

The Association between Balance Confidence, Physical Accessibility and Life-Space
Mobility among Older Adults Living in Residential Care Facilities

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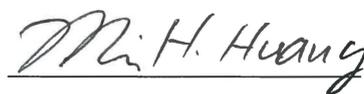
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Abstract

Previous studies have shown that physical community layout is associated with mobility in older adults and that balance confidence (BC) improves their life-space mobility. However, few studies have examined how BC, physical residential characteristics have an impact on the proximity of distance. The purpose of this study was to assess the relationships BC, physical accessibility and life-space mobility. A cross-sectional design was used with a convenient sample of 90 older adults living in an independent facility in an urban city in Michigan. Eligibility criteria included understanding and speaking English and being medically stable. Measures were Life-Space Assessment (LSA), Short Version of Activity-specific Balance Scale (ABC-6) and the Housing Enabler Assessment and Modifications. ANCOVAs were performed using SPSSv22. The mean age of the participants was 66.83 years old, ranging from 50 to 93 years. The majority was African American (76%), single (94%), female (67%), and received a GED or completed some high school (54%). The results show that older adults with a high BC had a greater LSA after controlling for age, gender, race, and marital status ($p < 0.001$). Residential accessibility was not associated with LSA, however it was associated with BC ($p < 0.05$). African Americans with lower education attainment had a greater LSA of level 3 compared to Caucasians ($p < 0.019$). Males ($p < 0.007$) and older adults with high education attainment ($p < 0.020$) had significantly higher BC. Complexity was detected in these inter-relationships. BC, race and gender must be considered to improve life-space mobility among older adults.

Keywords: Life-space, Balance confidence, Physical Accessibility, Older adults

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Table of Contents

Abstract.....	2
Acknowledgment	3
Introduction	5
Purpose.....	9
Methods.....	10
Procedure.....	10
Measures	10
Statistical analysis	13
Results	13
Characteristics of the participants	13
Relationship BC with LSA.....	13
Relationship RCF with LSA.....	14
Relationship demographics with LSA	14
Discussion.....	14
Conclusion/Implication.....	18
Recommendations for Healthcare Administrators	19
Reference	20
Tables	27
Table 1: Demographic characteristic.....	27
Table 2: ANOVA (General Linear Model).....	28
Table 3: Distribution LSA by ABC-6	29
Appendix	30
Appendix 1: IRB Approval letter	30
Appendix 2: Informed Consent	33
Appendix 2: Survey.....	36

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Introduction

The growth of older populations poses substantial challenges for the future in the United State. The aging of the baby boomer generation would increase the demand for residential care facilities (RCFs) services over the next half century (ASPE, 2003). In the United States the number of adults 65 years and older using nursing homes, independent living facilities or in-state institutions are projected to increase from 15 million in 2000 to 27 million in 2050 (ASPE, 2003). RCFs provide housing and supportive services to older adults who cannot live independently but generally do not require care provided by nursing homes (Park-Lee et al., 2011). The majority of older adults who live in RCFs are aged 65 and older, Non-Hispanic Whites, or are women (CBO, 2013; Caffrey et al., 2012; Harris-Kojetin et al., 2016). The increase of older adults living in RCFs means increased need for caregivers, health infrastructure and population health.

The increased number of older adults is a particular concern for the future economy of the United States. Social programs such as Social Security, Medicare, and Medicaid that have been supporting older adults would affect government budgets at the federal, state, and local levels (CBO, 2013). The Congressional Budget Office estimates that the total value of RCF services and support for older adults exceeded \$400 billion in 2011 (CBO, 2013). To reduce the costs of the government programs that serve elderly people, it is necessary to capture the productive potential of older adults who formally leave or have never participated in the full time labor market. One possible way to capture this potential, while simultaneously reducing the health burden of older adults is through their overall life-space mobility (Christensen et al., 2009).

Life-space in older adults has been proposed as a complementary approach to examine mobility (Stalvey et al., 1999). Life-space mobility refers to the size of the spatial area such as bedroom, home, outside home, neighborhood, town, and beyond town that an individual purposely moves through in daily life, and to the frequency of movement within a specific time and the need for assistance (Baker et al., 2003). Life-space represents a combination of physical pathology, adaptations an individual makes to overcome presence of physical impairments, and an individual's desire or need to move about their environment (Peel et al., 2005). Restricted life-space is associated with several risk factors including low self-rated health status (Desrosiers et al., 2009), physical disability (Clarke et al., 2011; Rosso et al., 2013; Tomaszewski, 2013), cognitive decline (Crowe et al., 2008; Zunzunegui et al., 2003), depression (Winningham et al., 2007), low socioeconomic status and lack of community resources (Fernández-Mayoralas et al., 2015).

