Q60_Anxiety	Diseases diagnosed by health care provider: Anxiety	443	
		0=No		383 (86.5%)
		1=Yes		60 (13.5%)
	Q60_Depression	Diseases diagnosed by health care provider: Depression	443	
		0=No		375 (84.7%)
		1=Yes		68 (15.3%)
	Q60_Obesity	Diseases diagnosed by health care provider: Obesity	443	
		0=No		380 (85.8%)
		1=Yes		63 (14.2%)
	Q60_Hearing	Diseases diagnosed by health care provider: Hearing loss or deafness	443	
		0=No		357 (80.6%)
		1=Yes		86 (19.4%)
	Q60_Diabetes	Diseases diagnosed by health care provider: Diabetes	443	
		0=No		369 (83.3%)
		1=Yes		74 (16.7%)
	Q60_HighCholesterol	Diseases diagnosed by health care provider: High cholesterol	443	
		0=No		262 (59.1%)
		1=Yes		181 (40.9%)
	Q60_Hypertension	Diseases diagnosed by health care provider: Hypertension	443	
		0=No		292 (65.9%)
		1=Yes		151 (34.1%)
	Q60_Cancer	Diseases diagnosed by health care provider: Cancer	443	
		0=No		377 (85.1%)
		1=Yes		66 (14.9%)
	Q60_Osteoporosis	Diseases diagnosed by health care provider: Osteoporosis or brittle bones	443	
		0=No		366 (82.6%)
		1=Yes		77 (17.4%)
	Q60_Arthritis	Diseases diagnosed by health care provider: Arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia	443	
		0=No		295 (66.6%)
		1=Yes		148 (33.4%)
	Q60_SpinalDisorder	Diseases diagnosed by health care provider: Spinal/back disorder	443	
		0=No		379 (85.6%)
		1=Yes		64 (14.4%)
	Q60_Thyroid	Diseases diagnosed by health care provider: Thyroid disease	443	
		0=No		356 (80.4%)
		1=Yes		87 (19.6%)
	Q60_Heart	Diseases diagnosed by health care provider: Heart attack or other heart disease	443	
		0=No		392 (88.5%)
		1=Yes		51 (11.5%)
	Q60_Sleep	Diseases diagnosed by health care provider: Sleep disorders	443	
		0=No		364 (82.2%)
		1=Yes		79 (17.8%)
	Q60_Urinary	Diseases diagnosed by health care provider: Urinary incontinence or accidental leakage of urine	443	
		0=No		383 (86.5%)
		1=Yes		60 (13.5%)
	Q60_MentalIllness[#]	Diseases diagnosed by health care provider: Mental and cognitive related diseases	443	
		0=No		343 (77.4%)
		1=Yes		100 (22.6%)

[#] Q60_MentalIllness: Anxiety/Depression/Memory loss

Q	Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
	Q60_Sensory[#]	Diseases diagnosed by health care provider: Sensory related diseases	443	
		0=No		327 (73.8%)
		1=Yes		116 (26.2%)
	Q60_Mobility[#]	Diseases diagnosed by health care provider: Mobility related diseases	443	
		0=No		105 (23.7%)
		1=Yes		338 (76.3%)
	Q60_Number_Diseases	Number of diseases diagnosed by health care provider	443	3.43 (2.550)
				0-15
61	Q61_DifficultyHearing	Serious difficulty hearing	452	
		0=No		360 (79.6%)
		1=Yes or don't know/prefer not to answer		92 (20.4%)
61-62	Q61_Q62_DifficultyHearingSeeing	Serious difficulty hearing or seeing	451	
		0=No		339 (75.2%)
		1=Yes or don't know/prefer not to answer		112 (24.8%)
63	Q63_DifficultyWalking	Serious difficulty walking or climbing stairs	453	
		0=No		350 (77.3%)
		1=Yes or don't know/prefer not to answer		103 (22.7%)
67	Q67_Alcohol	Alcoholic beverages in a typical week	434	
		0=No		240 (55.3%)
		1=Yes		194 (44.7%)
69	Q69_MobilityAids	Mobility aids used to get around	441	
		0=No		385 (87.3%)
		1=Yes		56 (12.7%)
71	Q71_Fall	Fall in the past 12 months	455	
		0=No		346 (76.0%)
		1=Yes		109 (24.0%)
	Q71_FallInjury	Fall with an injury in the past 12 months	443	
		0=No		387 (87.4%)
		1=Yes		56 (12.6%)
73	Q73_Personal_Illness	Life events during the past three years: personal illness	448	
		0=No		256 (57.1%)
		1=Yes		192 (42.9%)
	Q73_Death_Family	Life events during the past three years: death of a spouse/family member/friend	448	
		0=No		232 (51.8%)
		1=Yes		216 (48.2%)
	Q73_Illness_Family	Life events during the past three years: illness of a spouse/family member/friend	448	
		0=No		274 (61.2%)
		1=Yes		174 (38.8%)
	Q73_Nonmedical	Life events during the past three years: non-medical events	448	
		0=No		403 (90.0%)
		1=Yes		45 (10.0%)
	Q73_LifeEvent	Life events during the past three years	448	
		0=No		94 (21.0%)
		1=Yes		354 (79.0%)

[#] Q60_Sensory: Low vision or blindness/Hearing loss or deafness/Ear, Nose, and Throat (ENT) disorder;
Q60_Mobility: Obesity/Asthma/Hypertension/Stroke/Cancer/Osteoporosis or brittle bones/Arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia/Spinal or back disorder/Heart attack or other heart disease/Other, specify (e.g. Parkinson's disease)

Walk Scores

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
Walk_Score	Neighborhood walk scores (0-100)	455	44.03 (23.73)
			0-92
Transit_Score	Neighborhood transit scores (0-100)	455	35.45 (15.47)
			0-69
Bike_Score	Neighborhood bike scores (0-100)	453	59.13 (20.29)
			2-99

Objective Environments (Sausage Buffer)

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
T_STRT_LNS	Total length of street segments (miles)	453	6.69 (3.01)
			0.36-15.53
T_STRT_DNS	Density of street segments (miles/acre)	453	0.05 (0.01)
			0.04-0.08
T_ST30_LNS	Length of high-speed streets (>30mph) (miles)	453	2.79 (1.67)
			0.00-11.17

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
T_ST30_PTS ("T_ST30_PTS_2" = "T_ST30_PTS" x 10)	Percentage of high-speed streets (>30mph) (%; unit of "T_ST30_PTS_2": 10%)	453	42.2% (17.8%) 0.0%-100.0%
T_SWLK_LNS	Total length of sidewalks (miles)	453	11.04 (5.08) 0.24-24.93
T_SWLK_PTS	Sidewalk coverage (=length of sidewalk / 2 × length of street segments) (%)	453	82.6% (14.0%) 10.3%-103.6%
T_Bike_lns_2	Total length of bike lanes (miles)	453	
	0		164 (36.2%)
	>0 - <1		164 (36.2%)
	≥1		125 (27.6%)
T_Bike_Pts_2	Bike lane coverage (= length of bikeway / length of street segment) (%)	453	
	0%		164 (36.2%)
	>0% - <10%		136 (30.0%)
	≥10%		153 (33.8%)
T_Ptst_cts_2	Number of transit stops (n)	453	
	0		105 (23.2%)
	1-5		121 (26.7%)
	6-10		100 (22.1%)
	11 or more		127 (28.0%)
T_Ptst_Dns_2	Density of transit stops (n/100 acres)	453	
	0		105 (23.2%)
	>0 - <5		119 (26.3%)
	≥5 - <10		125 (27.6%)
	≥10		104 (23.0%)
T_Ptst_S2	Density of transit stops (n/100 acres)	453	
	Lower density: 0 - <10		349 (77.0%)
	Higher density: ≥10		104 (23.0%)
T_PTRO_CTS	Number of transit routes (n)	453	3.8 (4.43) 0-35
T_MKCR_CTS_2	Number of marked crosswalks (n)	453	
	0		55 (12.1%)
	1-9		134 (29.6%)
	10-19		123 (27.2%)
	20 or more		141 (31.1%)
T_MKCR_DNS_2	Density of marked crosswalks (n/acre)	453	
	0		55 (12.1%)
	>0 - <2.0		165 (36.4%)
	≥2.0 - <4.0		159 (35.1%)
	≥4.0		74 (16.3%)
T_Tsig_cts_2	Number of traffic signals (n)	453	
	0		129 (28.5%)
	1		91 (20.1%)
	2-3		115 (25.4%)
	4 or more		118 (26.0%)
T_Tsig_dns_2	Density of traffic signals (n/100 acres)	453	
	0		129 (28.5%)
	>0 - <25		81 (17.9%)
	≥25 - <50		129 (28.5%)
	≥50		114 (25.2%)
T_SSIG_CTS ("T_SSIG_CTS_2" = "T_SSIG_CTS" / 10)	Number of stop signs (n; unit of "T_SSIG_CTS_2": 10)	453	45.53 (35.09) 0-184
T_SSIG_DNS	Density of stop signs (n/acre)	453	6.14 (2.58) 0-15.02
T_IT3_CTS ("T_IT3_CTS_2" = "T_IT3_CTS" / 10)	Number of Intersections with 3 or more ways (n; unit of "T_IT3_CTS_2": 10)	453	44.77 (25.01) 0-129
T_IT3_DNS	Density of intersections with 3 or more ways (n/acre)	453	6.43 (1.39) 0-9.55
T_Itsi_cts_2	Number of intersections with traffic signals (n)	453	
	0		132 (29.1%)
	1		96 (21.2%)
	2-3		121 (26.7%)
	4 or more		104 (23.0%)
T_Itsi_pts_2	Percentage of intersections with traffic signals (%)	453	
	0%		132 (29.1%)
	>0% - <5%		123 (27.2%)
	≥5% - <10%		117 (25.8%)
	≥10%		81 (17.9%)
T_Itcr_cts_2	Number of intersections with marked crosswalks (n)	453	
	0		66 (14.6%)
	1-3		113 (24.9%)
	4-10		175 (38.6%)
	11 or more		99 (21.9%)

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
T_ltcr_pts_2	Percentage of intersections with marked crosswalks (%)	453	
	0%		66 (14.6%)
	>0% - <10%		119 (26.3%)
	≥10% - <20%		130 (28.7%)
	≥20%		138 (30.5%)
T_ITT_CTS ("T_ITT_CTS_2" = "T_ITT_CTS" / 10)	Number of intersections with stop signs (n; unit of "T_ITT_CTS_2": 10)	453	25.53 (17.99) 0-97
T_ITT_PTS	Percentage of intersections with stop signs (%)	453	53.5% (19.9%) 0.0%-92.9%
L_RESU_CTS	Number of residential units (n)	453	1015.58 (673.74) 50-4839
L_RESU_DNS_ln	Natural log of the density of residential units [ln(n/acre)]	453	1.99 (0.53) 0.52-4.21
L_RES_ARS	Area of the residential land use (acres)	453	63.13 (29.36) 0-139.41
L_RES_PTS ("L_RES_PTS_2" = "T_ST30_PTS" x 10)	Percentage of the residential land use (%; unit of "L_RES_PTS_2": 10%)	453	50.3% (13.4%) 0.0%-73.3%
L_RESU_UPS_2_ln	Natural log of the number of residential units per acre of residential parcels [ln(n/acre)]	450	2.71 (0.66) 1.29-5.25
L_com_ars_2	Area of the commercial land use (acres)	453	
	0		110 (24.3%)
	>0 - <2		130 (28.7%)
	≥2 - <7		119 (26.3%)
	≥7		94 (20.8%)
L_com_ars_S	Presence of the commercial land use (0/1)	453	
	No		110 (24.3%)
	Yes		343 (75.7%)
L_com_pts_2	Percentage of the commercial land use (%)	453	
	0%		110 (24.3%)
	>0% - <2%		147 (32.5%)
	≥2% - <6%		108 (23.8%)
	≥6%		88 (19.4%)
L_off_ars_3	Area of offices (acres)	453	
	0		140 (30.9%)
	>0 - <1.5		155 (34.2%)
	≥1.5		158 (34.9%)
L_off_pts_2	Percentage of offices (%)	453	
	0%		140 (30.9%)
	>0% - <2%		210 (46.4%)
	≥2%		103 (22.7%)
L_rec_ars_2	Area of the recreational land use (acres)	453	
	0		131 (28.9%)
	>0 - <2		152 (33.6%)
	≥2		170 (37.5%)
L_rec_pts_2	Percentage of the recreational land use (%)	453	
	0%		131 (28.9%)
	>0% - <2%		188 (41.5%)
	≥2%		134 (29.6%)
L_Lulu_ars_2	Area of the locally undesirable land use (acres)	453	
	0		260 (57.4%)
	>0 - <1		123 (27.2%)
	≥1		70 (15.5%)
L_Lulu_ars_S	Presence of the locally undesirable land use (0/1)	453	
	No		260 (57.4%)
	Yes		193 (42.6%)
L_Lulu_pts_2	Percentage of the locally undesirable land use (%)	453	
	0%		260 (57.4%)
	>0% - <1%		133 (29.4%)
	≥1%		60 (13.2%)
L_MX4_RAS_ln	Natural log of the four-category mixed use index [ln(scores)]	420	-1.55 (1.01) -6.14--0.05
D_ALL_CTS_ln	Natural log of the number of all destinations [ln(n)]	450	3.25 (1.23) 0-6.33
D_ALL_DNS_ln	Natural log of the density of all destinations [ln(n/acre)]	450	-1.48 (1.02) -3.92-1.46
D_com_cts_2	Number of commercial destinations (n)	453	
	0		119 (26.3%)
	1-4		123 (27.2%)
	5-12		99 (21.9%)
	13 or more		112 (24.7%)

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
D_com_dns_2	Density of commercial destinations (n/100 acres)	453	
	0		119 (26.3%)
	>0 - <3		108 (23.8%)
	≥3 - <10		114 (25.2%)
	≥10		112 (24.7%)
D_lulu_cts_2	Number of locally undesirable destinations (n)	453	
	0		250 (55.2%)
	1		102 (22.5%)
	2 or more		101 (22.3%)
D_lulu_dns_2	Density of locally undesirable destinations (n/100 acres)	453	
	0		250 (55.2%)
	>0 - <1		94 (20.8%)
	≥1		109 (24.1%)
D_eat_cts_2	Number of eating and drinking destinations (n)	453	
	0		200 (44.2%)
	1-5		151 (33.3%)
	6 or more		102 (22.5%)
D_eat_dns_2	Density of eating and drinking destinations (n/100 acres)	453	
	0		200 (44.2%)
	>0 - <4		141 (31.1%)
	≥4		112 (24.7%)
D_Food_S	Presence of food stores (0/1)	453	
	No		293 (64.7%)
	Yes		160 (35.3%)
D_ret_cts_2	Number of small retail & commercial services (n)	453	
	0		172 (38.0%)
	1-3		162 (35.8%)
	4 or more		119 (26.3%)
D_ret_dns_2	Density of small retail & commercial services (n/100 acres)	453	
	0		172 (38.0%)
	>0 - <3		165 (36.4%)
	≥3		116 (25.6%)
D_Bbox_S	Presence of big box retails (0/1)	453	
	No		404 (89.2%)
	Yes		49 (10.8%)
D_bank_cts_2	Number of banks and post offices (n)	453	
	0		228 (50.3%)
	1-2		122 (26.9%)
	3 or more		103 (22.7%)
D_bank_dns_2	Density of banks and post offices (n/100 acres)	453	
	0		228 (50.3%)
	>0 - <2		121 (26.7%)
	≥2		104 (23.0%)
D_edu_cts_2	Number of educational and community destinations (n)	453	
	0		197 (43.5%)
	1-2		152 (33.6%)
	3 or more		104 (23.0%)
D_edu_dns_2	Density of educational and community destinations (n/100 acres)	453	
	0		197 (43.5%)
	>0 - <2		165 (36.4%)
	≥2		91 (20.1%)
D_rins_cts_2	Number of religious destinations (n)	453	
	0		258 (57.0%)
	1		96 (21.2%)
	2 or more		99 (21.9%)
D_rins_dns_2	Density of religious destinations (n/100 acres)	453	
	0		258 (57.0%)
	>0 - <1		74 (16.3%)
	≥1		121 (26.7%)
D_Oins_S*	Presence of other institutions (0/1)	453	
	No		300 (66.2%)
	Yes		153 (33.8%)
D_off_cts_2	Number of offices (n)	453	
	0		92 (20.3%)
	1		109 (24.1%)
	2-7		152 (33.6%)
	8 or more		100 (22.1%)
D_off_dns_2	Density of offices (n/100 acres)	453	
	0		92 (20.3%)
	>0 - <2		144 (31.8%)
	≥2 - <6		110 (24.3%)
	≥6		107 (23.6%)

*Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
D_Fit_S	Presence of sports and fitness destinations (0/1)	453	
	No		338 (74.6%)
	Yes		115 (25.4%)
D_park_cts_3	Number of parks (n)	453	
	0		93 (20.5%)
	1		155 (34.2%)
	2-3		149 (32.9%)
	4 or more		56 (12.4%)
D_park_dns_2	Density of parks (n/100 acres)	453	
	0		93 (20.5%)
	>0 - <1		93 (20.5%)
	≥1 - <2		151 (33.3%)
	≥2		116 (25.6%)
D_park_ars_5	Area of parks (acres)	453	
	0		93 (20.5%)
	>0 - <2		185 (40.8%)
	≥2 - <6		123 (27.2%)
	≥6		52 (11.5%)
D_park_pts_2	Percentage of park areas (%)	453	
	0%		93 (20.5%)
	>0% - <1%		106 (23.4%)
	≥1% - <3%		164 (36.2%)
	≥3%		90 (19.9%)
D_para_cts_2	Number of facilities in the parks (n)	453	
	0		150 (33.1%)
	1-10		127 (28.0%)
	11 or more		176 (38.9%)
D_para_cts_S	Presence of facilities in the parks (0/1)	453	
	No		150 (33.1%)
	Yes		303 (66.9%)
D_para_dns_2	Number of facilities per acre of park areas (n/acre)	453	
	0		150 (33.1%)
	>0 - <7		165 (36.4%)
	≥7		138 (30.5%)
D_MX4_RAS_ln	Natural log of the four-category mixed use index (destination diversity) [ln(scores)]	444	-2.84 (0.82) -5.23--0.4
D_MX3_RAS_ln	Natural log of the three-category mixed use index (destination diversity) [ln(scores)]	444	-2.64 (0.81) -5--0.23
D_Tril_lns_3	Length of trails (miles)	453	
	0		201 (44.4%)
	>0 - <0.15		163 (36.0%)
	≥0.15		89 (19.6%)
G_TREE_ARS	Area of tree canopy (acres)	453	42.46 (23.48) 2.37-122.42
G_TREE_PTS	Percentages of tree canopy (%)	453	33.8% (11.7%) 5.7%-61.1%
S_SLOA_VLS	Mean slope (%)	453	13.0% (78.6%) 23.5%-57.7%
S_SLOS_VLS	Mean street slope (%)	453	73.5% (40.7%) 11.7%-309.7%
F_CRT_CTS_ln	Natural log of the number of average annual crimes [ln(n)]	453	4.54 (1.21) -0.43-8.35
F_CRT_DNS_ln	Natural log of the density of average annual crimes [ln(n/acre)]	453	-0.18 (0.97) -3.39-3.06
F_CRV_CTS_ln	Natural log of the number of average annual violent crimes [ln(n)]	442	2.16 (1.48) -1.13-6.79
F_CRV_DNS_ln	Natural log of the density of average annual violent crimes [ln(n/acre)]	442	-2.58 (1.33) -6.18-1.58
F_CRP_CTS_ln	Natural log of the number of average annual property crimes [ln(n)]	442	2.16 (1.48) -1.13-6.79
F_CRP_DNS_ln	Natural log of the density of average annual property crimes [ln(n/acre)]	442	-2.58 (1.33) -6.18-1.58
F_CRB_CTS_ln	Natural log of the number of average annual behavioral crimes [ln(n)]	453	3.44 (1.31) -1.13-7.33
F_CRB_DNS_ln	Natural log of the density of average annual behavioral crimes [ln(n/acre)]	453	-1.28 (1.1) -4.92-2.09
S_CSHT_CTS_ln	Natural log of the number of annual traffic crashes [ln(n)]	451	2.72 (1.39) -1.75-5.83
S_CSHT_DNS	Density of annual traffic crashes (n/acre)	453	0.24 (0.26) 0-1.79
E_Afh_S	Presence of annual fatal crashes (0/1)	453	
	No		321 (70.9%)
	Yes		132 (29.1%)

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
E_PVAL_VLS	Total appraisal values of residential parcels (dollars)	453	272306802.01 (196404196.01) 0-1281788838
E_PVAL_MVS_2_ln	Natural log of appraisal values per acre of residential parcels [ln(dollars/acre)]	446	15.19 (0.61) 13.19-18.05
E_EME_CTS_ln	Natural log of the number of employees [ln(n)]	453	5.07 (1.57) 0.69-9.84
E_EMIM_CTS_ln	Natural log of the number of employees in major employers [ln(n)]	440	4.32 (1.75) 0-9.1
E_EME_DNS_ln	Natural log of the density of employees [ln(n/acre)]	453	0.35 (1.4) -3.81-4.87
E_Per_cts_3	Development permits issued in 2019 (n)	453	
	0		90 (19.9%)
	1-12		163 (36.0%)
	13-48		83 (18.3%)
	49 or more		117 (25.8%)
E_Per_cts_S	Development permits issued in 2019 (0/1)	453	
	No		90 (19.9%)
	Yes		363 (80.1%)
E_Per_dns_2	Density of development permits in 2019 (n/100 acres)	453	
	0		90 (19.9%)
	>0 - <10		151 (33.3%)
	≥10 - <40		101 (22.3%)
	≥40		111 (24.5%)

Objective Environments (Shortest Network Distance)

Variable	Description	Obs	Mean/Freq (SD/%) Min-Max
T_PTST_SDN_ln	Natural log of the distance to the closest transit stop [ln(miles)]	450	-1.36 (1.16) -8.72-1.60
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station [ln(miles)]	452	1.26 (0.77) -2.59-2.83
T_Ptrc_P	Number of transit routes at the closest stop (0/1)	455	
	1 transit route		283 (62.2%)
	2 or more transit routes		172 (37.8%)
D_COM_SDN	Distance to the closest commercial destination (miles)	455	0.35 (0.32) 0.00-2.45
D_LULU_SDN	Distance to the closest locally undesirable destination (miles)	455	0.55 (0.44) 0.00-4.11
D_EAT_SDN	Distance to the closest eating and drinking destination (miles)	455	0.48 (0.41) 0.00-4.58
D_FOOD_SDN	Distance to the closest food store (miles)	455	0.65 (0.50) 0.00-5.11
D_RET_SDN	Distance to the closest small retail & commercial service (miles)	455	0.43 (0.36) 0.00-2.61
D_BBOX_SDN	Distance to the closest big box retail (miles)	455	1.13 (0.85) 0.00-6.14
D_BANK_SDN	Distance to the closest bank or post office (miles)	455	0.53 (0.44) 0.00-4.50
D_EDU_SDN	Distance to the closest educational and community destination (miles)	455	0.42 (0.29) 0.00-2.34
D_RINS_SDN	Distance to the closest religious destination (miles)	455	0.55 (0.42) 0.00-4.49
D_OINS_SDN*	Distance to the closest other institution (miles)	455	0.81 (0.70) 0.00-4.83
D_OFF_SDN	Distance to the closest office (miles)	455	0.32 (0.27) 0.00-1.79
D_FIT_SDN	Distance to the closest sports and fitness destination (miles)	455	0.81 (0.60) 0.00-4.65
D_PARK_SDN	Distance to the closest park (miles)	455	0.44 (0.35) 0.00-2.79
D_PARK_ARC_ln	Natural log of the area of the closest park [ln(acres)]	455	2.35 (1.76) -2.68-7.54
D_TRL_SDN	Distance to the closest park trails (miles)	455	0.50 (0.43) 0.00-3.74
W_WATR_SDN_ln	Natural log of the distance to the closest park with/next to the water feature [ln(miles)]	452	0.81 (1.27) -5.07-2.71

*Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

APPENDIX F

BIVARIATE ANALYSIS RESULTS

Section 3. About Your Intergenerational and Other Social Activities [All] (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
11	Q11_Interaction_Children_Binary	Social interactions with children at least once a week	Chi-squared					0.282	**0.036***
	Q11_Interaction_Teenagers_Binary	Social interactions with teenagers at least once a week	Chi-squared					0.069	**0.026***
	Q11_Interaction_Adults	Number of places for social interactions with adults	T-test					**0.000****	**0.000****
	Q11_Interaction_OlderAdults	Number of places for peer interactions	T-test					**0.000****	**0.000****
	Q11_Interaction_OlderAdults_Binary	Social interactions with older adults at least once a week	Chi-squared					**0.047***	**0.000****
	Q11_Interaction_Child_Teen_Binary	Social interactions with children or teenagers at least once a week	Chi-squared					0.083	0.068
	Q11_Interaction_Child_Teen_Adult	Number of places for social interactions with children+teenagers+adults	T-test					**0.000****	**0.000****
	Q11_Interaction_Child_Teen_Adult_OldAdult	Number of places for social interactions with children+teenagers+adults+older adults	T-test					**0.000****	**0.000****
	Q11_PlaceInteract	Number of places for social interactions	T-test					**0.000****	**0.000****
12	Q12_1_SatisChild_Imp3	Satisfaction on social interactions with children	Chi-squared					0.374	0.218
	Q12_2_SatisTeen_Imp3	Satisfaction on social interactions with teenagers	Chi-squared					0.483	0.331
	Q12_3_SatisAdult_Imp3	Satisfaction on social interactions with adults	Chi-squared					0.497	0.462
	Q12_4_SatisOld_Imp3	Satisfaction on social interactions with older adults	Chi-squared					0.149	**0.034***
13	Q13_VolunteerWork	Volunteer work	Chi-squared	**0.004****	**0.004****	0.073	**0.022***	0.175	**0.000****
15	Q15_1_DigitalChildren_Binary	Digital communications with children in a typical week	Chi-squared	**0.000****	**0.049***	**0.002****	**0.034***	0.134	0.599
	Q15_2_DigitalTeenagers_Binary	Digital communications with teenagers in a typical week	Chi-squared	**0.000****	**0.037***	**0.017***	**0.033***	**0.042***	0.678
	Q15_DigitalChildrenTeenagers_Binary	Digital communications with children or teenagers in a typical week	Chi-squared	**0.000****	**0.042***	**0.006****	**0.029***	**0.004****	0.374
	Q15_3_DigitalAdults_Binary	Digital communications with adults in a typical week	Chi-squared	0.380	**0.003****	0.423	**0.040***	0.585	**0.050***
	Q15_4_DigitalOldAdults_Binary	Digital communications with older adults in a typical week	Chi-squared	0.064	**0.000****	**0.000****	**0.000****	0.806	**0.004****

Section 3. About Your Intergenerational and Other Social Activities [In the Neighborhood] (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
16	Q16_SocialPlace_In	Social places in the neighborhood	Chi-squared	**0.000****	**0.000****	**0.000****	**0.000****	0.381	0.073
17	Q17_NeighborhoodOutdoor_Binary	Neighborhood outdoor time in a typical week	Chi-squared					**0.007****	**0.000****
	Q17_NeighborhoodOutdoor	Neighborhood outdoor time in a typical week (minutes/week)	T-test					**0.038***	**0.000****
18	Q18_Social_Neighbors_Impute	Social interactions with neighbors in a typical month	T-test					**0.000****	**0.000****
19	Q19_1_Know_Children_Impute	Know children in the neighborhood	Chi-squared					0.126	**0.027***
	Q19_2_Know_Teenagers_Impute	Know teenagers in the neighborhood	Chi-squared					**0.028***	**0.029***
	Q19_3_Know_Adults_Impute	Know adults in the neighborhood	Chi-squared					**0.046***	**0.000****
	Q19_4_Know_OlderAdults	Know older adults in the neighborhood	Chi-squared					**0.005****	**0.001****
	Q19_Know_ChildTeen_Impute	Know children or teenagers in the neighborhood	Chi-squared					0.096	**0.011***
20	Q20_1_WatchChildren_In	Watch children doing activities in a typical week in the neighborhood	Chi-squared					**0.008****	0.207

Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
	Q20_2_WatchTeenagers_In	Watch teenagers doing activities in a typical week in the neighborhood	Chi-squared					**0.012***	0.123
	Q20_3_WatchAdults_In	Watch adults doing activities in a typical week in the neighborhood	Chi-squared					**0.018***	0.144
	Q20_4_WatchOlderAdults_In	Watch older adults doing activities in a typical week in the neighborhood	Chi-squared					0.078	0.305
	Q20_WatchChildTeen_In_Binary	Watch children or teenagers doing activities in a typical week in the neighborhood	Chi-squared					**0.001****	0.159
	Q20_WatchChildTeenAdult_In_Binary	Watch younger generations doing activities in a typical week in the neighborhood	Chi-squared					**0.002****	0.094
	Q20_WatchChildTeenAdultOldAdult_In_Binary	Watch people doing activities in a typical week in the neighborhood	Chi-squared					**0.011***	0.471
21	**Q21_1_InteractChildren_In***	Interact with children in a typical week in the neighborhood	Chi-squared					**0.001****	**0.036***
	Q21_2_InteractTeenagers_In	Interact with teenagers in a typical week in the neighborhood	Chi-squared					**0.041***	0.242
	Q21_3_InteractAdults_In_Ordinal	Interact with adults in a typical week in the neighborhood	Chi-squared					**0.002****	**0.000****
	Q21_3_InteractAdults_In	Interact with adults in a typical week in the neighborhood	Chi-squared					**0.012***	**0.000****
	Q21_4_InteractOldAdults_In_Ordinal	Interact with older adults in a typical week in the neighborhood	Chi-squared					**0.009****	**0.001****
	Q21_4_InteractOldAdults_In*	Interact with older adults in a typical week in the neighborhood	Chi-squared					**0.001****	**0.001****
	Q21_InteractChildTeen_In_Binary	Interact with children or teenagers in a typical week in the neighborhood	Chi-squared					**0.001****	**0.036***
	Q21_InteractChildTeenAdult_In_Binary*	Interact with younger generations in a typical week in the neighborhood	Chi-squared					**0.009****	**0.000****
	Q21_InteractChildTeenAdultOldAdult_In_Binary*	Interact with people in a typical week in the neighborhood	Chi-squared					**0.015***	**0.000****
22_1	Q22_1_See_ChildrenWalking	See children walking at least once a week in the neighborhood	Chi-squared					0.272	0.123
	Q22_1_See_TeenagerWalking	See teenagers walking at least once a week in the neighborhood	Chi-squared					**0.036***	0.369
	Q22_1_See_AdultWalking	See adults walking at least once a week in the neighborhood	Chi-squared					0.600	**0.007****
	Q22_1_See_OldAdultWalking	See older adults walking at least once a week in the neighborhood	Chi-squared					0.377	**0.013***
	Q22_1_See_ChildTeenWalking	See children or teenagers walking at least once a week in the neighborhood	Chi-squared					0.319	0.182
	Q22_1_See_ChildTeenAdultWalking	See younger generations walking at least once a week in the neighborhood	Chi-squared					0.531	**0.013***
22_2	Q22_2_See_ChildrenBiking	See children biking at least once a week in the neighborhood	Chi-squared					0.335	0.678
	Q22_2_See_TeenagerBiking	See teenagers biking at least once a week in the neighborhood	Chi-squared					**0.001****	0.552
	Q22_2_See_AdultBiking	See adults biking at least once a week in the neighborhood	Chi-squared					**0.023***	**0.011***
	Q22_2_See_OldAdultBiking	See older adults biking at least once a week in the neighborhood	Chi-squared					**0.001****	0.695
	Q22_2_See_ChildTeenBiking	See children or teenagers biking at least once a week in the neighborhood	Chi-squared					0.061	0.332
	Q22_2_See_ChildTeenAdultBiking	See younger generations biking at least once a week in the neighborhood	Chi-squared					0.055	**0.009****
	Q22_2_See_PeopleBiking	See people biking at least once a week in the neighborhood	Chi-squared					**0.031***	**0.005****
22_3	Q22_3_See_ChildrenPlaying	See children playing at least once a week in the neighborhood	Chi-squared					0.852	0.062
	Q22_3_See_TeenagerPlaying	See teenagers playing at least once a week in the neighborhood	Chi-squared					0.087	0.565
	Q22_3_See_AdultPlaying	See adults playing at least once a week in the neighborhood	Chi-squared					**0.000****	**0.035***
	Q22_3_See_ChildTeenPlaying	See children or teenagers playing at least once a week in the neighborhood	Chi-squared					0.763	0.099
	Q22_3_See_ChildTeenAdultPlaying	See younger generations playing at least once a week in the neighborhood	Chi-squared					0.131	**0.027***
	Q22_3_See_PeoplePlaying	See people playing at least once a week in the neighborhood	Chi-squared					0.082	**0.026***
22_4	Q22_4_See_AdultSitting	See adults sitting at least once a week in the neighborhood	Chi-squared					**0.000****	**0.002****
	Q22_4_See_OlderAdultSitting	See older adults sitting at least once a week in the neighborhood	Chi-squared					**0.001****	**0.011***
	Q22_4_See_ChildTeenAdultSitting	See younger generations sitting at least once a week in the neighborhood	Chi-squared					**0.000****	**0.005****
	Q22_4_See_PeopleSitting	See people sitting at least once a week in the neighborhood	Chi-squared					**0.000****	**0.000****
22_5	Q22_5_See_AdultWorking	See adults working at least once a week in the neighborhood	Chi-squared					0.226	**0.028***
	Q22_5_See_OlderAdultWorking	See older adults working at least once a week in the neighborhood	Chi-squared					**0.005****	0.184
	Q22_5_See_ChildTeenAdultWorking	See younger generations working at least once a week in the neighborhood	Chi-squared					0.220	**0.026***
	Q22_5_See_PeopleWorking	See people working at least once a week in the neighborhood	Chi-squared					0.061	**0.001****
22_6	Q22_6_See_ChildrenSocializing	See children socializing at least once a week in the neighborhood	Chi-squared					0.130	0.157
	Q22_6_See_TeenagerSocializing	See teenagers socializing at least once a week in the neighborhood	Chi-squared					0.109	0.443
	Q22_6_See_AdultSocializing	See adults socializing at least once a week in the neighborhood	Chi-squared					0.364	**0.001****
	Q22_6_See_OlderAdultSocializing	See older adults socializing at least once a week in the neighborhood	Chi-squared					**0.000****	**0.000****
	Q22_6_See_ChildTeenSocializing	See children or teenagers socializing at least once a week in the neighborhood	Chi-squared					0.194	0.367
	Q22_6_See_ChildTeenAdultSocializing	See younger generations socializing at least once a week in the neighborhood	Chi-squared					0.471	**0.003****

Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
	Q22_6_See_PeopleSocializing	See people socializing at least once a week in the neighborhood	Chi-squared					**0.032***	**0.003****
22_all	Q22_See_Children_In_Binary	See children doing outdoor activities at least once a week in the neighborhood	Chi-squared					0.817	0.154
	Q22_See_Teenagers_In_Binary	See teenagers doing outdoor activities at least once a week in the neighborhood	Chi-squared					**0.045***	0.435
	Q22_See_Adults_In	See adults doing outdoor activities at least once a week in the neighborhood	T-test					**0.000****	**0.000****
	Q22_See_OlderAdults_In_Binary	See older adults doing outdoor activities at least once a week in the neighborhood	Chi-squared					0.107	0.110
	Q22_See_ChildTeen_In_Binary	See children or teenagers doing outdoor activities at least once a week	Chi-squared					0.555	0.144

Section 3. About Your Intergenerational and Other Social Activities [Outside the Neighborhood] (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
23	Q23_1_WatchChildren_Out	Watch children doing activities in a typical week outside the neighborhood	Chi-squared					0.038	0.005
	Q23_2_WatchTeenagers_Out	Watch teenagers doing activities in a typical week outside the neighborhood	Chi-squared					0.006	0.028
	Q23_3_WatchAdults_Out	Watch adults doing activities in a typical week outside the neighborhood	Chi-squared					0.014	0.028
	Q23_4_WatchOlderAdults_Out	Watch older adults doing activities in a typical week outside the neighborhood	Chi-squared					0.010	0.035
	Q23_WatchChildTeen_Out_Binary	Watch children or teenagers doing activities in a typical week outside neighborhood	Chi-squared					0.014	0.011
	Q23_WatchChildTeenAdults_Out_Binary	Watch younger generations doing activities in a typical week outside neighborhood	Chi-squared					0.014	0.043
	Q23_WatchChildTeenAdultsOldAdult_Out_Binary	Watch people doing activities in a typical week outside the neighborhood	Chi-squared					0.009	0.065
24	Q24_1_InteractChildren_Out_Binary	Interact with children in a typical week outside the neighborhood	Chi-squared					0.052	0.016
	Q24_2_InteractTeenagers_Out_Binary	Interact with teenagers in a typical week outside the neighborhood	Chi-squared					0.052	0.110
	Q24_3_InteractAdult_Out	Interact with adults in a typical week outside the neighborhood	Chi-squared					0.763	0.000
	Q24_3_InteractAdult_Out_Binary	Interact with adults in a typical week outside the neighborhood	Chi-squared					0.352	0.000
	Q24_4_InteractOldAdult_Out	Interact with older adults in a typical week outside the neighborhood	Chi-squared					0.484	0.003
	Q24_4_InteractOldAdult_Out_Binary	Interact with older adults in a typical week outside the neighborhood	Chi-squared					0.296	0.000
	Q24_InteractChildTeen_Out_Binary	Interact with children or teenagers in a typical week outside the neighborhood	Chi-squared					0.023	0.063
	Q24_InteractChildTeenAdults_Out_Binary	Interact with younger generations in a typical week outside the neighborhood	Chi-squared					0.121	0.000
	Q24_InteractChildTeenAdultsOldAdults_Out_Binary	Interact with people in a typical week outside the neighborhood	Chi-squared					0.065	0.000

Section 4. About Your Neighborhood Environment (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
25	Q25_MoveInYear_Impute	Number of years living in your current home	T-test	0.548	0.172	0.071	0.412	0.899	0.131
26	Q26_New	Newly built neighborhood (built in the last 10-15 years)	Chi-squared	**0.046***	0.057	0.273	0.076	0.356	0.331
	Q26_ManySenior	Neighborhood with many senior residents	Chi-squared	**0.006****	0.448	**0.004****	**0.012***	0.965	**0.045***
	Q26_MixedLand	Neighborhood with mixed land uses	Chi-squared	0.348	0.216	0.328	0.052	0.320	0.068
27	Q27_1_Affordability	Residential self-selection: affordability	Chi-squared	0.314	0.130	0.952	0.464	0.103	0.207
	Q27_4_PublicTransportation	Residential self-selection: close to public transportation	Chi-squared	0.120	**0.000****	**0.000****	**0.000****	**0.000****	0.207
	Q27_14_AgeGroups	Residential self-selection: diversity of age groups	Chi-squared	**0.000****	**0.000****	**0.000****	**0.000****	**0.001****	**0.001****
	Q27_NeighborEnvironment_IF1_New	Residential self-selection: neighborhood environments	T-test	**0.000****	**0.000****	**0.000****	**0.000****	**0.000****	**0.000****
	Q27_SocialCohesion_IF2_New	Residential self-selection: social cohesion and support	T-test	**0.000****	**0.000****	**0.000****	**0.000****	0.117	**0.032***
28	Q28_NeighCohesionSup_IF1	Neighborhood cohesion and support	T-test	**0.001****	**0.000****	**0.000****	**0.000****	**0.005****	0.075
	Q28_NeighCohesion_IF2	Neighborhood social cohesion	T-test	0.081	0.236	**0.042***	**0.040***	0.541	**0.024***
29	Q29_1_Shopping_StrAgree	Do most of my shopping at local stores	Chi-squared	0.685	0.429	0.528	0.373	0.956	**0.023***
	Q29_3_Parking_YesNo	Parking is difficult in local shopping areas	Chi-squared	0.533	0.505	0.833	0.204	**0.046***	0.712

Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
	Q29_LandUseMix_IF1_NoShopPark	Neighborhood walkability	T-test	**0.001****	**0.000****	**0.000****	**0.000****	**0.000****	**0.007****
	Q29_Terrain_IF2_NoShopPark	Topographic barriers/terrains/slopes	T-test	0.839	0.671	0.424	0.572	0.538	0.365
30	Q30_StreetConnectivity_IF1_NoWalkways	Neighborhood street connectivity	T-test	0.190	**0.007****	**0.004****	**0.018***	0.057	0.379
31	Q31_6_Benches_Final	Benches on most of the sidewalks in the neighborhood	Chi-squared	0.576	0.063	**0.003****	**0.006****	**0.001****	**0.014***
	Q31_WalkFacilities_IF1_NoBench	Walking/cycling facilities	T-test	0.441	0.899	0.250	0.729	0.089	0.204
32	Q32_Aesthetics_IF1	Neighborhood aesthetics	T-test	**0.005****	0.099	**0.049***	0.130	0.306	**0.039***
	Q32_StreetTrees_IF2	Neighborhood street trees	T-test	0.428	**0.017***	0.072	0.077	0.607	**0.031***
33	Q33_TrafficSafety_IF1	Traffic safety	T-test	0.839	0.092	**0.012***	0.410	0.704	0.218
	Q33_CrossingSafety_IF2	Crossing safety	T-test	0.700	0.052	0.053	**0.019***	**0.003****	0.519
	Q33_SafeSpeed_IF3	Safe traffic speed	T-test	0.392	0.710	0.369	0.824	0.418	0.320
34	Q34_Crime_IF1	Neighborhood crime rate	T-test	0.985	0.691	0.319	0.540	0.781	0.131
	Q34_Surveillance_IF2	Neighborhood surveillance	T-test	**0.031***	**0.002****	**0.019***	**0.006****	0.229	**0.003****
35	Q35_SatiAccess_IF1_No35_5	Satisfaction on accessibility	T-test	0.844	0.305	0.184	0.435	0.129	0.542
	Q35_SatiSafety_IF2_No35_5	Satisfaction on safety	T-test	0.082	0.788	0.165	0.537	0.369	0.861
	Q35_SatiLivability_IF3_No35_5	Satisfaction on livability	T-test	**0.001****	**0.000****	**0.000****	**0.000****	0.136	**0.015****

Section 5. About Supportive Services or Programs (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
36	Q36_AllProgams	Use or participate in supportive services/programs at least once a month	Chi-squared	0.180	0.080	0.054	**0.035***	**0.001****	0.736
	Q36_1_Health	Use or participate in health-related services/programs at least once a month	Chi-squared	0.120	0.124	**0.030***	0.110	0.164	0.476
	Q36_2_Meal	Use or participate in meal related services/programs at least once a month	Chi-squared	0.223	0.809	**0.019***	0.281	0.105	0.198
	Q36_4_Transportation	Use or participate in transportation related services/programs at least once a month	Chi-squared	**0.012***	0.458	**0.016***	0.266	**0.000****	0.699
	Q36_6_Social	Use or participate in social related services/programs at least once a month	Chi-squared	**0.040***	**0.013***	0.236	**0.018***	0.115	0.159
37	Q37_InterPrograms	Use or participate in services/programs involving intergenerational interactions	Chi-squared	0.058	0.125	0.077	0.479	**0.014***	0.759
38	Q38_SatisPrograms	Satisfaction on supportive services/programs	Chi-squared	**0.003****	**0.005****	**0.010***	**0.010***	0.712	0.172
39	Q39_Driverless_Personally	Want to ride in a driverless vehicle	Chi-squared	**0.000****	**0.035***	0.462	**0.019***	0.450	0.156
40	Q40_Driverless_General	People can live more independently with driverless vehicle	Chi-squared	**0.033***	0.096	0.331	0.053	0.389	0.077

Section 6. About Yourself (*p<0.05; **p<0.01)

				Social Activity (P-value)				Walking (P-value)	
Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
41	Q41_Age	Age in years	T-test	0.343	0.927	0.082	0.584	0.831	**0.003****
42	Q42_Gender_Impute	Gender	Chi-squared	0.745	0.397	0.815	0.914	0.453	0.891
43-44	Q43_44_Race_Ethnicity	Race and ethnicity	Chi-squared	**0.009****	0.090	0.085	0.244	0.666	0.127
45-46	Q45_Q46_BMI	Body mass index: weight divided by the square of height (kg/m^2)	T-test	0.765	0.406	**0.010***	0.113	**0.040***	**0.004****
	Q45_Q46_BMI_Categorical_UnderNormal	Body mass index	Chi-squared	0.927	0.724	**0.033***	0.350	0.055	**0.006****
	Q45_Q46_BMI_Categorical_NoUnder	Body mass index	Chi-squared	0.934	0.608	0.058	0.375	0.112	**0.004****
47	Q47_Marital_Status	Marital status	Chi-squared	0.716	0.102	0.661	**0.041***	0.995	**0.001****
48	Q48_Education	Highest grade or year of school completed	T-test	0.085	0.170	0.404	0.330	0.118	0.054
49	Q49_HousingType	Housing types	Chi-squared	0.977	0.176	0.117	0.728	**0.002****	0.444
50	Q50_Home_Ownership	Home ownership	Chi-squared	0.375	0.336	0.655	0.213	0.160	0.641
51	Q51_1_Pet	Pet in household	Chi-squared	0.487	0.873	0.408	0.971	**0.000****	0.709

Q	Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
	Q51_2_Dog	Dog in household	Chi-squared	0.938	0.673	0.408	0.661	**0.010***	0.162
	Q51_3_Cat	Cat in household	Chi-squared	0.476	0.860	0.328	0.475	**0.038***	0.207
52	Q52_Employed	Employment status	Chi-squared	0.369	**0.029***	0.129	0.233	0.082	0.705
54	Q54_Income_Final	Total household income from all sources before taxes	Chi-squared	0.245	0.093	0.465	0.273	**0.007****	0.245
55	Q55_LiveWithOthers	Living arrangement: live with others	Chi-squared	0.916	0.054	0.651	0.147	0.859	0.062
	Q55_LiveWithYoungerGeneration	Living arrangement: live with younger generations	Chi-squared	0.506	0.371	0.973	0.753	0.144	0.161
56	Q56_1_LiveWithSpouse	Living arrangement: live with spouse	Chi-squared	0.593	**0.047***	0.709	**0.028***	0.842	**0.002****
	Q56_3_LiveWithChild	Living arrangement: live with child	Chi-squared	0.436	0.594	0.593	0.722	0.594	0.220
	Q56_3_5_LiveWithChildGrandchild	Living arrangement: live with child/grandchild/great-grandchild	Chi-squared	0.171	0.766	0.683	0.493	0.438	0.230
57	Q57_Caregiving	Currently taking care of a sick or frail older relative or friend on a regular basis	Chi-squared	0.390	0.244	0.189	0.085	0.169	0.186
58	Q58_Health	General health conditions	T-test	**0.018***	**0.000****	**0.006****	**0.001****	0.353	**0.000****
59	Q59_SleepHour	Hours of sleep in a 24-hour period	T-test	0.435	0.816	0.055	0.977	0.104	0.275
60	Q60_Anxiety	Diseases diagnosed by health care provider: Anxiety	Chi-squared	0.177	0.795	0.239	0.575	0.883	0.254
	Q60_Depression	Diseases diagnosed by health care provider: Depression	Chi-squared	0.299	0.487	0.514	0.426	0.996	0.249
	Q60_Obesity	Diseases diagnosed by health care provider: Obesity	Chi-squared	0.116	0.082	**0.009****	**0.025***	0.107	**0.011***
	Q60_Hearing	Diseases diagnosed by health care provider: Hearing loss or deafness	Chi-squared	0.084	0.465	0.552	0.440	0.252	0.582
	Q60_Diabetes	Diseases diagnosed by health care provider: Diabetes	Chi-squared	0.594	0.218	0.528	0.256	0.765	0.072
	Q60_HighCholesterol	Diseases diagnosed by health care provider: High cholesterol	Chi-squared	0.479	0.053	0.784	0.163	0.612	0.463
	Q60_Hypertension	Diseases diagnosed by health care provider: Hypertension	Chi-squared	0.638	0.298	0.320	0.167	0.462	0.157
	Q60_Cancer	Diseases diagnosed by health care provider: Cancer	Chi-squared	0.375	0.133	0.089	0.578	0.491	0.627
	Q60_Osteoporosis	Diseases diagnosed by health care provider: Osteoporosis or brittle bones	Chi-squared	0.989	0.929	0.478	0.939	0.774	0.868
	Q60_Arthritis	Diseases diagnosed by health care provider: Arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia	Chi-squared	0.773	0.230	0.101	0.489	0.319	0.724
	Q60_SpinalDisorder	Diseases diagnosed by health care provider: Spinal/back disorder	Chi-squared	0.727	0.469	0.248	0.264	0.535	0.552
	Q60_Thyroid	Diseases diagnosed by health care provider: Thyroid disease	Chi-squared	0.323	0.823	0.800	0.950	**0.011***	0.175
	Q60_Heart	Diseases diagnosed by health care provider: Heart attack or other heart disease	Chi-squared	0.195	**0.039***	**0.000****	**0.016***	0.306	0.131
	Q60_Sleep	Diseases diagnosed by health care provider: Sleep disorders	Chi-squared	0.676	**0.034***	0.219	0.064	0.667	0.442
	Q60_Urinary	Diseases diagnosed by health care provider: Urinary incontinence or accidental leakage of urine	Chi-squared	0.404	0.196	0.377	0.575	0.921	0.361
	Q60_MentalIllness	Diseases diagnosed by health care provider: Mental and cognitive related diseases	Chi-squared	0.065	0.465	0.688	0.508	0.431	0.081
	Q60_Sensory	Diseases diagnosed by health care provider: Sensory related diseases	Chi-squared	0.076	0.223	0.192	0.159	0.176	0.830
	Q60_Mobility	Diseases diagnosed by health care provider: Mobility related diseases	Chi-squared	0.496	0.083	**0.039***	0.166	0.772	0.983
	Q60_Number_Diseases	Number of diseases diagnosed by health care provider	T-test	0.180	**0.026***	**0.022***	**0.039***	0.963	0.072
61	Q61_DifficultyHearing	Serious difficulty hearing	Chi-squared	0.900	0.953	0.641	0.960	0.261	0.137
61-62	Q61_Q62_DifficultyHearingSeeing	Serious difficulty hearing or seeing	Chi-squared	0.652	0.946	0.742	0.927	0.106	0.055
63	Q63_DifficultyWalking	Serious difficulty walking or climbing stairs	Chi-squared	0.617	**0.008****	**0.004****	**0.030***	0.417	**0.000****
67	Q67_Alcohol	Alcoholic beverages in a typical week	Chi-squared	0.332	0.102	0.363	0.117	0.060	**0.001****
69	Q69_MobilityAids	Mobility aids used to get around	Chi-squared	**0.025***	0.746	0.423	0.600	0.116	**0.000****
71	Q71_Fall	Fall in the past 12 months	Chi-squared	0.277	0.464	0.799	0.798	0.830	0.078
	Q71_FallInjury	Fall with an injury in the past 12 months	Chi-squared	0.775	0.914	0.530	0.409	0.858	0.204
73	Q73_Personal_Illness	Life events during the past three years: personal illness	Chi-squared	**0.006****	0.520	**0.029***	0.161	0.758	0.292
	Q73_Death_Family	Life events during the past three years: death of a spouse/family member/friend	Chi-squared	0.950	0.982	**0.010***	0.945	0.908	0.692
	Q73_Illness_Family	Life events during the past three years: illness of a spouse/family member/friend	Chi-squared	0.755	0.293	0.072	0.332	0.621	0.903
	Q73_Nonmedical	Life events during the past three years: non-medical events	Chi-squared	0.230	0.235	0.468	0.376	0.839	0.771
	Q73_LifeEvent	Life events during the past three years	Chi-squared	0.114	0.826	0.808	0.862	0.338	0.921