Many older adults who live in RCFs decrease their life-space mobility, major causes are attributed to disrupted personal ties, increased loneliness, and decreased interactions with family and friends. Older adults tend to reduce their life-space mobility when they exit formal social roles through retirement, children leaving the home or loss of a spouse (Van Willigen, 2000). Also, physical changes contribute to the reduction of mobility in society. Thus, life-space mobility not only is a way to increase physical and mental well-being but also is a way to increase social integration.

Balance confidence (BC), which refers to the level of confidence of older adults in performing activities without falling (Bandura, 1977). Balance confidence improved the functional mobility in older adults resulting in unrestricted life-space (Van Der et al., 2014). Older adults with high levels of balance confidence can perform everyday activities such as walking, climbing stairs, and doing daily tasks (Costa et al., 2012; Perkins et al., 2008). A

possible explanation for the benefits of having high balance confidence could be linked to power muscles strength (Portegijs et al., 2012). Previous studies showed that older adults with high balance confidence are less likely to fall when performing everyday tasks such climbing, and descending stairs. Muehlbauer et al. (2012) concluded that high levels of muscle strength of the lower extremities are essential for unrestricted life-space mobility. Increasing balance confidence in older adults would contribute to perform daily activities inside and outside the RCF ensuring an unrestricted life-space.

Architectural residential accessibility refers to the quality of the physical environment that supports life-space mobility regardless of physical mental sensory capabilities among older adults (Cheng et al., 2011; Rantanen, 2013). Indoor architectural characteristics such as short stairs, automatic doors (Keysor et al., 2006); and outdoor architectural characteristics such as even sidewalks, regular steep entrance or low curbs corridors (Clarke et al., 2009) would increase the degree of movement inside and outside the RCF. For instance getting out of the house more often and traveling greater distances on a regular basis may also be viewed as one component of environmental complexity for older adults. Environments that provide greater diversity of experiences and greater demands in terms of decision making are considered to be more complex (Tomaszewski, 2013). Having a restricted life-space may lead to reduced diversity of experiences as well as limit everyday environmental demands. Furthermore, the architectural residential accessibility has an impact on balance confidence that directly contributes to the life-space mobility among older adults. Previous studies have found that balance confidence is linked to the availability of the RCF resources, for example, bigger size of the facility (Levasseur et al., 2011), usability of the physical environment (Chippendale, 2011), and the adaptation between a person's functional capacity and the environment (Pomeroy et al., 2011). The RCF that provides

a stable supportive physical environment for older adults would influence high balance confidence and unrestricted life-space.

Nevertheless, individual factors such as gender, race and level of education could affect opportunities for unrestricted life-space. Previous studies reported that older females have higher restrictions on life-space compared to older males due to mobility restrictions and low balance confidence (Bukov et al., 2002). However, little attention has been paid to differences regarding race and life-space in older adults. Few studies showed significant restrictions in life-space for older African-Americans compared to older Caucasian, non-Hispanic (Crowe et al., 2008). Rosso et al., 2013 found that older African American adults are more likely to have lower socioeconomic status and high levels of stress. Those factors restrict to move long distances. Likewise, low level of education has showed restriction in life-space mobility for adults living in RCF (Crowe et al., 2008). Older adults with a higher educational level tend to engage in physical and social leisure involving a higher level of physical functioning (Fernández-Mayoralas et al., 2015). Gender, race, and educational levels are three individual characteristics that should be considered important aspects of life-space mobility among older adults.

Studies have pointed to the importance of finding ways to maintain mobility among older adults especially those who reside in RCF. Local, state and federal organizations have created policies and programs to improve participation in aging. For example, the World Health Organization (WHO) created a policy framework to promote active physical and social participation that support healthy aging (WHO, 2002). Likewise, Healthy People 2020 addressed the importance of reducing barriers in institutional residential environments to increase mobility among residents (CDC, 2013).

Purpose

Previous studies have shown that balance confidence improves mobility in older adults (Schepens et al., 2012) and the physical environment is associated with life-space. Those studies have showed multi relationships between physical balance function and proximity of the environment. Nevertheless, those studies have not examined the relationship of the minority groups and life-space mobility among the older population. Also, prior studies rarely focuses on the RCF accessibility in the living environment. The present study attempts to fill in those gaps in research and to identify the ways in which individual, physical and environmental factors can either promote or impede life-space mobility. Therefore, the purpose of this study was to identify the relationships of balance confidence, RCF accessibility, demographic characteristics (race, gender and level of education), and life-space mobility among older adults. Our study tested the following three hypotheses:

Hypothesis 1. Older adults with high balance confidence are more likely to unrestricted life-space mobility.

Hypothesis 2. Older adults who live in accessibility residential building have high balance confidence and unrestricted life-space.

Hypothesis 3. Female, African American, and low level of education are associated with low balance confidence and restricted life-space.

This is particularly relevant in the context of aging health promotion, given its emphasis on using public policy to create supportive health programs, and accessible environments for unrestricted life-space mobility. This paper identifies factors associated with life-space mobility, enabling healthcare professionals to study in deep the person-environment factors that may enhance or impede mobility among older adults.

Methods

Procedure

The Institutional Review Board of the University of Michigan approved the study (Appendix 1). The study consisted of two parts survey and clinical test. Initially, research assistant distribute flyers around the common areas of the RCF and visited resident's apartments inviting residents to participate in either or both survey and clinical test. Eligibility criteria included participants who live and reside for at least 3 months in the facility, understand and speak English, and be medically stable. Residents who agreed to participate conducted the survey in a private location within the facility, mostly at the lobbies, the dining rooms and the library. Participants signed an informed consent form (Appendix 2). The participation was volunteered and participants were told that they could stop the survey or clinical test any time. Participants who had difficulty in understanding the written questionnaires completed the survey with the aid of a team member.

The study is based on survey data collected from September 2014 to April 2016 at an independent living facility in Flint, Michigan. Two hundred residents were invited in this study, 58 refused to participant in both survey and clinical test. The main reason of their refusal response was the lack of their time due to work or medical appointments but also the schedule for the recruitment overlapped their social programs such as nutritious classes, physical activity classes and the bingo. A total of 129 participants agreed to participate in this study, of them 39 did not completed the study because they refused to continue with the survey. Therefore, a sample of 90 participants was analyzed in this study.

Measurements

The study used 80 items and average of 45 minutes to complete for survey study only.

Life-space mobility. Life-space mobility was measured with the University of Alabama at

Birmingham (UAB) Study of Aging Life-Space Assessment (LSA). LSA measures the extent of movement, the frequency of movement and any assistance needed during the four weeks preceding the assessment (Baker et al., 2003). The LSA refers to the capacity of the person to purposely move around in one's own environment emphasizing the psychosocial environment of older persons (Baker et al., 2003). Specific levels were assessed by asking: "During the past 4 weeks, have you been (Level one) to other rooms of your home besides the room where you sleep; (Level two) to an area outside your home such as your porch, deck or patio, hallway of an apartment building, or garage; (level three) to places in your neighborhood, other than your own yard or apartment building; (level four) to places outside your neighborhood but within your town; and (level five) to places outside your town?" For each level, participants were asked how often they traveled to that area "less than once a week, 1-3 times per week, 4-6 times per week, and daily" and whether they needed assistance "personal assistance, equipment only, and no equipment or personal assistance." LSA score range from 0 (i.e., totally bed-bound) to 120 (i.e., traveled out of town every day without assistance), higher scores indicate larger life-space.

Balance confidence. Balance confidence was measure with The Short Version of Activities-specific Balance Confidence Scale (ABC-6) (Powell at al., 1995). The ABC-6 scale indicates the level of self-confidence of activities of daily living performed without losing balance inside and outside the home rating from 0% (no confidence) to 100% (complete confident). Participants rated the following activities: "How confident are you that you will not lose your balance or become unsteady when you 1) Stand on your tiptoes and reach for something above your head? 2) Stand on a chair and reach for something? 3) Are bumped into by people as you walk through the mall? 4) Step onto or off an escalator while you are holding onto a railing? 5) Step onto or off an escalator while holding onto parcels such that you cannot hold onto the railing? 6) Walk

outside on icy sidewalks?” A total ABC-6 score was the sum of the individual item scores divided by 6, ranging from 0% to 100%. Based on the total score of ABC-6 participants were classified into high and low balance confidence based on the median of each score of ABC-6.

Physical accessibility. This study measures physical accessibility with the Housing Enabler Assessment and Modifications (Iwarsson et al., 2010). Researches could not access to each apartment to do the assessment for that reason our study only evaluated the environmental components based on observation of the actual physical environmental barriers in the facilities and the close exterior surroundings comparing east and west buildings. The environmental component was divided into three subsections: exterior surroundings (13 items); entrances (11 items); and indoor environment (3 items). Each item was assessed by 1= “yes” meaning the barrier exists, and 2= “no” signifying that the barrier does not exist. In addition, there is a 7= “not rated” response option, to be used only when an environmental feature cannot be assessed (e.g., when access is not granted by the inhabitant, communal spaces are locked, or weather conditions prohibit the assessment).