Walk Scores (*p<0.05; **p<0.01)

			Social Activity (P-value)				Walking (P-value)	
Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
Walk_Score	Neighborhood walk scores (0-100)	T-test	0.052	**0.001****	**0.001****	**0.003****	**0.005****	0.929
Transit_Score	Neighborhood transit scores (0-100)	T-test	0.196	**0.001****	**0.000****	**0.001****	**0.012***	0.194
Bike_Score	Neighborhood bike scores (0-100)	T-test	**0.015***	**0.000****	**0.000****	**0.000****	**0.008****	0.491

Objective Environments [Sausage Buffer] (*p<0.05; **p<0.01)

			Social Activity (P-value)				Walking (P-value)	
Variable	Description	Method	Child	Inter	Peer	All	Tran	Rec
T_STRT_LNS	Total length of street segments (miles)	T-test	**0.008****	**0.000****	**0.000****	**0.000****	**0.001****	0.660
T_STRT_DNS	Density of street segments (miles/acre)	T-test	0.893	**0.043***	**0.009****	**0.005****	0.079	0.931
T_ST30_LNS	Length of high-speed streets (>30mph) (miles)	T-test	0.923	**0.000****	**0.000****	**0.000****	**0.005****	0.655
T_ST30_PTS_2	Percentage of high-speed streets (>30mph) (%)	T-test	**0.012***	0.994	**0.037***	0.510	0.474	0.760
T_SWLK_LNS	Total length of sidewalks (miles)	T-test	**0.010***	**0.000****	**0.000****	**0.000****	**0.005****	0.882
T_SWLK_PTS	Sidewalk coverage (=length of sidewalk / 2 × length of street segments) (%)	T-test	0.858	0.546	0.982	0.918	0.889	0.599
T_Bike_lns_2	Total length of bike lanes (miles)	Chi-squared	0.155	0.907	**0.023***	0.787	**0.048***	0.374
T_Bike_Pts_2	Bike lane coverage (= length of bikeway / length of street segment) (%)	Chi-squared	0.142	0.914	**0.021***	0.903	**0.032***	0.850
T_Ptst_cts_2	Number of transit stops (n)	Chi-squared	0.478	**0.005****	**0.002****	**0.020***	0.087	0.155
T_Ptst_S2	Density of transit stops (n/100 acres)	Chi-squared	0.814	**0.017***	**0.007****	**0.032***	0.063	0.135
T_PTRO_CTS	Number of transit routes (n)	T-test	0.545	**0.000****	**0.002****	**0.000****	**0.013***	0.634
T_MKCR_CTS_2	Number of marked crosswalks (n)	Chi-squared	**0.015***	**0.005****	**0.001****	**0.006****	**0.030***	0.544
T_MKCR_DNS_2	Density of marked crosswalks (n/acre)	Chi-squared	**0.015***	**0.022***	**0.004****	**0.032***	**0.032***	0.426
T_Tsig_cts_2	Number of traffic signals (n)	Chi-squared	0.200	0.151	**0.002****	0.311	0.257	0.458
T_Tsig_dns_2	Density of traffic signals (n/100 acres)	Chi-squared	0.124	0.309	0.072	0.833	0.351	0.616
T_SSIG_CTS_2	Number of stop signs (n)	T-test	**0.003****	**0.000****	**0.000****	**0.000****	**0.018***	0.930
T_SSIG_DNS	Density of stop signs (n/acre)	T-test	**0.015***	**0.000****	**0.012***	**0.005****	0.222	0.303
T_IT3_CTS_2	Number of Intersections with 3 or more ways (n)	T-test	**0.004****	**0.000****	**0.000****	**0.000****	**0.000****	0.481
T_IT3_DNS	Density of intersections with 3 or more ways (n/acre)	T-test	0.099	**0.028***	0.766	0.357	0.082	0.706
T_Itsi_cts_2	Number of intersections with traffic signals (n)	Chi-squared	0.059	0.137	**0.006****	0.286	0.362	0.563
T_Itsi_pts_2	Percentage of intersections with traffic signals (n)	Chi-squared	0.056	0.831	0.116	0.913	0.185	0.871
T_Itcr_cts_2	Number of intersections with marked crosswalks (n)	Chi-squared	**0.018***	**0.000****	**0.000****	**0.000****	0.096	0.885
T_Itcr_pts_2	Percentage of intersections with marked crosswalks (%)	Chi-squared	**0.042***	**0.019***	**0.002****	**0.036***	0.481	0.328
T_ITT_CTS_2	Number of intersections with stop signs (n)	T-test	**0.012***	**0.000****	**0.000****	**0.000****	**0.018***	0.880
T_ITT_PTS	Percentage of intersections with stop signs (%)	T-test	0.305	**0.005****	0.200	**0.013***	0.530	**0.026***
L_RESU_CTS	Number of residential units (n)	T-test	0.204	0.075	**0.001****	**0.019***	**0.026***	0.693
L_RESU_DNS_ln	Natural log of the density of residential units [ln(n/acre)]	T-test	0.955	0.531	0.332	0.942	0.470	0.804
L_RES_ARS	Area of the residential land use (acres)	T-test	0.451	**0.026***	0.060	0.053	0.437	0.431
L_RES_PTS_2	Percentage of the residential land use	T-test	**0.029***	0.208	0.108	0.072	**0.010***	**0.048***
L_RESU_UPS_2_ln	Natural log of the number of residential units per acre of residential parcels [ln(n/acre)]	T-test	0.325	0.889	0.144	0.550	**0.042***	0.351
L_com_ars_2	Area of the commercial land use (acres)	Chi-squared	0.393	0.534	**0.045***	0.380	0.060	0.403
L_com_ars_S	Presence of the commercial land use (0/1)	Chi-squared	0.100	0.237	0.074	0.204	0.741	0.578
L_com_pts_2	Percentage of the commercial land use (%)	Chi-squared	0.237	0.539	0.331	0.585	0.651	0.427
L_off_ars_3	Area of offices (acres)	Chi-squared	0.122	0.052	**0.016***	0.115	**0.004****	0.104
L_off_pts_2	Percentage of offices (%)	Chi-squared	0.413	0.083	0.063	0.122	**0.002****	**0.035***
L_rec_ars_2	Area of the recreational land use (acres)	Chi-squared	0.633	0.400	0.269	0.161	0.591	0.241

Variable	Description	Description	Method	Child	Inter	Peer	All	Tran
L_rec_pts_2	Percentage of the recreational land use (%)	Chi-squared	0.284	0.351	0.218	0.221	0.249	0.323
L_Lulu_ars_2	Area of the locally undesirable land use (acres)	Chi-squared	0.483	0.348	0.112	0.613	0.386	0.337
L_Lulu_ars_S	Presence of the locally undesirable land use (0/1)	Chi-squared	0.440	0.979	0.056	0.716	0.411	0.319
L_Lulu_pts_2	Percentage of the locally undesirable land use (%)	Chi-squared	0.633	0.473	0.161	0.583	0.664	0.476
L_MX4_RAS_ln	Natural log of the four-category mixed use index [ln(scores)]	T-test	0.418	0.762	**0.014***	0.386	**0.043***	0.415
D_ALL_CTS_ln	Natural log of the number of all destinations [ln(n)]	T-test	0.147	**0.004****	**0.001****	**0.003****	**0.002****	0.624
D_ALL_DNS_ln	Natural log of the density of all destinations [ln(n/acre)]	T-test	0.385	0.083	**0.011***	**0.046***	**0.012***	0.455
D_com_cts_2	Number of commercial destinations (n)	Chi-squared	0.235	0.111	**0.008****	0.051	**0.014***	0.646
D_com_dns_2	Density of commercial destinations (n/100 acres)	Chi-squared	0.091	0.218	**0.017***	0.061	**0.045***	0.950
D_lulu_cts_2	Number of the locally undesirable destinations (n)	Chi-squared	**0.013***	**0.000****	**0.007****	**0.000****	0.303	0.328
D_lulu_dns_2	Density of locally undesirable destinations (n/100 acres)	Chi-squared	**0.026***	**0.000****	**0.007****	**0.000****	0.292	0.262
D_eat_cts_2	Number of eating and drinking destinations (n)	Chi-squared	0.493	0.121	**0.015***	0.089	**0.011***	0.661
D_eat_dns_2	Density of eating and drinking destinations (n/100 acres)	Chi-squared	0.150	0.164	**0.016***	0.225	**0.014***	0.612
D_Food_S	Presence of food stores (0/1)	Chi-squared	0.167	**0.001****	**0.004****	**0.010***	**0.001****	0.192
D_ret_cts_2	Number of the small retail & commercial services (n)	Chi-squared	0.076	0.287	**0.028***	0.098	0.123	0.668
D_ret_dns_2	Density of the small retail & commercial services (n/100 acres)	Chi-squared	0.090	0.213	**0.026***	0.051	0.137	0.893
D_Bbox_S	Presence of big box retails (0/1)	Chi-squared	0.659	0.613	0.481	0.835	**0.002****	0.981
D_bank_cts_2	Number of banks and post offices (n)	Chi-squared	0.524	0.252	**0.008****	0.276	**0.032***	0.408
D_bank_dns_2	Density of banks and post offices (n/100 acres)	Chi-squared	0.712	0.292	**0.029***	0.333	**0.032***	0.567
D_edu_cts_2	Number of educational and community destinations (n)	Chi-squared	0.551	0.114	**0.001****	0.199	0.280	0.691
D_edu_dns_2	Density of educational and community destinations (n/100 acres)	Chi-squared	0.126	0.562	**0.002****	0.679	0.444	0.573
D_rins_cts_2	Number of religious destinations (n)	Chi-squared	0.778	**0.010***	**0.017***	**0.018***	0.162	0.913
D_rins_dns_2	Density of religious destinations (n/100 acres)	Chi-squared	0.770	**0.013***	**0.016***	**0.016***	0.054	0.625
D_Oins_S*	Presence of other institutions (0/1)	Chi-squared	**0.003****	**0.012***	**0.001****	**0.010***	0.187	0.580
D_off_cts_2	Number of offices (n)	Chi-squared	**0.012***	0.093	0.133	0.255	**0.003****	0.516
D_off_dns_2	Density of offices (n/100 acres)	Chi-squared	**0.012***	0.859	0.257	0.688	**0.024***	0.168
D_Fit_S	Presence of sports and fitness destinations (0/1)	Chi-squared	**0.003****	0.135	0.078	0.181	**0.005****	0.760
D_park_cts_3	Number of parks (n)	Chi-squared	**0.000****	**0.018***	0.250	**0.022***	0.057	0.168
D_park_dns_2	Density of parks (n/100 acres)	Chi-squared	0.120	0.256	0.248	0.257	0.597	0.286
D_park_ars_5	Area of parks (acres)	Chi-squared	**0.007****	0.093	0.395	0.091	**0.017***	0.127
D_park_pts_2	Percentage of park areas (%)	Chi-squared	**0.045***	0.131	0.624	0.195	0.175	0.216
D_para_cts_2	Number of facilities in the parks (n)	Chi-squared	**0.032***	**0.026***	0.122	**0.028***	0.339	0.084
D_para_cts_S	Presence of facilities in the parks (0/1)	Chi-squared	0.089	**0.008****	0.149	**0.010***	0.142	0.073
D_para_dns_2	Number of facilities per acre of park areas (n/acre)	Chi-squared	0.072	**0.028***	0.351	**0.036***	0.298	0.198
D_MX4_RAS_ln	Natural log of the four-category mixed use index (destination diversity) [ln(scores)]	T-test	0.420	**0.029***	**0.011***	**0.026***	**0.002****	0.197
D_MX3_RAS_ln	Natural log of the three-category mixed use index (destination diversity) [ln(scores)]	T-test	0.479	**0.034***	**0.012***	**0.030***	**0.002****	0.201
D_Tril_lns_3	Length of trails (miles)	Chi-squared	**0.022***	**0.034***	0.121	**0.003****	0.091	0.653
G_TREE_ARS	Area of tree canopies (acres)	T-test	0.555	**0.002****	**0.011***	**0.008****	0.231	0.890
G_TREE_PTS	Percentages of tree canopies (%)	T-test	0.163	0.214	0.747	0.612	0.315	0.729
S_SLOA_VLS	Mean slopes (%)	T-test	0.106	0.828	0.396	0.621	0.078	0.790
S_SLOS_VLS	Mean street slopes (%)	T-test	0.074	0.682	0.320	0.450	0.104	0.823
F_CRT_CTS_ln	Natural log of the number of average annual crimes [ln(n)]	T-test	0.223	**0.005****	**0.000****	**0.005****	**0.026***	0.581
F_CRT_DNS_ln	Natural log of the density of average annual crimes [ln(n/acre)]	T-test	0.574	0.096	**0.001****	0.068	0.161	0.644
F_CRV_CTS_ln	Natural log of the number of average annual violent crimes [ln(n)]	T-test	0.369	0.051	**0.026***	0.062	0.281	0.475
F_CRV_DNS_ln	Natural log of the density of average annual violent crimes [ln(n/acre)]	T-test	0.726	0.447	0.145	0.400	0.747	0.619
F_CRP_CTS_ln	Natural log of the number of average annual property crimes [ln(n)]	T-test	0.369	0.051	**0.026***	0.062	0.281	0.475
F_CRP_DNS_ln	Natural log of the density of average annual property crimes [ln(n/acre)]	T-test	0.726	0.447	0.145	0.400	0.747	0.619

*Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

Variable	Description	Description	Method	Child	Inter	Peer	All	Tran
F_CRB_CTS_ln	Natural log of the number of average annual behavioral crimes [ln(n)]	T-test	0.283	**0.016***	**0.000****	**0.013***	**0.016***	0.642
F_CRB_DNS_ln	Natural log of the density of average annual behavioral crimes [ln(n/acre)]	T-test	0.681	0.186	**0.007****	0.119	0.100	0.723
S_CSHT_CTS_ln	Natural log of the number of annual traffic crashes [ln(n)]	T-test	0.473	0.094	**0.001****	**0.049***	**0.023***	0.551
S_CSHT_DNS	Density of annual traffic crashes (n/acre)	T-test	0.195	0.683	0.117	0.254	0.279	0.950
E_Afh_S	Presence of annual fatal crashes (0/1)	Chi-squared	0.158	**0.004****	**0.020***	**0.003****	**0.005****	0.254
E_PVAL_VLS	Total appraisal values of residential parcels (dollars)	T-test	**0.019***	**0.000****	**0.000****	**0.000****	**0.008****	0.805
E_PVAL_MVS_2_ln	Natural log of appraisal values per acre of residential parcels [ln(dollars/acre)]	T-test	**0.042***	**0.040***	0.067	**0.016***	**0.042***	0.103
E_EME_CTS_ln	Natural log of the number of employees [ln(n)]	T-test	0.224	**0.033***	**0.003****	**0.034***	**0.001****	0.842
E_EMIM_CTS_ln	Natural log of the number of employees in major employers [ln(n)]	T-test	0.345	**0.032***	**0.007****	**0.028***	**0.002****	0.389
E_EME_DNS_ln	Natural log of the density of employees [ln(n/acre)]	T-test	0.483	0.271	**0.048***	0.262	**0.004****	0.714
E_Per_cts_3	Development permits issued in 2019 (n)	Chi-squared	**0.013***	**0.005****	**0.043***	**0.025***	0.354	0.816
E_Per_cts_S	Development permits issued in 2019 (vs. no)	Chi-squared	**0.003****	0.209	**0.038***	0.290	0.108	0.484
E_Per_dns_2	Density of development permits issued in 2019 (n/100 acres)	Chi-squared	**0.011***	**0.035***	0.105	0.084	0.441	0.388

Objective Environments [Shortest Network Distance] (*p<0.05; **p<0.01)

			Social Activity (P-value)				Walking (P-value)	
Variable	Description	Obs	Child	Inter	Peer	All	Tran	Rec
T_PTST_SDN_ln	Natural log of the distance to the closest transit stop [ln(miles)]	T-test	0.334	**0.027***	**0.005****	**0.019***	0.157	0.760
T_PTRA_SDN_ln	Natural log of the distance to the closest rail station [ln(miles)]	T-test	0.060	**0.000****	**0.000****	**0.000****	**0.040***	0.473
T_Ptrc_P	Number of transit routes at the closest stop (n)	Chi-squared	0.792	0.082	**0.008****	**0.010***	0.596	0.338
D_COM_SDN	Distance to the closest commercial destination (miles)	T-test	0.314	0.132	**0.033***	0.110	0.196	0.949
D_LULU_SDN	Distance to the closest locally undesirable destination (miles)	T-test	0.702	**0.023***	**0.023***	**0.016***	**0.014***	0.900
D_EAT_SDN	Distance to the closest eating and drinking destination (miles)	T-test	0.483	0.125	**0.025***	0.110	**0.021***	0.473
D_FOOD_SDN	Distance to the closest food store (miles)	T-test	0.622	**0.041***	**0.033***	0.087	**0.001****	0.763
D_RET_SDN	Distance to the closest small retail & commercial service (miles)	T-test	0.286	0.062	**0.033***	**0.047***	0.267	0.965
D_BBOX_SDN	Distance to the closest big box retail (miles)	T-test	0.368	0.397	0.087	0.249	0.083	0.391
D_BANK_SDN	Distance to the closest bank or post office (miles)	T-test	0.789	0.220	**0.015***	0.182	**0.036***	0.677
D_EDU_SDN	Distance to the closest educational and community destination (miles)	T-test	0.072	0.896	**0.028***	0.888	0.378	0.295
D_RINS_SDN	Distance to the closest religious destination (miles)	T-test	0.704	**0.042***	**0.039***	0.073	0.063	0.669
D_OINS_SDN*	Distance to the closest other institution (miles)	T-test	0.152	**0.035***	**0.000****	**0.014***	0.077	0.807
D_OFF_SDN	Distance to the closest office (miles)	T-test	**0.038***	0.145	0.090	0.170	**0.015***	0.928
D_FIT_SDN	Distance to the closest sports and fitness destination (miles)	T-test	0.946	0.347	0.236	0.669	**0.028***	0.727
D_PARK_SDN	Distance to the closest park (miles)	T-test	0.069	**0.035***	0.093	0.118	**0.028***	0.657
D_PARK_ARC_ln	Natural log of the area of the closest park [ln(acres)]	T-test	0.927	0.233	0.896	0.254	0.143	0.415
D_TRL_SDN	Distance to the closest park trails (miles)	T-test	0.572	0.490	0.219	0.688	0.131	0.506
W_WATR_SDN_ln	Natural log of the distance to the closest park with/next to the water feature [ln(miles)]	T-test	**0.003****	**0.000****	**0.000****	**0.000****	**0.008****	0.694

*Other institutions include legislative bodies, courts, hospitals, fire protection, museums, and nursing care facilities (skilled nursing facilities).