Demographic characteristic. It included age, gender, race (African American, Asian, Caucasian, non-Hispanic, Hispanic, Latino, Pacific Islander, Native American, or Other), educational level (never attended school or kindergarten, grade 1-8, grade 9-11, grade 12 or GED, college 1 year to 3 years or college 4 years or more), and marital status (married, single, divorced, widowed, separated or living together). Variables were recorded as follow: three age categories: 50-64, 65-74, and 75-older; race was recorded as African American, and Caucasian, non-Hispanic; educational level was recorded into three categories, grade 1-12 or GED (High school graduate), College 1 year to 3 years, and 3= College 4 years or more. Marital status recorded as married or living common, and divorced, widowed, separated or single never

married. Our study also adjusted for self-reported use of assistive devices, Medicare, Medicaid, SSDI, and SSI; all of them recorded as dichotomized.

Statistical analysis

SPSS for Windows with Version 22 (IBM-SPSS, Armonk, NY) was used for statistical analyses. Descriptive statistics and analyses of variances (ANCOVA) were conducted by using general linear model (GML). We compare the mean score differences after controlling for demographic variables. Significant value was set at 0.05

Results

Characteristics of the participants

The mean age of participants was 66.83 (SD=8.66) years range from 50 to 93 years. Nearly 66.7% were women. Seventy six percent were African American. Fifty four percent reported they had low educational qualification, and 10% finished four years college. The majority (94.4%) was divorced, widowed, separated, or single never married (Table 1). Respondents had lived on average 3.9 years in the RCF; 62.2% were residents living in east building and 37.8% residents living in west building.

Relationship BC with LSA

Older adults with a high mean BC had a large mean life-space after controlling for age, gender, race, and marital status $M = 61.12$ (SD= 23.30) $F = 13.19$ $p < 0.00$. Statistical significance relationship was present in each BC activity. High BC of ABC4 had large LSA in all levels. High BC of ABC2 and ABC3 had large LSA in almost all levels except for level 1. High BC of ABC5 and ABC6 had large LSA in almost all levels except for level 1 and level 5. High BC of ABC1 had large LSA just in 3 and 4 level (Table 2 and 3).

Relationship RCF with LSA

There was no significance effect of the type of building on LSA controlling for balance confidence. Since the findings did not indicate differences we further examined each item of LSA and BC. Of interest, residents of west building had higher mean score of BC of ABC2 $M=54.41$ ($SD=36.28$) $F=4.27$ $p<0.042$ and ABC3 $M=72.94$ ($SD=28.23$) $F=6.56$ $p<0.012$ as compared with residents of east building.

Relationship demographics with LSA

African American and low level of education factors were associated with low BC and restricted life-space. There were no statistically mean differences of race, gender and level of education on LSA controlling for BC. However, we found a significant mean difference on male $M=62.31$ ($SD=30.34$) $F=7.67$ $p<0.007$ and high level of education $M=77.22$ ($SD=19.40$) $F=4.10$ $p<0.020$ with high levels of BC. Further we analyze AA with low level of education had higher mean LSA, level 3 $M=13.65$ ($SD=7.94$) $F=5.88$ $p<0.019$ than Caucasians non-Hispanic low level of education. In addition, Caucasian, non-Hispanic males with low level of education had high mean level of BC than Caucasian non-Hispanic females.

Discussion

The purpose of this study was to investigate the link between BC, residential accessibility, sociodemographic factors, and life-space mobility in older adults who live in RCF. Older adults who had high BC have unrestricted life-space mobility even when demographic characteristics were taken into consideration. Additionally, this study found race and gender had a significant relationship with a life-space mobility when the participants had high education.

Consistent with the hypothesis, older adults with low BC are more likely to restrict their life-space mobility. Low balance confidence may be explained by the decline in the ability to

perform ADLs that can contribute to low life-space mobility (Portegijs, 2012). Older adults capability to perform ADLs is related to factors such as age, physical or psychological characteristics, and living environment. Desrosiers et al. (2009) found that older adults with low BC decrease their ability to independently perform ADLs, which characteristically deteriorate with age. Dependency on ADLs among older adults would contribute to unrestricted life-space (Desrosiers et al., 2009; Gustafsson et al., 2012). Furthermore, functional balance and functional mobility, which are associated with BC, are significant risk factor in the restriction of mobility among older adults. Hatch et al. (2003) discussed that limitation on mobility causes muscle strength to decrease, which further increases the risk for balance and mobility limitation. Another study showed in relatively healthy populations of older people that the lack of confidence to perform mobility tasks without loss of balance has been associated with reduced performance as measured in walking speed (Portegijs et al., 2012). Addressing the limitation of ADLs, together with improving functional balance and functional mobility, may positively affect the potential for large life-space among older adults living in RCFs.