APPENDIX G

DESTINATION LAND USE

Destination Land Use and Resource

Land Use	Groups	Variables	2019 Business Analyst Data (bao.arcgis.com) based on the 2017 NAICS CODE (www.census.gov/eos/www/naics)
Residential	Residential units	L_RESU_CTS (number); L_RESU_DNS_ln (natural log of the density)	Data from the City of Austin GIS Data on Open Data Portal (2019)
Commercial	Eating and drinking destinations	D_eat_cts_2 (number); D_eat_dns_2 (density)	Restaurants • 722513 Limited-Service Restaurants • 722320 Caterers • 722511 Full-Service Restaurants • 722514 Cafeterias, Grill Buffets & Buffets Café/bakery/snacks • 722515 Snack and Nonalcoholic Beverage Bars • 311351 Chocolate and Confectionery Manufacturing from Cacao Beans • 311520 Ice Cream and Frozen Dessert Manufacturing • 311811 Retail Bakeries • 311812 Commercial Bakeries • 311919 Other Snack Food Manufacturing Bars/pubs • 722410 Drinking Places (Alcoholic Beverages)
	Food stores	D_Food_S (binary: yes/no)	Supermarket/grocery store • 445110 Supermarkets and Other Grocery (except Convenience) Stores Convenience store without gas station • 445120 Convenience Stores
	Small retail and commercial services	D_ret_cts_2 (number); D_ret_dns_2 (density)	Small retails/services • 446120 Cosmetics, Beauty Supplies, and Perfume Stores • 446130 Optical Goods Stores • 448 Clothing and Clothing Accessories Stores • 451140 Musical Instrument and Supplies Stores • 453310 Used Merchandise Stores • 453991 Tobacco Stores • 453998 All Other Miscellaneous Store Retailers (except Tobacco Stores) • 541921 Photography Studios, Portrait • 812111 Barber Shops • 812112 Beauty Salons • 812113 Nail Salons
	Big box retails	D_Bbox_S (binary: yes/no)	Mall/strip mall/big box retail • 452111 Department Stores (except Discount Department Stores) • 452112 Discount Department Stores • 452910 Warehouse Clubs and Supercenters • 443142 Electronics Stores (include these with sales volume more than 16.25 million) • 444110 Home Centers (include these with sales volume more than 19.25 million) • 453210 Office Supplies and Stationery Stores (include these with sales volume more than 3.993 million) • 451120 Hobby, Toy, and Game Stores (include these with sales volume more than 2.785 million) • 442110 Furniture Stores
	Pharmacy	Not included in the dissertation	Pharmacy/drug store • 446110 Pharmacies and Drug Stores
	Gas station	Not included in the dissertation	Gas station with no convenience store • 447190 Other Gasoline Stations

Land Use	Groups	Variables	2019 Business Analyst Data (bao.arcgis.com) based on the 2017 NAICS CODE
Institutional	Educational and community destinations	D_edu_cts_2 (number); D_edu_dns_2 (density)	Boys & girls club/YMCA • 624110 Child and Youth Services • 24 clubs from the Boys & Girls Clubs of America (bgca.org/get-involved/find-a-club) University/School/kindergarten/daycare center • 624410 Child Day Care Services • 611110 Elementary and Secondary Schools • 611210 Junior Colleges • 611310 Colleges, Universities, and Professional Schools Library • 519120 Libraries and Archives 20 community centers managed by the Austin Parks and Recreation Department, including (1) Alamo Recreation Center, (2) Austin Recreation Center, (3) Danny G. McBeth Recreation Center, (4) Delores Duffie Recreation Center, (5) Dittmar Recreation Center, (6) Dottie Jordan Recreation Center, (7) Dove Springs Recreation Center, (8) Givens Recreation Center, (9) Gustavo "Gus" L. Garcia Recreation Center, (10) Hancock Recreation Center, (11) Lorraine "Grandma" Camacho Activity Center, (12) Metz Recreation Center, (13) Montopolis Recreation Center, (14) Northwest Recreation Center, (15) Oswaldo A.B. Cantu/Pan American Recreation Center, (16) Parque Zaragoza Recreation Center, (17) Pickfair Community Center, (18) South Austin Recreation Center, (19) Turner-Roberts Recreation Center, (20) Virginia L. Brown Recreation Center
	Banks and post offices	D_bank_cts_2 (number); D_bank_dns_2 (density)	Bank • 522110 Commercial Banking • 522120 Savings Institutions • 522130 Credit Unions • 522190 Other Depository Credit Intermediation Post office • 491110 Postal Service • 541860 Direct Mail Advertising
	Offices	D_off_cts_2 (number); D_off_dns_2 (density)	Office • 621610 Home Health Care Services • 524 Insurance Carriers and Related Activities • 531210 Offices of Real Estate Agents and Brokers • 531320 Offices of Real Estate Appraisers • 541110 Offices of Lawyers • 541120 Offices of Notaries • 541191 Title Abstract and Settlement Offices • 541211 Offices of Certified Public Accountants • 551111 Offices of Bank Holding Companies • 551112 Offices of Other Holding Companies • 551114 Corporate, Subsidiary, and Regional Managing Offices • 621111 Offices of Physicians (except Mental Health Specialists) • 621112 Offices of Physicians, Mental Health Specialists • 621210 Offices of Dentists • 621310 Offices of Chiropractors • 621320 Offices of Optometrists • 621330 Offices of Mental Health Practitioners (except Physicians) • 621340 Offices of Physical, Occupational and Speech Therapists, and Audiologists • 621391 Offices of Podiatrists • 621399 Offices of All Other Miscellaneous Health Practitioners • 921110 Executive Offices • 921140 Executive and Legislative Offices, Combined • 922150 Parole Offices and Probation Offices
	Religious destinations	D_rins_cts_2 (number); D_rins_dns_2 (density)	Church/other religious institution • 813110 Religious Organizations
	Other institutions	D_Oins_S (binary: yes/no)	Institutional excluding education and religious • 921120 Legislative Bodies • 922110 Courts • 622 Hospitals • 922160 Fire Protection • 712110 Museums • 623110 Nursing Care Facilities (Skilled Nursing Facilities)
Recreational	Sports and fitness destinations	D_Fit_S (binary: yes/no)	Gym/fitness center/indoor playground • 713940 Fitness and Recreational Sports Centers
	Park	D_park_cts_3 (number); D_park_dns_2 (density)	Data from the Austin Parks and Recreation Department (2019)
Locally undesirable	Locally undesirable destinations	D_lulu_cts_2 (number); D_lulu_dns_2 (density)	Factory / power plant / junk yard • 31-33 Manufacturing EXCLUDE 311351 Chocolate and Confectionery Manufacturing from Cacao Beans, 311520 Ice Cream and Frozen Dessert Manufacturing, 311811 Retail Bakeries, 311812 Commercial Bakeries, & 311919 Other Snack Food Manufacturing • 2211 Electric Power Generation, Transmission and Distribution Warehouse / storage building / self-storage • 493 Warehousing and Storage

APPENDIX H

NEIGHBORHOOD AGE COMPOSITION

Neighborhood Age Composition, Social Interactions, and Walking, from Partially Adjusted Models[#]

	½-Mile Airline Buffer[a] (OR)						Block Group[b] (OR)					
	Child	**Inter**	**Peer**	**All**	**Tran**	**Rec**	**Child**	**Inter**	**Peer**	**All**	**Tran**	**Rec**
Method 1 (Brown et al., 2009)												
Three age group[c]	.687	.131	.351	.127	**.115***	2.505	.912	.806	.946	.773	**.145***	.844
Five age group 1[d]	.771	.121	.649	.242	.195	3.327	.767	.548	1.701	.982	**.174°**	1.333
Five age group 2[e]	50.406	.664	.239	.069	.128	15.183	.961	1.766	1.442	.628	.615	.705
Method 2 (Maly, 2000)												
Three age group[c]	.998	.642	1.036	1.908	6.209	9.335	.445	.104	9.544	1.118	.659	16.512
Five age group 1[d]	1.241	.832	1.238	2.268	5.586	6.779	.718	.115	10.269	1.422	.743	7.738
Five age group 2[e]	.312	.557	5.165	5.666	4.340	.554	.306	.182	**14.289°**	1.986	1.680	3.327
Method 3												
Children (0-4)												
Number	**.999°**	1.001	1.000	1.000	1.000	.999	1.000	1.000	**.998****	.999	1.000	1.000
Percent[f]	.931	1.004	**.909°**	.933	**.895***	.982	.982	1.030	.958	.992	**.922***	1.023
Density 1	1.027	**1.596***	.996	1.320	1.004	.865	.989	**1.500***	.989	1.292	**.858**	1.054
Density 2	**.488°**	1.576	.943	1.225	.820	.604	.806	1.635	.941	1.349	**.612***	1.010
Children (5-9)												
Number	**.997****	.999	.999	.999	.999	.999	1.000	.999	**.998****	**.998***	1.000	1.000
Percent[f]	**.906***	**.903***	**.900***	**.853****	**.875****	1.031	.967	.992	.964	.955	**.934***	.998
Density 1	.849	1.043	.882	.894	.830	.836	.880	1.109	.907	.959	**.797°**	.903
Density 2	**.245****	.698	.695	.559	.604	.604	**.483***	1.073	.780	.847	**.544***	.723
Children (10-14)												
Number	**.998***	1.000	.999	.999	.999	1.000	1.000	.999	**.997*****	.998	1.000	1.000
Percent[f]	.946	.964	**.900***	.925	**.894***	1.049	.962	1.053	.950	1.028	.961	.975
Density 1	.944	1.209	**.823**	1.042	.858	.995	.840	1.240	.882	1.187	.883	1.007
Density 2	**.321***	.977	.555	.729	.630	.791	**.560°**	1.301	**.582°**	1.137	**.619°**	.903
Children (15-17)												
Number	.998	1.000	**.997°**	.998	.998	.998	1.000	.998	**.993*****	**.996***	1.000	.997
Percent[f]	1.026	.926	**.790****	**.807***	**.840***	.959	.977	1.050	**.845****	.936	.966	.921
Density 1	1.190	1.295	**.445°**	.664	.543	.630	.765	1.454	.966	1.041	.791	1.049
Density 2	.396	.927	**.217°**	.322	.448	.345	.498	1.893	**.356***	.844	.614	**.469°**
Children (0-17)												
Number	**.999***	1.000	1.000	1.000	1.000	1.000	1.000	1.000	**.999*****	**.999°**	1.000	1.000
Percent[f]	.972	.977	**.949****	**.946***	**.946****	1.006	.983	1.015	**.967***	.989	**.963****	.995
Density 1	.986	1.092	.955	1.018	.958	.949	.962	**1.118°**	.980	1.053	.938	1.006
Density 2	**.705***	1.020	.884	.923	.879	.850	**.849°**	1.153	.887	1.047	**.828***	.937
Adults (18-64)												
Number	1.000	1.000	1.000	1.000	**1.000°**	**1.000***	1.000	1.000	**1.000***	1.000	1.000	1.000
Percent[f]	1.012	**1.031°**	**1.026°**	**1.036°**	**1.035***	.987	1.008	1.004	1.006	1.005	**1.031***	1.000
Density 1	1.021	**1.049***	1.020	**1.059***	**1.041***	.986	.997	1.006	1.011	1.029	.998	1.006
Density 2	.949	1.061	**1.071°**	1.082	**1.069°**	**.910***	.968	1.064	1.053	**1.092°**	1.004	1.005
Older adults (65+)												
Number	1.000	1.000	**1.002***	1.001	**1.001°**	.999	1.001	**.997****	.999	.999	1.001	1.000
Percent[f]	1.024	.970	1.034	1.014	1.014	1.023	1.010	.975	**1.035°**	1.005	.995	1.006
Density 1	**1.532****	1.105	1.238	**1.501°**	**1.460***	1.056	1.024	.965	**1.237°**	1.218	1.014	1.083
Density 2	1.087	.999	**2.249***	1.870	**1.817°**	.768	1.334	.911	**1.527°**	1.226	.918	1.096

Note: °p<0.1; *p<0.05; **p<0.01; ***p<0.001

#: Results from one-by-one tests: physical environmental variables were added to the base models one at a time because many of the physical environmental variables are associated with each other.

a: Base model includes all significant demographic, socioeconomic, residential self-selection, and recruitment channel variables.

b: Base model includes all significant demographic, socioeconomic, residential self-selection, recruitment channel, and distance to the block group central point variables.

c: Three age group: 0-17, 18-64, 65+

d: Five age group 1: 0-17, 18-64, 65-74, 75-84, 85+

e: Five age group 2: 0-17, 18-24, 25-44, 45-64, 65+

f: The unit is 1%.

Density 1 (net density) = number of each age group / residential area within the buffer (n/acres)

Density 2 (gross density) = number of each age group / whole buffer area (n/acres)

Method 1: Age Mix $= -1(\sum_{i=1}^{n} Pi * \ln(Pi))/\ln(n)$; where Pi is the percentage of each age group with the ½-mile airline buffer or block group and n is the total number of age groups.

Method 2: Age Mix $= 1/2(\sum_{i=1}^{n} |Ci - Pi|)$; where Ci is the percentage of each age group in Austin, Texas, Pi is the percentage of each age group within the ½-mile airline buffer or block group, and n is the total number of age groups