As hypothesized, low educated (grade 1-12 or GED) Caucasian males showed significantly higher BC compared to Caucasian females. It could be possible that the biological aging and social roles varies due to gender differences in BC. Biologically, older males maintain muscle strength and muscle bulk, whereas older females continuously decline in regard to both bone density and muscle strength (Ko et al., 2009). Similar to our results Ko et al. (2009) showed that gender differences could predict low BC; they found that disabilities related to hip and knee pain were strongly associated with low BC in females but not in males. Often gender differences developed because of musculoskeletal pain and the higher prevalence of chronic mobility-related illnesses among older females. In this study, older females showed high prevalence of chronic

conditions such as poor circulation, diabetes, fatigue, and weight management. Also, previous studies showed that gender roles could influence the level of BC. Males have higher access to education, higher income, higher occupational prestige, and greater leisure, which increases males' physical and psycho-sociocultural aspects of functioning. While studies suggest that the majority of females tend to restrict their psycho-sociocultural functioning by maintaining their expected roles in domestic activities such as cleaning, cooking, or childcare. Thus, males have higher BC when compared to females, which in turn makes them more active in society.

Contrary to our hypothesis, low educated (grade 1-12 or GED) African American residents showed significantly higher life-space mobility in the community compared to Caucasian residents. It might be possible that race categorization shared similar life experiences and religious beliefs within the groups in social participation. Older African American adults often maintain high life-space mobility due to social participation in the community. One reason could be that African Americans shared personal characteristics and similar personal experiences (Roth et al., 2001). Yen et al. (2012) found also that racial inequities could influence older adults' to be in similar groups. Therefore experiencing racial inequities for decades may be the underlying foundation for social participation to occur among minority groups (Baldwin et al., 2010). Moreover, religious beliefs among older African Americans are attributable to the historically pivotal role of the church and a collectivist orientation in their communities (Krause, 2006). Studies showed that religious participation, religious events and spirituality among older African Americans was significantly higher than older Caucasians (Taylor, 2007). African American churches have been an important community resource for serving as a focal point of community life; and providing an array of civic, social, recreational, educational, and social welfare services and functions.

Unfortunately, compared to our hypothesis, architectural characteristics of the RCF did not indicate a relationship with life-space mobility in older adults. Older adults who resided for long periods in the RCF tended to adapt and modify the physical environment in order to support daily participation (Gitlin et al., 2006). The environmental adaptation typically requires a behavioral adjustment or a change in the way older adults interact with their physical environment. For example, Keysor et al. (2006) found that home barriers disappear after a 6-month follow-up in a patients' discharge from inpatient rehabilitation hospitals. Our study showed that residents had lived on average 3.9 years in the RCF, which may have influenced residents' adaptation to the environmental barriers. Older adults possibly adapt to their environment by including, removing or rearranging objects, special equipment, and adaptive tools (Gitlin et al., 2006). Furthermore, our variables did not identify potential environmental factors that would facilitate movement. Levasseur et al. (2015) founded that the perception of more facilitators and fewer barriers in the environment were associated with a large life-space among older adults with functional limitations. For that reason, it is important to include facilitators such as proximity to services, access to food shopping, health services, public transportation, banking and social clubs (Walke, 2007). Thus, to understand the adaptation process this finding suggests that part of the complex relationship between the physical environment and life-space mobility may be explained through barriers and facilitators. Future studies need to include community gardens, space for socialization, good quality facilities and nature and green space to explore the RCF accessibility and life-space mobility.

Even though we do not find association between RCF accessibility and life-space mobility, our study found that RCF accessibility was strongly associated with low balance confidence especially when participants used their lower extremities. Deshpande et al. (2009) found that

older adults reported low BC for community activities because they perceived physical barriers in the pedestrian environment. Hovbrandt et al. (2007) reported that people with low performance balance experienced indoor and outdoor barriers by avoiding walking or moving in those areas. Low functional balance decreases muscle strength in the lower extremities among older adults. Therefore, RFC accessibility may support older adults balance confidence that can result in maximizing movement within their direct environment.