Neighborhood Age Composition, Social Interactions, and Walking, from Full Models

	½-Mile Airline Buffer[a] (OR)						Block Group[b] (OR)					
	Child	**Inter**	**Peer**	**All**	**Tran**	**Rec**	**Child**	**Inter**	**Peer**	**All**	**Tran**	**Rec**
Method 1 (Brown et al., 2009)												
Three age group[c]	.542	.350	.705	.489	.575	2.582	1.032	1.568	1.438	1.438	.462	1.001
Five age group 1[d]	.697	.266	1.240	.768	1.012	4.012	1.043	.909	2.608	1.210	.586	1.744
Five age group 2[e]	23.725	2.442	2.473	.560	1.136	11.559	1.599	1.474	1.445	.844	.674	.304
Method 2 (Maly, 2000)												
Three age group[c]	1.587	1.164	.405	.994	7.020	30.055	3.243	.059	6.672	.282	.493	34.640
Five age group 1[d]	2.296	1.287	.487	1.107	5.812	20.426	5.979	.056	8.276	.366	.492	17.382
Five age group 2[e]	.724	.446	3.591	20.447	2.821	.682	1.002	.054	10.817	.798	1.216	5.159
Method 3												
Children (0-4)												
Number	**.998^{o}**	1.000	.999	1.000	1.000	**.999^{o}**	**.998^{o}**	1.001	**.998****	1.000	1.000	1.000
Percent[f]	**.883***	1.048	.915	.956	.942	.965	.944	1.049	.956	1.011	**.942^{o}**	1.014
Density 1	**.681^{o}**	**1.576^{o}**	.797	1.048	.986	.852	**.776^{o}**	**1.526***	.853	1.183	.843	1.011
Density 2	**.466^{o}**	1.207	.732	.987	.906	**.501^{o}**	.754	1.417	.867	1.273	**.667^{o}**	.863
Children (5-9)												
Number	**.997****	.999	.999	.999	1.000	.999	.999	.999	**.998***	.999	1.000	.999
Percent[f]	**.842****	.955	.941	.902	.931	1.021	**.933^{o}**	1.013	.986	.995	.962	.995
Density 1	**.483****	1.142	.799	.785	.893	.810	**.648***	1.139	.864	.954	.846	.865
Density 2	**.201****	.684	.670	.565	.822	.492	**.444***	.933	.773	.907	.685	.613
Children (10-14)												
Number	.998	1.000	.999	.999	1.000	.999	.999	1.000	**.996****	.999	1.000	.999
Percent[f]	.957	1.064	.919	.963	.971	1.043	.984	**1.104***	.950	1.054	.992	.981
Density 1	.876	1.536	.731	.850	1.001	.982	.818	1.416	.781	1.122	.894	1.002
Density 2	.453	1.090	.488	.648	.916	.682	.721	1.284	**.523^{o}**	1.117	.714	.857
Children (15-17)												
Number	1.000	1.000	**.997^{o}**	.999	1.001	**.996^{o}**	1.000	1.001	**.993****	.999	1.002	.997
Percent[f]	1.102	1.076	**.808***	.946	1.017	.946	1.026	**1.169^{o}**	**.838***	1.064	1.069	.911
Density 1	1.706	1.976	**.417^{o}**	.856	1.032	.513	.845	2.066	.898	1.163	.853	1.018
Density 2	1.100	1.139	**.188^{o}**	.654	1.518	**.165^{o}**	.655	2.107	**.247***	1.308	.997	**.370***
Children (0-17)												
Number	**.999^{o}**	1.000	1.000	1.000	1.000	1.000	1.000	1.000	**.999****	1.000	1.000	1.000
Percent[f]	**.958^{o}**	1.010	**.958***	.970	.976	1.001	.974	**1.037^{o}**	**.971^{o}**	1.014	.982	.993
Density 1	.873	1.134	.906	.964	.986	.940	**.894^{o}**	**1.154^{o}**	.942	1.038	.943	.995
Density 2	**.724^{o}**	.995	.841	.903	.971	.788	.866	1.105	.855	1.052	.881	.889
Adults (18-64)												
Number	1.000	1.000	1.000	1.000	1.000	**1.000***	1.000	1.000	**1.000***	1.000	1.000	1.000
Percent[f]	1.019	1.009	1.017	1.015	1.007	.987	1.006	.993	1.002	.995	1.014	.996
Density 1	1.006	1.030	.991	1.017	1.020	.984	.991	1.001	1.001	1.007	.995	1.005
Density 2	.960	.997	1.031	1.024	1.025	**.887***	.976	1.020	1.033	1.066	.983	.992
Older adults (65+)												
Number	1.000	**.998***	1.001	1.000	1.001	.999	1.000	**.998***	.999	.999	1.001	1.000
Percent[f]	1.030	.968	1.034	1.018	1.023	1.031	1.025	.973	**1.038^{o}**	.992	1.001	1.015
Density 1	1.368	.906	.994	1.068	1.307	1.111	1.031	.929	1.147	1.006	.972	1.115
Density 2	1.246	**.371***	1.588	1.181	1.504	.733	1.471	.727	1.550	1.004	.858	1.289

Note: ^{o}p<0.1; *p<0.05; **p<0.01

a: Full model includes all significant demographic, socioeconomic, residential self-selection, recruitment channel, and perceived and objective environment variables.

b: Full model includes all significant demographic, socioeconomic, residential self-selection, recruitment channel, perceived and objective environment, and distance to the block group central point variables.

c: Three age group: 0-17, 18-64, 65+

d: Five age group 1: 0-17, 18-64, 65-74, 75-84, 85+

e: Five age group 2: 0-17, 18-24, 25-44, 45-64, 65+

f: The unit is 1%.

Density 1 (net density) = number of each age group / residential area within the buffer (n/acres)

Density 2 (gross density) = number of each age group / whole buffer area (n/acres)

Method 1: Age Mix $= -1(\sum_{i=1}^{n} Pi * \ln(Pi))/\ln(n)$; where Pi is the percentage of each age group with the ½-mile airline buffer or block group and n is the total number of age groups.

Method 2: Age Mix $= 1/2(\sum_{i=1}^{n} |Ci - Pi|)$; where Ci is the percentage of each age group in Austin, Texas, Pi is the percentage of each age group within the ½-mile airline buffer or block group, and n is the total number of age groups

Neighborhood Age Composition Descriptive Statistics

	½-Mile Airline Buffer				Block Group			
	Minimum	Maximum	Mean	SD	Minimum	Maximum	Mean	SD
Method 1 (Brown et al., 2009)								
Three age group[a]	0.18	0.96	0.70	0.12	0.05	0.97	0.70	0.14
Five age group 1[b]	0.13	0.83	0.54	0.10	0.04	0.93	0.53	0.13
Five age group 2[c]	0.44	0.96	0.87	0.05	0.39	0.97	0.83	0.10
Method 2 (Maly, 2000)								
Three age group[a]	0.00	0.26	0.08	0.05	0.01	0.37	0.10	0.06
Five age group 1[b]	0.01	0.26	0.08	0.05	0.02	0.37	0.10	0.06
Five age group 2[c]	0.02	0.70	0.13	0.07	0.03	0.61	0.16	0.08
Method 3								
Children (0-4)								
Number	14	1035	264.25	167.52	0	817	159.60	155.94
Percent	0.8%	14.1%	6.5%	2.3%	0.0%	18.0%	6.6%	3.5%
Density 1	0.11	3.94	1.16	0.73	0.00	10.75	1.20	1.12
Density 2	0.03	2.06	0.53	0.33	0.00	5.48	0.54	0.56
Children (5-9)								
Number	10	926	222.87	140.51	0	1144	148.55	186.01
Percent	0.3%	16.8%	5.7%	2.6%	0.0%	26.5%	5.7%	3.8%
Density 1	0.17	4.60	0.97	0.62	0.00	5.50	0.99	0.87
Density 2	0.02	1.84	0.44	0.28	0.00	4.02	0.44	0.41
Children (10-14)								
Number	17	1086	187.61	123.81	0	698	120.68	131.87
Percent	0.6%	11.8%	4.9%	2.4%	0.0%	17.0%	4.9%	3.3%
Density 1	0.10	3.16	0.83	0.52	0.00	8.47	0.84	0.79
Density 2	0.03	2.16	0.37	0.25	0.00	3.39	0.37	0.39
Children (15-17)								
Number	0	427	92.22	71.44	0	397	58.53	73.48
Percent	0.0%	8.7%	2.4%	1.5%	0.0%	9.3%	2.4%	2.0%
Density 1	0.00	2.14	0.39	0.29	0.00	20.19	0.44	1.02
Density 2	0.00	0.85	0.18	0.14	0.00	3.66	0.18	0.25
Children (0-17)								
Number	84	2971	766.96	453.40	0	2829	487.36	497.31
Percent	2.1%	41.6%	19.4%	6.8%	0.0%	45.7%	19.5%	8.4%
Density 1	0.60	13.45	3.35	1.90	0.00	43.31	3.47	3.10
Density 2	0.17	5.91	1.53	0.90	0.00	16.44	1.53	1.38
Adults (18-64)								
Number	293	13679	2937.04	1592.82	310	6653	1544.29	1096.14
Percent	46.6%	96.0%	70.2%	7.9%	39.9%	98.9%	69.2%	9.6%
Density 1	1.66	72.28	13.20	7.99	1.51	543.87	14.34	26.88
Density 2	0.58	27.21	5.84	3.17	0.58	32.01	5.68	3.86
Older adults (65+)								
Number	34	1030	381.53	158.61	9	880	217.29	144.08
Percent	1.3%	34.4%	10.4%	4.7%	0.9%	46.0%	11.3%	7.0%
Density 1	0.33	10.40	1.70	0.90	0.16	28.33	1.85	1.99
Density 2	0.07	2.05	0.76	0.32	0.02	3.56	0.80	0.55

Note: a: Three age group: 0-17, 18-64, 65+

b: Five age group 1: 0-17, 18-64, 65-74, 75-84, 85+

c: Five age group 2: 0-17, 18-24, 25-44, 45-64, 65+

Density 1 (net density) = number of each age group / residential area within the buffer (n/acres)

Density 2 (gross density) = number of each age group / whole buffer area (n/acres)

Method 1: Age Mix $= -1(\sum_{i=1}^{n} Pi * \ln(Pi))/\ln(n)$; where Pi is the percentage of each age group with the ½-mile airline buffer or block group and n is the total number of age groups.

Method 2: Age Mix $= 1/2(\sum_{i=1}^{n} |Ci - Pi|)$; where Ci is the percentage of each age group in Austin, Texas, Pi is the percentage of each age group within the ½-mile airline buffer or block group, and n is the total number of age groups

APPENDIX I

SURVEY INSTRUMENT

The survey instrument was mostly adapted from previously established and validated questionnaires. Specifically, seven questions about physical activities and walking (questions 1-7) were adapted from the International Physical Activity Questionnaires [1]. Two questions about the quality of life (questions 8-9) borrowed from the WHOQOL-BREF [2]. Question 10 about mental health was adapted from the Center for Epidemiologic Studies Depression Scale [3]. Question 12 about social interactions and question 13 about volunteer work were adapted from a survey instrument developed by the AdvantAge Initiative, Center for Home Care Policy & Research, Visiting Nurse Service of New York (VNSNY). Question 18 about neighborhood resources for social interactions was adapted from the Twin Cities Walking Survey [4, 5]. Question 27 about the residential self-selection was adapted from another previously established survey [6]. Question 28 about neighborhood social cohesion and trust was adapted from previously validated survey questionnaires [4, 7]. Seven questions about neighborhood environments (questions 29-35) were mostly extracted or adapted from the Neighborhood Environment Walkability Scale [8, 9]. Three questions about supportive services or programs (questions 36-38) were adapted from the survey instrument developed by the AdvantAge Initiative, Center for Home Care Policy & Research, VNSNY. All survey questions in the last section measuring participants' demographics and socioeconomic characteristics were extracted or adapted from the Behavioral Risk Factor Surveillance System [10]; two survey instruments developed by the AdvantAge Initiative, Center for Home Care Policy & Research, VNSNY; and the Neighborhood Quality of Life Survey for Seniors [11].

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Invitation from the Neighborhood and Health study

You are invited to take part in a study on the neighborhood and health being conducted by researchers at Texas A&M University.

To be eligible to participate, you should be **residents of Austin, Texas** who **(1) are 65 years or older, (2) live in the ordinary communities instead of long-term care or assisted living, and (3) have basic English language skills.** If eligible, please complete this survey, which will take about 20-30 minutes.

As a token of appreciation, you will receive a $10 gift card by mail after completing the survey (limited to two participants per household).

We value and will protect your privacy. The records of this study will be kept private. No personal information linking you to this study will be included in any published report. All records will be stored securely and accessible only to the research personnel.

Contact for more information: You may contact the Study Director, Sinan Zhong, at 979-255-6755 or zsn198838@tamu.edu. For questions about your rights as a research participant, or if you have questions, complaints, or concerns about the research, you may call the Texas A&M University Human Subjects Protection Program office by phone at 979-458-4067, toll free at 1-855-795-8636, or by email at irb@tamu.edu.

By checking the following box, I agree to participate in the survey. I understand that the risks are no more than those experienced in everyday life. I do not have to answer anything I do not want to and being in the study will not affect my legal rights. You can leave the research at any time and it will not be held against you.

☐ **I agree to participate in the survey.**

Today's Date: ☐☐ / ☐☐ / 2019
(Month) (Day)

Before you start the survey, let's check your eligibility to participate in the study.		
1) Do you live in the City of Austin, Texas?	☐ Yes	☐ No
2) Are you 65 or older?	☐ Yes	☐ No
3) Are you currently living in an ordinary community instead of long-term care or assisted living?	☐ Yes	☐ No
4) Is this your first time to complete this survey?	☐ Yes	☐ No

5) Did you answer "YES" to all of the four questions above?

☐ Yes → 

You are eligible to participate in this study. So please proceed.

☐ No → 

You are **NOT** eligible to participate in this study and will **NOT** receive the gift card. Thank you so much for your interest and time!

SECTION 1. ABOUT YOUR PHYSICAL ACTIVITIES AND WALKING

Physical Activities: Please tell us about your physical activity levels in **LIGHT, MODERATE AND VIGOROUS** intensity in **a typical week**. **LIGHT physical activities** take light physical effort and allow you to breathe as normal. **MODERATE physical activities** take moderate physical effort and make you breathe somewhat harder than normal. **VIGOROUS physical activities** take hard physical effort and make you breathe much harder than normal.

1. **In a typical week, how many days do you do LIGHT PHYSICAL ACTIVITIES (for at least 10 minutes at a time) like slow walking and light housework, such as washing dishes, preparing food, and making the bed?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend on LIGHT physical activities on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

2. **In a typical week, how many days do you do MODERATE physical activities (for at least 10 minutes at a time) like gardening, cleaning, bicycling at a regular pace, swimming or other fitness activities?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend on MODERATE physical activities on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

3. **In a typical week, how many days do you do VIGOROUS physical activities (for at least 10 minutes at a time) like heavy lifting, heavier garden or construction work, chopping wood, aerobics, jogging/running or fast bicycling?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend on VIGOROUS physical activities on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

Walking: This includes walking at work and at home, walking to travel from place to place (walking for **TRANSPORTATION**), and any other walking that you might do solely for recreation, sport, exercise, or leisure (walking for **RECREATION**).

4. **In a typical week, how many days do you walk for ANY PURPOSE, including transportation, recreation, and any other types of walking?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend walking for ANY PURPOSE on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

5. **In a typical week, how many days do you walk for TRANSPORTATION (e.g. walking to get to and from places)?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend walking for TRANSPORTATION on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

6. **In a typical week, how many days do you walk for RECREATION?**

   ☐ No Day

   ☐ _____ Day(s) → **How much time do you usually spend walking for RECREATION on one of those days?**

   _____ Hour(s) and _____ Minute(s) per Day

Sedentary Activities: Include time spent **at work, at home, while doing paperwork and during leisure time (EXCLUDING sleeping time)**.

7. **In a typical week, how much time do you usually spend SITTING?** This may include time spent sitting at a desk, on your computer or phone, visiting friends, reading, or sitting or lying down to watch television.

   On a week day (Monday - Friday): _____ Hour(s) and _____ Minute(s) per Day

   On a weekend day (Saturday - Sunday): _____ Hour(s) and _____ Minute(s) per Day

SECTION 2. ABOUT YOUR QUALITY OF LIFE AND MENTAL HEALTH

8. How would you rate your quality of life?

☐ Very poor ☐ Poor ☐ Neither poor nor good ☐ Good ☐ Very good

9. How satisfied are you with your health?

☐ Very dissatisfied ☐ Dissatisfied ☐ Neither satisfied nor dissatisfied ☐ Satisfied ☐ Very satisfied

10. Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way in a typical week in the past month.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me.	☐	☐	☐	☐
I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
I felt I was just as good as other people.	☐	☐	☐	☐
I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
I felt depressed.	☐	☐	☐	☐
I felt that everything I did was an effort.	☐	☐	☐	☐
I felt hopeful about the future.	☐	☐	☐	☐
I thought my life had been a failure.	☐	☐	☐	☐
I felt fearful.	☐	☐	☐	☐
My sleep was restless.	☐	☐	☐	☐
I was happy.	☐	☐	☐	☐
I talked less than usual.	☐	☐	☐	☐
I felt lonely.	☐	☐	☐	☐
People were unfriendly.	☐	☐	☐	☐
I enjoyed life.	☐	☐	☐	☐
I had crying spells.	☐	☐	☐	☐
I felt sad.	☐	☐	☐	☐
I felt that people disliked me.	☐	☐	☐	☐
I could not get going.	☐	☐	☐	☐

SECTION 3. ABOUT YOUR INTERGENERATIONAL AND OTHER SOCIAL ACTIVITIES

We are interested in learning about your intergenerational and other social activities. Intergenerational activities refer to any social activities with others of different generations.

11. Where do you usually INTERACT (talk, spend time together) with others of different ages at least once a week? Check **ALL** that apply.

	Rarely or don't visit	**Children**	**Teenagers**	**Adults**	**Older adults**	*No interaction*
Your home or your neighbor's home (indoor)		☐	☐	☐	☐	☐
Your home or your neighbor's home (outdoor)		☐	☐	☐	☐	☐
Street (on the street / sidewalks)	☐	☐	☐	☐	☐	☐
Park / trail	☐	☐	☐	☐	☐	☐
Restaurant	☐	☐	☐	☐	☐	☐
Coffee place / bakery	☐	☐	☐	☐	☐	☐
Community center / senior center	☐	☐	☐	☐	☐	☐
Church	☐	☐	☐	☐	☐	☐
Child daycare	☐	☐	☐	☐	☐	☐
School / university	☐	☐	☐	☐	☐	☐
Library / book store	☐	☐	☐	☐	☐	☐
Convenience store / small grocery store	☐	☐	☐	☐	☐	☐
Supermarket	☐	☐	☐	☐	☐	☐
Fruit / vegetable market	☐	☐	☐	☐	☐	☐
Laundry / dry cleaner	☐	☐	☐	☐	☐	☐
Clothing store	☐	☐	☐	☐	☐	☐
Post office / bank / credit union	☐	☐	☐	☐	☐	☐
Pharmacy / drug store	☐	☐	☐	☐	☐	☐
Salon / barber shop	☐	☐	☐	☐	☐	☐
Bus stop / light rail station	☐	☐	☐	☐	☐	☐
Gym / fitness facility / recreation center	☐	☐	☐	☐	☐	☐
Other, specify: _____	☐	☐	☐	☐	☐	☐

12. On a personal satisfaction level, do you feel you spend enough time INTERACTING (talking, spending time together) with…?