Our study has a few limitations. First, this was a cross-sectional research design, which does not allow conclusions of causality on the observed associations. Future research may benefit from a longitudinal research design to confirm how the factors contribute to life-space mobility in older adults. Second, our sample was predominantly African American urban residents, and thus, we do not know how these results would generalize to the United States' population. However, we believe that this study may provide information for the underserved group that is rarely involved in this type of study. Third, this study did not examine the individuals' perceptions of the area neighborhood nor measure the individual interaction with having accessible facilities. Future studies are needed to investigate the relationship between the perception access to the RCF and life-space. Particularly, studies focusing on individuals' needs, and capabilities associated with the environment's physical properties would be of great interest to promote community participation among older adults.

Conclusion / Implication

This study found that BC, race and gender are associated with life-space mobility among older adults who live in RCF. Activities that increase balance confidence and social programs that reach minority groups can promote life-space mobility among the older population. This study will help physical therapists; researches and policy to implement program that promote

participation in RCF with the objective to promote healthy aging. A successful implementation of those programs not only would increase independency among older adults but also would reduce the total cost of RCF services. BC, race and gender must be considered in the implementation of programs that promote mobility and healthy ageing.

Recommendations for Healthcare Administrators

The population of older adults in the United States is expanding rapidly and this provides great opportunities for health care administrators to intervene to ensure long healthy lives. This study illustrates the importance and strength of the relationship between life-space mobility, balance confidence, race and gender. This information will be useful for health administrators when they constitute regulations, conventions and standards of the appropriate healthcare delivery among older adults living in RCF. It is also important to keep in mind the demographic factors such as race and gender when implementing policies and services. This also has a broader implication to any program in understanding the need to improve quality in healthcare among minority communities.

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Table

Table 1: Demographic characteristic

Variable	n	%	Mean (SD)
Total	90		
Age			66.83 (8.66)
50-64	40	44.4	
65-74	32	35.6	
75-Older	18	20.0	
Gender			
Male	30	33.3	
Female	60	66.7	
Race			
African American	68	75.6	
Caucasian, non-Hispanic	22	24.4	
Marital Status			
Divorced, Widowed, Separated, Single never married	85	94.4	
Married	5	5.6	
Education			
Grade 1-12 or GED (High school graduate)	49	54.4	
College 1 year to 3 years	32	35.6	
College 4 years or more	9	10.0	
Number of Insurance			
One	44	48.9	
Two or more	46	51.1	
Medicare	63	70.0	
Medicaid	51	56.7	
SSDI* (Social Security Disability Insurance)	48	53.3	
SSI (Supplemental Security Income)	32	35.6	
Members in HH			
One			
Two			
Assistive device*	57	63.3	
Yes	25	27.8	
No			60.31 (22.48)
Disability first occurs*			
Building	56	62.2	
East	34	37.8	
West			

Note: *Sum of the score cannot be the total score due missing

Table 2. Life-Space Assessments. (ANOVA-General Linear Model)

Variables	Mean (SDs)	<i>p</i>
ABC1		.007
Low confidence < 50	47.22 (21.17)	
High confidence > 50	60.57 (23.09)	
ABC2		.001
Low confidence < 40	45.36 (19.16)	
High confidence > 40	61.75 (24.94)	
ABC3		.001
Low confidence < 70	45.73 (20.22)	
High confidence > 70	62.11 (24.17)	
ABC4		.000
Low confidence < 70	42.76 (19.36)	
High confidence > 70	64.20 (22.47)	
ABC5		.002
Low confidence < 40	45.54 (20.64)	
High confidence > 40	60.47 (23.85)	
ABC6		.014
Low confidence < 30	47.26 (21.70)	
High confidence > 30	59.29 (23.84)	
AVERAGE ABC-6		.001
Low confidence	44.90 (20.76)	
High confidence	61.12 (23.30)	

Table 3: Distribution LSA by ABC-6

		Life space 1	Life space 2	Life space 3	Life space 4	Life space 5
ABC1	Low	7.14 (1.49)	11.92 (3.72)	10.50* (7.04)	12.55* (8.48)	5.09 (7.87)
	High	7.56 (1.27)	13.20 (3.85)	15.46* (7.30)	17.48* (8.85)	6.85 (8.36)
ABC2	Low	7.17 (1.51)	11.74* (3.65)	10.46* (6.12)	11.76* (7.50)	4.21* (7.44)
	High	7.50 (1.27)	13.32* (3.85)	15.14* (8.26)	18.04* (9.34)	7.73* (8.47)
ABC3	Low	7.17 (1.49)	11.72* (3.66)	10.29* (7.13)	12.40* (7.89)	4.15* (6.34)
	High	7.52 (1.28)	13.42* (3.82)	15.60* (7.03)	17.56* (9.42)	8.00* (9.51)
ABC4	Low	6.88* (1.76)	11.07* (3.84)	9.83* (6.80)	11.20* (7.53)	3.77* (6.52)
	High	7.81* (.58)	14.01* (3.15)	15.73* (7.13)	18.51* (8.87)	8.14* (9.04)
ABC5	Low	7.15 (1.50)	11.53* (3.86)	10.30* (6.78)	11.83* (8.47)	4.72 (7.46)
	High	7.50 (1.29)	13.42* (3.55)	15.00* (7.58)	17.55* (8.54)	7.00 (8.60)
ABC6	Low	7.14 (1.48)	11.33* (3.57)	10.94* (6.61)	12.89* (8.25)	4.94 (7.87)
	High	7.52 (1.30)	13.73* (3.70)	14.51* (8.09)	16.66* (9.33)	6.86 (8.29)

Note: * = $p < 0.05$

Appendix**Appendix 1: IRB Approval**

Flint Institutional Review Board • 530 French Hall, 303 E. Kearsley St, Flint, MI 48502 • phone (810) 762-3383 • fax (313) 593-0526 • research@umflint.edu

To: Dr. Rie Suzuki

From:

Marianne McGrath

Cc:

Min Hui Huang
Jennifer Blackwood
Tabitha Donald
Rie Suzuki

Subject:Initial Study Approval for [HUM00090930]

SUBMISSION INFORMATION:

Study Title: Objective and Subjective Functional Limitations and Housing Accessibility

Full Study Title (if applicable):

Study eResearch ID: [HUM00090930](#)

Date of this Notification from IRB:10/9/2014

Review:Expedited

Initial IRB Approval Date: 10/9/2014

Current IRB Approval Period:10/9/2014 - 10/8/2015

Expiration Date: Approval for this expires at **11:59 p.m. on 10/8/2015**

UM Federalwide Assurance (FWA): FWA00004969 (For the current FWA expiration date, please visit the [UM HRPP Webpage](#))

OHRP IRB Registration Number(s): IRB00000248

Approved Risk Level(s):

Name	Risk Level
HUM00090930	No more than minimal risk

NOTICE OF IRB APPROVAL AND CONDITIONS:

The IRB Flint has reviewed and approved the study referenced above. The IRB determined that the proposed research conforms with applicable guidelines, State and federal regulations, and the University of Michigan's Federalwide Assurance (FWA) with the Department of Health and Human Services (HHS). You must conduct this study in accordance with the description and information provided in the approved application and associated documents.

APPROVAL PERIOD AND EXPIRATION:

The approval period for this study is listed above. Please note the expiration date. If the approval lapses, you may not conduct work on this study until appropriate approval has been re-established, except as necessary to eliminate apparent immediate hazards to research subjects. Should the latter occur, you must notify the IRB Office as soon as possible.

IMPORTANT REMINDERS AND ADDITIONAL INFORMATION FOR INVESTIGATORS**APPROVED STUDY DOCUMENTS:**

You must use any date-stamped versions of recruitment materials and informed consent documents available in the eResearch workspace (referenced above). Date-stamped materials are available in the "Currently Approved Documents" section on the "Documents" tab.

RENEWAL/TERMINATION:

At least two months prior to the expiration date, you should submit a continuing review application either to renew or terminate the study. Failure to allow sufficient time for IRB review may result in a lapse of approval that may also affect any funding associated with the study.

AMENDMENTS:

All proposed changes to the study (e.g., personnel, procedures, or documents), must be approved in advance by the IRB through the amendment process, except as necessary to eliminate apparent immediate hazards to research subjects. Should the latter occur, you must notify the IRB Office as soon as possible.

AEs/ORIOs:

You must inform the IRB of all unanticipated events, adverse events (AEs), and other reportable information and occurrences (ORIOs). These include but are not limited to events and/or information that may have physical, psychological, social, legal, or economic impact on the research subjects or other.