Children	☐ Too much	☐ About enough	☐ Not enough
Teenagers	☐ Too much	☐ About enough	☐ Not enough
Adults	☐ Too much	☐ About enough	☐ Not enough
Older adults	☐ Too much	☐ About enough	☐ Not enough

13. Do you do any volunteer work (spend your time helping a person or organization without being paid for it)?

☐ No → **Skip to Question 15**

☐ Yes → **In a typical month, how much time do you spend doing volunteer work?**

_____ Hour(s) per Month

14. Where do you INTERACT (talk, spend time together) with others of different ages at least once a week while doing your volunteer work? Check **ALL** that apply.

	Children	Teenagers	Adults	Older adults	None
In your neighborhood	☐	☐	☐	☐	☐
Outside your neighborhood	☐	☐	☐	☐	☐

15. How many days in a typical week do you spend at least 10 minutes communicating with others of different ages using DIGITAL media, such as smartphone, computer, and tablet?

	0 days	1-2 days	3-4 days	5-7 days
Children	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐
Adults	☐	☐	☐	☐
Older adults	☐	☐	☐	☐

The following questions are about your intergenerational and other social activities **IN YOUR NEIGHBORHOOD**. Please assume a typical week or month **when the weather is nice/pleasant**.

By neighborhood, we mean the area within a 10-15 minute walk from your home.

16. About how many of the places where you usually socialize with others are located IN YOUR NEIGHBORHOOD?

☐ All ☐ Most ☐ Half ☐ A few/some ☐ None

17. In a typical week, how many days do you spend at least 10 minutes OUTDOORS IN YOUR NEIGHBORHOOD?

☐ No Day

☐ _____ Day(s) → **How much time do you usually spend OUTDOORS IN YOUR NEIGHBORHOOD on one of those days?**

_____ Hour(s) and _____ Minute(s) per Day

18. In a typical month, how often do you…?

	More than once a day	Every day	A few days a week	Once a week	Twice a month	Once a month	Seldom/ never
Say hello to a neighbor	☐	☐	☐	☐	☐	☐	☐
Stop and talk with a neighbor	☐	☐	☐	☐	☐	☐	☐
Socialize with a neighbor at your home, your neighbor's home, or someplace else (e.g. restaurant, shopping, ball game)	☐	☐	☐	☐	☐	☐	☐
Ask for help, seek advice, or borrow things from, or exchange favors with a neighbor	☐	☐	☐	☐	☐	☐	☐

19. How many people of different ages do you KNOW IN YOUR NEIGHBORHOOD?

	0	1-2	3-5	6-10	11 or over
Children	☐	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐	☐
Adults	☐	☐	☐	☐	☐
Older adults	☐	☐	☐	☐	☐

20. IN YOUR NEIGHBORHOOD, how many days in a typical week do you spend at least 10 minutes WATCHING others of different ages doing activities?

	0 days	1-2 days	3-4 days	5-7 days
Children	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐
Adults	☐	☐	☐	☐
Older adults	☐	☐	☐	☐

21. IN YOUR NEIGHBORHOOD, how many days in a typical week do you spend at least 10 minutes INTERACTING (talking, spending time together) with others of different ages?

	0 days	1-2 days	3-4 days	5-7 days
Children	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐
Adults	☐	☐	☐	☐
Older adults	☐	☐	☐	☐

22. What types of outdoor activities IN YOUR NEIGHBORHOOD do you SEE others of different ages doing at least once a week? Check **ALL** that apply.

	Children	Teenagers	Adults	Older adults	None
Walking	☐	☐	☐	☐	☐
Biking	☐	☐	☐	☐	☐
Playing	☐	☐	☐	☐	☐
Sitting (e.g. reading)	☐	☐	☐	☐	☐
Working (e.g. yardwork)	☐	☐	☐	☐	☐
Socializing/talking	☐	☐	☐	☐	☐
Other, specify: _____	☐	☐	☐	☐	☐

The following questions are about your intergenerational and other social activities **OUTSIDE YOUR NEIGHBORHOOD**. This means **outside** a 10-15 minute walk from your home.

23. OUTSIDE YOUR NEIGHBORHOOD, how many days in a typical week do you spend at least 10 minutes WATCHING others of different ages doing activities?

	0 days	1-2 days	3-4 days	5-7 days
Children	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐
Adults	☐	☐	☐	☐
Older adults	☐	☐	☐	☐

24. OUTSIDE YOUR NEIGHBORHOOD, how many days in a typical week do you spend at least 10 minutes INTERACTING (talking, spending time together) with others of different ages?

	0 days	1-2 days	3-4 days	5-7 days
Children	☐	☐	☐	☐
Teenagers	☐	☐	☐	☐
Adults	☐	☐	☐	☐
Older adults	☐	☐	☐	☐

SECTION 4. ABOUT YOUR NEIGHBORHOOD ENVIRONMENT

We would like to find out more information about the way that you perceive or think about your neighborhood. **By neighborhood, we mean the area within a 10-15 minute walk from your home**.

25. When did you move into your current home?

Year: ___ ___ ___ ___ and Month: ___ ___

26. Do you currently live in a …? Check **ALL** that apply.

- ☐ Gated community
- ☐ Newly built neighborhood (built in the last 10-15 years)
- ☐ Retirement community
- ☐ Age restricted neighborhood
- ☐ Neighborhood with many senior residents (e.g. naturally occurring retirement community)
- ☐ Neighborhood with mixed land uses (e.g. commercial, recreational)
- ☐ None of the above

27. How important are the following reasons for you to choose living in your current home?

	Not at all important	Slightly important	Moderately important	Very important
Affordability (cost of housing)	☐	☐	☐	☐
Close to park and natural open space	☐	☐	☐	☐
Close to entertainment facilities (e.g. movie theatre, stadium)	☐	☐	☐	☐
Close to public transportation	☐	☐	☐	☐
Close to shops and services	☐	☐	☐	☐
Close to family members	☐	☐	☐	☐
Close to friends	☐	☐	☐	☐
Presence of other older residents	☐	☐	☐	☐
Ease of walking	☐	☐	☐	☐
Sense of community	☐	☐	☐	☐
Neighborhood safety	☐	☐	☐	☐
Close to healthcare/medical facilities	☐	☐	☐	☐
Neighborhood aesthetics or beautiful scenery	☐	☐	☐	☐
Diversity of age groups	☐	☐	☐	☐
Diversity of ethnic groups	☐	☐	☐	☐
Access to supportive programs (e.g. Meals on wheels, transit education program)	☐	☐	☐	☐
Other, specify: _____	☐	☐	☐	☐

28. How much do you agree or disagree with the following statements?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
I see many people being physically active (e.g. walking, jogging, cycling, or playing sports) in my neighborhood.	☐	☐	☐	☐
My neighbors could be counted on to help in case of need.	☐	☐	☐	☐
This is a close-knit neighborhood.	☐	☐	☐	☐
People in my neighborhood are willing to help their neighbors.	☐	☐	☐	☐
People in my neighborhood can be trusted.	☐	☐	☐	☐
People in my neighborhood generally do **NOT** get along with each other.	☐	☐	☐	☐
People in my neighborhood do **NOT** share the same values.	☐	☐	☐	☐

29. Access to services

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
I can do most of my shopping at local stores.	☐	☐	☐	☐
Stores are within easy walking distance of my home.	☐	☐	☐	☐
Parking is difficult in local shopping areas.	☐	☐	☐	☐
There are many places to go within easy walking distance of my home.	☐	☐	☐	☐
It is easy to walk to a transit stop (bus, train) from my home.	☐	☐	☐	☐
It is easy to walk to healthcare/medical services (e.g. hospital, doctor's office, pharmacy).	☐	☐	☐	☐
The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.	☐	☐	☐	☐
There are many canyons/hillsides in my neighborhood that limit the number of routes for getting from place to place.	☐	☐	☐	☐

30. Streets in my neighborhood

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
The streets in my neighborhood do not have many, or any, dead-end streets (cul-de-sacs).	☐	☐	☐	☐
There are walkways in my neighborhood that connect dead-end streets to streets, trails, or other dead-end streets.	☐	☐	☐	☐
The distance between intersections in my neighborhood is usually short (100 yards or less; the length of a football field or less).	☐	☐	☐	☐
There are many four-way intersections in my neighborhood.	☐	☐	☐	☐
There are many alternative routes for getting from place to place in my neighborhood. (I don't have to go the same way every time.)	☐	☐	☐	☐

31. Places for walking and cycling	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
There are sidewalks on most of the streets in my neighborhood.	☐	☐	☐	☐
The sidewalks in my neighborhood are well maintained (paved, even, and not a lot of cracks).	☐	☐	☐	☐
There are bicycle or pedestrian trails in or near my neighborhood that are easy to get to.	☐	☐	☐	☐
Sidewalks are separated from the road/traffic in my neighborhood by parked cars.	☐	☐	☐	☐
There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.	☐	☐	☐	☐
There are benches on most of the sidewalks in my neighborhood.	☐	☐	☐	☐

32. Neighborhood surroundings	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
There are trees along the streets in my neighborhood.	☐	☐	☐	☐
Trees give shade for the sidewalks in my neighborhood.	☐	☐	☐	☐
There are many interesting things to look at while walking in my neighborhood.	☐	☐	☐	☐
My neighborhood is generally free from litter.	☐	☐	☐	☐
There are many attractive natural sights in my neighborhood (such as landscaping, views).	☐	☐	☐	☐
There are attractive buildings/homes in my neighborhood.	☐	☐	☐	☐

33. Safety from traffic	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.	☐	☐	☐	☐
There is so much traffic along **nearby** streets that it makes it difficult or unpleasant to walk in my neighborhood.	☐	☐	☐	☐
The speed of traffic on the street I live on is usually slow (30 mph or less).	☐	☐	☐	☐
The speed of traffic on most **nearby** streets is usually slow (30 mph or less).	☐	☐	☐	☐
Most drivers exceed the posted speed limits while driving in my neighborhood.	☐	☐	☐	☐
There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.	☐	☐	☐	☐
The crosswalks in my neighborhood help walkers feel safe crossing busy streets.	☐	☐	☐	☐
When walking in my neighborhood, there are a lot of exhaust fumes (such as from cars, buses).	☐	☐	☐	☐

34. Safety from crime

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
My neighborhood streets are well lit at night.	☐	☐	☐	☐
Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.	☐	☐	☐	☐
I see and speak to other people when I am walking in my neighborhood.	☐	☐	☐	☐
There is a high crime rate in my neighborhood.	☐	☐	☐	☐
The crime rate in my neighborhood makes it unsafe to go on walks **during the day.**	☐	☐	☐	☐
The crime rate in my neighborhood makes it unsafe to go on walks **at night.**	☐	☐	☐	☐

35. How satisfied are you with…

	Strongly dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Strongly satisfied
highway access from your home?	☐	☐	☐	☐
access to public transportation in your neighborhood?	☐	☐	☐	☐
access to shopping in your neighborhood?	☐	☐	☐	☐
how many friends you have in your neighborhood?	☐	☐	☐	☐
number of people you know in your neighborhood?	☐	☐	☐	☐
how easy and pleasant it is to walk in your neighborhood?	☐	☐	☐	☐
access to entertainment in your neighborhood (restaurants, movies, clubs, etc.)?	☐	☐	☐	☐
access to healthcare/medical services?	☐	☐	☐	☐
safety from threat of crime in your neighborhood?	☐	☐	☐	☐
amount and speed of traffic in your neighborhood?	☐	☐	☐	☐
noise from traffic in your neighborhood?	☐	☐	☐	☐
number and quality of food stores in your neighborhood?	☐	☐	☐	☐
number and quality of restaurants in your neighborhood?	☐	☐	☐	☐
your neighborhood as a good place to live?	☐	☐	☐	☐

SECTION 5. ABOUT SUPPORTIVE SERVICES OR PROGRAMS

Below are questions about supportive services or programs **available in your neighborhood**. **By neighborhood, we mean the area within a 10-15 minute walk from your home**.

36. Do you use or participate in any of the following services/programs in your neighborhood at least once a month? Check **ALL** that apply.

- ☐ Health related services/programs (e.g. home health or personal care aides, visiting nurses/doctors who provide services in people's homes, mental health services/counseling, respite services that help caregivers get a break from caregiving duties, health outreach programs and community care clinics)
- ☐ Meal related services/programs (e.g. meals on wheels or home delivered meals programs, senior lunch programs)
- ☐ House and homemaker services/programs (e.g. services that help with home repairs, modifications, or maintenances for safety and independence, chore or homemaker services)
- ☐ Transportation related services/programs (e.g. transportation services with easy access to diverse transportation options, transit education program)
- ☐ Financial services/programs (e.g. financial planning or financial education services)
- ☐ Social services/programs (e.g. adult day social programs, senior programs, recreational services)
- ☐ Employment and education services/programs (e.g. job skills training and assistance, technology training)
- ☐ Legal aid or free legal services (e.g. free tax preparation)
- ☐ Other, specify: _____
- ☐ None of the above

37. Do any of the services/programs you use or participate in involve SOCIAL INTERACTION (talking, spending time together) with younger generations?

- ☐ Yes, specify: _____
- ☐ No

38. In general, how satisfied are you with the services/programs in your neighborhood?

☐ Strongly dissatisfied ☐ Somewhat dissatisfied ☐ Somewhat satisfied ☐ Strongly satisfied

Below are questions about **driverless vehicles** that may become available to you and/or in your neighborhood.

39. I would personally want to ride in a driverless vehicle (i.e. cars and trucks that can operate on their own without a human driver) if I had the opportunity.

☐ Strongly disagree ☐ Somewhat disagree ☐ Somewhat agree ☐ Strongly agree

40. If driverless vehicles become widespread, older adults and people with disabilities will be able to live more independently.

☐ Strongly disagree ☐ Somewhat disagree ☐ Somewhat agree ☐ Strongly agree

SECTION 6. ABOUT YOURSELF

41. In what year were you born? 19 __ __

42. What is your sex? ☐ Male ☐ Female

43. Are you Hispanic, Latino, or Spanish origin? ☐ Yes ☐ No

44. Which one of these groups would you say best represents your race?

☐ White ☐ Black or African American ☐ Asian

☐ Pacific Islander ☐ American Indian or Alaska Native ☐ Other, specify: _____

45. About how much do you weigh without shoes? Please provide your best estimate either in Pounds or Kilograms.

☐ Pounds: _____ OR ☐ Kilograms: _____

46. About how tall are you without shoes? Please provide your best estimate either in Feet and Inches or Centimeters.

☐ Feet: _____ and Inches: _____ OR ☐ Centimeters: _____

47. Are you…

☐ Married ☐ Widowed ☐ Never married

☐ Divorced ☐ Separated ☐ A member of an unmarried couple

48. What is the highest grade or year of school you completed?

☐ Less than high school ☐ Some high school, but no degree/diploma/GED

☐ High school diploma/GED ☐ Some college ☐ Associate degree

☐ Bachelor's degree ☐ Master's degree ☐ Professional degree

☐ Doctorate degree

49. Which best describes where you live?

☐ A one-family house detached from any other house

☐ A one-family house attached to one or more houses (e.g. townhouse)

☐ A building with 2 to 4 units (e.g. duplex, fourplex)

☐ A building with 5 or more units/apartments

☐ A mobile home or trailer

☐ Other, specify: _____

50. Do you own or rent your house, apartment, or mobile home?

☐ Own with a mortgage or loan ☐ Own without a mortgage or loan

☐ Rent ☐ Neither (living with relatives, etc.)

51. What kind of pet(s) do you have in your household? Check **ALL** that apply.

☐ No pet ☐ Dog ☐ Cat ☐ Bird ☐ Fish

☐ Other, specify: _____

52. Are you currently…? Check **ALL** that apply.

- ☐ Employed for wages
- ☐ Self-employed
- ☐ Retired
- ☐ Out of work for less than 1 year
- ☐ Out of work for 1 year or more
- ☐ A homemaker
- ☐ A student
- ☐ Unable to work

53. What types of health or medical insurance coverage do you currently have? Check **ALL** that apply.

- ☐ A plan purchased through an employer or union (including plans purchased through another person's employer)
- ☐ A plan that you or another family member buys on your own
- ☐ Medicare
- ☐ Medicaid or other state program
- ☐ TRICARE (formerly CHAMPUS), VA, or Military
- ☐ Alaska Native, Indian Health Service, Tribal Health Services
- ☐ Other health insurance: _____
- ☐ None (no coverage)

54. What is your current total household income from all sources (before taxes)?

- ☐ Under $10,000
- ☐ $10,000 to $19,999
- ☐ $20,000 to $29,999
- ☐ $30,000 to $39,999
- ☐ $40,000 to $49,999
- ☐ $50,000 to $59,999
- ☐ $60,000 to $69,999
- ☐ $70,000 to $79,999
- ☐ $80,000 to $89,999
- ☐ $90,000 to $99,999
- ☐ $100,000 or more
- ☐ Don't know/prefer not to answer

55. How many additional people (excluding yourself) live in your household?

- ☐ None → **Skip to Question 57**
- ☐ _____ People → **What are the ages of the other people living in your household?**

a) _____ b) _____ c) _____ d) _____ e) _____

f) _____ g) _____ h) _____ i) _____ j) _____

How many children/grandchildren under 18 years of age live in your household?

_____ Number of Children/Grandchildren

56. Who lives in your household with you? Check **ALL** that apply.

- ☐ Your spouse or partner
- ☐ Your parent
- ☐ Your child
- ☐ A brother or sister
- ☐ A grandchild or a great-grandchild
- ☐ Relatives other than those mentioned
- ☐ Friends
- ☐ Someone else

57. Are you currently taking care of a sick or frail older relative or friend on a regular basis? This means that on a daily or weekly basis, you help the person with their personal care needs such as eating or dressing, or with routine needs such as household chores, shopping, or business.

☐ No

☐ Yes → **Approximately <u>how long</u> have you been caring for this person on a regular basis?**

☐ Years: _____ ☐ Months: _____ (if less than one year)

Over the past year approximately how much time per week have you spent engaging in activities related to caring for this person?

_____ Hours **per <u>Week</u>**

58. Would you say that in general your health is…?

☐ Excellent ☐ Very Good ☐ Good ☐ Fair ☐ Poor

59. On average, how many hours of sleep do you get in a 24-hour period?

_____ Hours

60. Has your health care provider ever told you that you have any of the following conditions? Check **<u>ALL</u>** that apply**.**

☐ Anxiety ☐ Depression ☐ Memory loss

☐ Obesity ☐ Low vision/blindness ☐ Hearing loss or deafness

☐ Asthma ☐ Diabetes ☐ High cholesterol

☐ Hypertension ☐ Stroke ☐ Cancer

☐ Osteoporosis or brittle bones ☐ Arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia

☐ Spinal/back disorder ☐ Ear, Nose, and Throat (ENT) disorder

☐ Thyroid disease ☐ Heart attack or other heart disease

☐ Sleep disorders, such as difficulty falling asleep or staying asleep

☐ Chronic Obstructive Pulmonary Disease (C.O.P.D.), emphysema or chronic bronchitis

☐ Kidney disease (not including kidney stones, bladder infection or incontinence)

☐ Urinary incontinence or accidental leakage of urine

☐ Other, specify: _____

☐ None of the above

61. Do you have serious difficulty hearing?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

62. Do you have serious difficulty seeing, even when wearing glasses?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

63. Do you have serious difficulty walking or climbing stairs?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

64. Do you have difficulty dressing or bathing?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

65. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

66. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?

☐ Yes ☐ No ☐ Don't know/prefer not to answer

67. During a typical week, how many alcoholic beverages do you have (remember to include weekends)? One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor.

_____ Drink(s) per Week

68. Do you smoke a cigarette, cigar or pipe in a typical week?

☐ No

☐ Yes → **On average, how many cigarettes (or cigars or pipes) do you smoke per day?**

_____ Cigarette(s) per Day

69. Which of the following do you use MOST OFTEN to get around?

☐ Need no assistance to get around ☐ Power scooter ☐ Wheelchair

☐ Walker with seat ☐ Walker ☐ Cane

☐ Other, specify: _____

70. Do you have a valid driver's license?

☐ Yes ☐ No

71. Have you fallen in the past 12 months? Includes falling **on the ground or some other level**, such as a chair.

☐ No → **Skip to Question 73**

☐ Yes → **How many of these falls caused an injury that limited your regular activities for at least a day or caused you to go to see a doctor?**

_____ Number of Falls

72. In the past 12 months, how many times have you fallen…?

	0 times	1-2 times	3-5 times	6 times or more
Indoors at home	☐	☐	☐	☐
Indoors in other buildings	☐	☐	☐	☐
Outdoors at home (e.g. yards, gardens)	☐	☐	☐	☐
Outdoors **in** your neighborhood (e.g. porches, stairs, streets, parks)	☐	☐	☐	☐
Outdoors **outside** your neighborhood (e.g. porches, stairs, streets, parks)	☐	☐	☐	☐

73. Have you experienced any of the following life events during the past three years? Check **ALL** that apply.

☐ Personal illness ☐ Death of a spouse ☐ Death of a family member or friend

☐ Illness of a spouse ☐ Illness of a family member or friend

☐ Non-medical events (e.g. financial problems, divorce, victimization)

☐ Other, specify: _____

☐ None of the above

74. How did you hear about this study? Check **ALL** that apply.

☐ Families or friends ☐ WellMed Charitable Foundation Senior Community Center

☐ Nextdoor ☐ Lamar Senior Activity Center

☐ AustinUp ☐ Conley-Guerrero Senior Activity Center

☐ Aging is Cool ☐ South Austin Senior Activity Center

☐ Aging2.0 Austin ☐ Lorraine "Grandma" Camacho Activity Center

☐ Alamo Recreation Center ☐ Virginia L. Brown Recreation Center

☐ Allen R. Baca Center ☐ Gustavo "Gus" L. Garcia Recreation Center

☐ Metz Recreation Center ☐ Other, specify: _____

75. Did you complete the survey by yourself?

☐ Yes ☐ No

76. For the purpose of this study, we asked you to refer to an area within a 10-15 minute walk from home as your neighborhood. Is this consistent with how you may define your neighborhood personally?

☐ Yes

☐ No → **I feel my neighborhood is:**

☐ An area immediately surrounding my house (i.e. the street block I live in)

☐ My subdivision (if applicable)

☐ An area within a 5-minute walk from my home

☐ An area within a 20-30 minute walk from my home

☐ Others, specify: _____

77. Please provide your name and contact information. This information will ONLY be used for the purpose of this study and will not be shared with anyone.

First Name: _____ Street Address: _____

Last Name: _____ _____

Phone: _____ _____

E-mail: _____ Austin, Texas, ZIP Code: ___ ___ ___ ___ ___

Thank you for completing the survey!

We will mail you a **$10 gift card** as a token of our appreciation (one gift card per participant).

78. Which gift card would you like to receive?

☐ Amazon ☐ HEB ☐ I don't want a gift card.

79. Is there anything else you want to tell us about your neighborhood environment and/or intergenerational activities?

APPENDIX J

INTERGENERATIONAL COMMUNITY ASSESSMENT TOOL

Intergenerational Community Assessment Tool

iCat.p

INSTRUCTION Please read before you begin.

The iCat.p is not designed as a validated instrument that can be scored. It is an informative tool with a collection of survey items capturing physical elements and features of the community environment that can promote intergenerational interactions. This tool aims to provide practical guidance for policymakers, planning and design professionals, and local residents who are interested in creating or retrofitting community environments to promote social interactions across different age groups and healthy aging in place.

The iCat, a validated assessment tool, will be developed in the future after more empirical evidence is gathered. A user manual will be developed to guide the proper use of the final tool. Upon the publication in a peer-reviewed journal, iCat will be made available to the public via an open study website.

For questions or comments, please contact Sinan Zhong: email zsn198838@tamu.edu or call (979) 255-6755.

We would like to learn about how you think about your neighborhood, in terms of its elements or features that may support your interactions with others of different ages. **By neighborhood, we mean the area within a 10-15 minute walk from your home.**

OVERALL RATING On a scale of 1-10, how would you rate the **overall neighborhood characteristics?**

	Low ► High									
01 WALKABILITY	1	2	3	4	5	6	7	8	9	10
02 SAFETY	1	2	3	4	5	6	7	8	9	10
03 THERMAL COMFORT	1	2	3	4	5	6	7	8	9	10
04 AESTHETICS	1	2	3	4	5	6	7	8	9	10
05 DIVERSITY OF AGE GROUPS	1	2	3	4	5	6	7	8	9	10
06 QUALITY OF SOCIAL LIFE	1	2	3	4	5	6	7	8	9	10

A. DESTINATION LAND USES

It is easy to walk from my home to the following places/facilities.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
A1. RETAIL/SERVICE				
01 Supermarket	☐	☐	☐	☐
02 Convenience store / small grocery store	☐	☐	☐	☐
03 Restaurant	☐	☐	☐	☐
04 Pharmacy / drug store	☐	☐	☐	☐
05 Post office / bank / credit union	☐	☐	☐	☐
A2. INSTITUTIONAL	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
06 School	☐	☐	☐	☐
07 University	☐	☐	☐	☐
08 Community center / senior center	☐	☐	☐	☐
09 Religious destination (e.g. church)	☐	☐	☐	☐
A3. RECREATIONAL	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
10 Park / open space	☐	☐	☐	☐
11 Outdoor recreational facility (e.g. playground)	☐	☐	☐	☐
12 Outdoor water feature / facility	☐	☐	☐	☐
13 Gym / fitness facility / recreation center	☐	☐	☐	☐
A4. TRANSPORTATION	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
14 Street (on the street / sidewalk)	☐	☐	☐	☐
15 Bus stop	☐	☐	☐	☐
16 Light rail station	☐	☐	☐	☐
A5. OTHERS	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
17 _____	☐	☐	☐	☐
18 _____	☐	☐	☐	☐
19 _____	☐	☐	☐	☐

B. GENERAL LAND USES

How common are the following land uses in my neighborhood?	None	A few/ some	Half	Most	All
01 Residential uses (e.g. single-family homes, duplexes, apartment complexes)	☐	☐	☐	☐	☐
02 Commercial uses (e.g. retail, services)	☐	☐	☐	☐	☐
03 Office uses (e.g. doctor's offices, professional and financial offices)	☐	☐	☐	☐	☐
04 Recreational uses (e.g. parks / open spaces, playgrounds, golf courses, gyms)	☐	☐	☐	☐	☐
05 Undesirable uses (e.g. landfills, power plants, factories)	☐	☐	☐	☐	☐
06 Other, specify: _____	☐	☐	☐	☐	☐

C. STREETS AND SIDEWALKS

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
01 There are many three- or more-way intersections in my neighborhood.	☐	☐	☐	☐
02 There are many stop signs at the three- or more-way intersections in my neighborhood.	☐	☐	☐	☐
03 There are sidewalks on most of the streets in my neighborhood.	☐	☐	☐	☐
04 There are benches I can use to rest while walking in my neighborhood.	☐	☐	☐	☐

D. AESTHETICS AND THERMAL COMFORT

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
01 There are a lot of mature trees in my neighborhood.	☐	☐	☐	☐
02 There are many interesting things to look at while walking in my neighborhood.	☐	☐	☐	☐
03 My neighborhood is generally free from litter.	☐	☐	☐	☐
04 There are many attractive natural sights in my neighborhood (e.g. landscapes, views).	☐	☐	☐	☐
05 There are attractive buildings / homes in my neighborhood.	☐	☐	☐	☐

E. NEIGHBORHOOD SAFETY

		Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
01	There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.	☐	☐	☐	☐
02	There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.	☐	☐	☐	☐
03	The speed of traffic on most streets in my neighborhood is usually slow.	☐	☐	☐	☐
04	Most drivers exceed the posted speed limits while driving in my neighborhood.	☐	☐	☐	☐
05	When walking in my neighborhood, there are a lot of exhaust fumes (from cars, buses, etc.).	☐	☐	☐	☐
06	My neighborhood streets are well lit at night.	☐	☐	☐	☐
07	Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.	☐	☐	☐	☐
08	I see and speak to other people when I am walking in my neighborhood.	☐	☐	☐	☐

F. NEIGHBORHOOD DEVELOPMENT

		Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
01	My neighborhood is relatively new (e.g. built in the last 10-15 years).	☐	☐	☐	☐
02	There are a lot of new developments (e.g. housing, commercial) in my neighborhood.	☐	☐	☐	☐
03	There are a lot of infrastructure improvements (e.g. sidewalks, streets) in my neighborhood.	☐	☐	☐	☐

Intergenerational Community Assessment Tool

iCat.p

For questions or comments, please contact Sinan Zhong:
email zsn198838@tamu.edu or call (979) 255-6755.

SOURCE AND EVIDENCE FOR EACH ITEM		
ITEM	**SOURCE**	**EVIDENCE**
OVERALL RATING		
01	New item	Dissertation regression model
02	New item	Dissertation regression model
03	New item	Dissertation one-by-one test
04	New item	Dissertation regression model
05	New item	Dissertation regression model
06	New item	Dissertation regression model
A. DESTINATION LAND USES		
A1. RETAIL/SERVICES		
01	Item adapted from NEWS [5]	Dissertation descriptive statistics and regression model
02	Item adapted from NEWS [5]	Dissertation descriptive statistics and regression model
03	Item adapted from NEWS [5]	Dissertation descriptive statistics
04	Item adapted from NEWS [5]	Dissertation descriptive statistics
05	Item adapted from NEWS [5]	Dissertation descriptive statistics
A2. INSTITUTIONAL		
06	Item adapted from NEWS [5]	Places for program-based intergenerational activities that can promote helath among older adults [1,2]
07	Item adapted from NEWS [5]	Places for program-based intergenerational activities that can promote helath among older adults [3]
08	Item adapted from NEWS [5]	Places for program-based intergenerational activities that can promote helath among older adults [4]
09	Item adapted from NEWS [5]	Dissertation descriptive statistics and one-by-one test
A3. RECREATIONAL		
10	Item adapted from NEWS [5]	Dissertation descriptive statistics and one-by-one test
11	Item adapted from NEWS [5]	Dissertation one-by-one test
12	Item adapted from NEWS [5]	Dissertation one-by-one test
13	Item adapted from NEWS [5]	Dissertation regression model
A4. TRANSPORTATION		
14	Item adapted from NEWS [5]	Dissertation descriptive statistics and one-by-one test
15	Item adapted from NEWS [5]	Dissertation one-by-one test
16	Item adapted from NEWS [5]	Dissertation one-by-one test
B. GENERAL LAND USES		
01	New item	Dissertation regression model
02	New item	Dissertation descriptive statistics and regression model (based on results in the A. DESTINATION LAND USES)
03	New item	Dissertation one-by-one test
04	New item	Dissertation descriptive statistics, one-by-one test, and regression model (based on results in the A. DESTINATION LAND USES)
05	New item	Dissertation regression model
C. STREETS AND SIDEWALKS		
01	Item adapted from NEWS [5]	Dissertation one-by-one test
02	New item	Dissertation regression model
03	Item directly from NEWS [5]	Dissertation one-by-one test
04	New item	Dissertation regression model

SOURCE AND EVIDENCE FOR EACH ITEM		
ITEM	**SOURCE**	**EVIDENCE**
D. AESTHETICS AND THERMAL COMFORT		
01	Item adapted from NEWS [5]	Dissertation one-by-one test
02	Item directly from NEWS [5]	Dissertation regression model
03	Item directly from NEWS [5]	Dissertation regression model
04	Item directly from NEWS [5]	Dissertation regression model
05	Item directly from NEWS [5]	Dissertation regression model
E. NEIGHBORHOOD SAFETY		
01	Item directly from NEWS [5]	Dissertation regression model
02	Item directly from NEWS [5]	Dissertation regression model
03	Item adapted from NEWS [5]	Dissertation regression model
04	Item directly from NEWS [5]	Dissertation regression model
05	Item directly from NEWS [5]	Dissertation regression model
06	Item directly from NEWS [5]	Dissertation regression model
07	Item directly from NEWS [5]	Dissertation regression model
08	Item directly from NEWS [5]	Dissertation regression model
F. NEIGHBORHOOD DEVELOPMENT		
01	New item	Dissertation regression model
02	New item	Dissertation regression model
03	New item	Dissertation regression model

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4. Chippendale, T. and M. Boltz, *Living Legends: effectiveness of a program to enhance sense of purpose and meaning in life among community-dwelling older adults*. American Journal of Occupational Therapy, 2015. **69**(4): p. 6904270010p1-6904270010p11.
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APPENDIX K

HUMAN SUBJECTS (IRB APPROVAL)

DIVISION OF RESEARCH

TEXAS A&M UNIVERSITY

EXEMPTION DETERMINATION

October 16, 2018

Type of Review:	Submission Response for IRB Amendment
Title:	INTERGENERATIONAL COMMUNITIES: The Role of Neighborhood Environment in Older Adults'Social Interactions and Health Outcomes
Investigator:	Chanam Lee
IRB ID:	IRB2018-0578M
Reference Number:	083468
Funding:	
Documents Reviewed:	IRB Amendment - (Version 3.1) IRB Application (Human Research) - (Version 1.4) Information Sheet_Sinan Zhong_50_10162018 (English) - (Version 1.1 Approved on 10/16/2018) Information Sheet_Sinan Zhong_65_10162018 (English) - (Version 1.1 Approved on 10/16/2018) Online Survey_50_SZhong_10162018 - (Version 1.1 Approved on 10/16/2018) Online Survey_65_SZhong_10162018 - (Version 1.1 Approved on 10/16/2018) Email Invitation_65_10162018 - (Version 1.1 Approved on 10/16/2018) Email Invitation_50_10162018 - (Version 1.1 Approved on 10/16/2018) Survey_Sinan Zhong_50_10162018 - (Version 1.1 Approved on 10/16/2018) Survey_Sinan Zhong_65_10162018 - (Version 1.1 Approved on 10/16/2018) Survey_Sinan Zhong_65_10112018 - (Version 1.1 Approved on 10/16/2018) Flyer_SZhong_10112018 - (Version 1.0 Approved on 10/16/2018)

Dear Chanam Lee:

The HRPP determined on 05/29/2018 that this research still meets the criteria for Exemption in accordance with 45 CFR 46.101(b) under Category 2: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or

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observation of public behavior unless, the information is obtained in an identifiable manner and any disclosure of the subjects responses outside of research could reasonably place the subject at risk..

Your exemption is good for five (5) years from the Approval Start Date. At that time, you must contact the IRB with your intent to close the study or request a new determination.

If you have any questions, please contact the IRB Administrative Office at 1-979-458-4067, toll free at 1-855-795-8636.

Sincerely,
IRB Administration