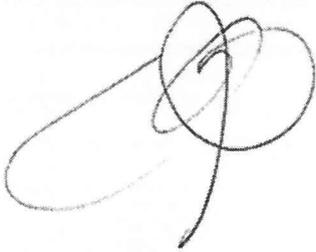
Investigators and research staff are responsible for reporting information concerning the approved research to the IRB in a timely fashion, understanding and adhering to the reporting guidance (<http://medicine.umich.edu/medschool/research/office-research/institutional-review-boards/guidance/adverse-events-aes-other-reportable-information-and-occurrences-orios-and-other-required-reporting>), and not implementing any changes to the research without IRB approval of the change via an amendment submission. When changes are necessary to eliminate apparent immediate hazards to the subject, implement the change and report via an ORIO and/or amendment submission within 7 days after the action is taken. This includes all information with the potential to impact the risk or benefit assessments of the research.

SUBMITTING VIA eRESEARCH:

You can access the online forms for continuing review, amendments, and AEs/ORIOs in the eResearch workspace for this approved study (referenced above).

MORE INFORMATION:

You can find additional information about UM's Human Research Protection Program (HRPP) in the Operations Manual and other documents available at: <http://hrpp.umich.edu>.

A handwritten signature in black ink, consisting of several overlapping loops and a long, sweeping tail that curves back towards the main body of the signature.

**Marianne McGrath
Chair, IRB Flint**

Appendix 2: Informed Consent

Study ID: HUM00090930 IRB: Flint Date Approved: 10/9/2014 Expiration Date: 10/8/2016

Consent to Participate in a Research Study**Physical Function and Participation in Older Adults**

Investigators at University of Michigan-Flint:

- Rie Suzuki, PhD, Principal Investigator
- Min H. Huang, PT, PhD, NCS, Co-Investigator
- Jennifer Blackwood, PT, PhD, GCS, Co-Investigator

The research investigators invite you to participate in a study about the relationships between physical function and social participation in older adults.

People who may be eligible to participate are:

- Living in the Court St. Commons
- Able to follow commands in English
- Medically stable and without acute illness, such as infection, inflammation, ongoing chest pain, or short of breath with walking and light activities

If you agree to be part of the research study, you will be asked to:

- Participate in a testing session about 1.5 to 2 hours long
- Provide health information, including age, gender, education level, home and living environment, past medical and surgical history, current medications, falls in the past 12 months, confidence in balance, and social participation.
- Have your memory, vision, and sensation of the legs checked.
- Perform tasks that require you to stand, step, walk, or reach so that we can check your balance and mobility

You will directly benefit from being in this study because you will receive a standard physical therapy assessment of your balance, mobility, and fall risks. You will also receive a report of your performance at the end of the session. You can bring the form to your healthcare providers, such as a doctor, nurse practitioner, or your on-site social worker for any further evaluation if needed.

The investigators have taken steps to minimize the risks of this study. Even so, you may still have problems or side effects related to your participation, even when the investigators are careful to avoid them. Although you will be able to take a break during the test whenever needed, you may feel tired or have muscle soreness afterwards. Some of the tests may cause you to lose balance. You will wear a gait belt around your waist so that we can help steady you if needed. At least two trained researchers will be present to guard your safety during the testing.

All researchers are CPR certified and trained in standard safety techniques for patient care. Please tell us about any injuries, side effects, or other problems that you have during this study. You should also tell your regular health care provider. The study will pay for research-related items or services that are provided if they are directly related to your participation in the study. By signing this consent form, you do not give up your right to seek payment if you are harmed as a result of being in this study.

There are no costs to you for participating in the study. You will receive \$10 for your participation at the end of the session.

There are many reasons why information about you may be used for the study. For example, age, home and living environment, medications, or past history of falls, are known risk factors for future falls, and indicators for limitations in mobility and participation.

We plan to publish the results of this study, but will not include any information that would identify you. There are some reasons why people other than the investigators may need to see the information you provided as part of the study. This includes organizations responsible for making sure the research is done safely and properly, such as the Institutional Review Board, the sponsor of the study (i.e. NIH, FDA, etc.), or university and government officials responsible for monitoring this study.

To keep your information safe, we will replace your name in all documents with a code number. We will keep the key to your name in a locked cabinet in a locked room. All documents with your information will be locked separately in another cabinet in a locked room. All data saved in computer disks and hard drives will require secure access with user name and password. Only investigators will have access to the key and your information.

After this study is completed, other investigators may use the data. However, the data will not contain any information that could identify you.

Also, if you tell us something that makes us believe that you or others have been or may be physically harmed; we may report that information to the appropriate agencies.

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. If you decide to withdraw early, or participate in one session only, your information will be stored in a secure and safe manner. If you consent to participate in this study, your information will be stored and used for future studies.

If you have questions about this research, you may contact Dr. Min H. Huang at 2157 William S. White Building, 303 East Kearsley Street, Flint, MI 48502-1950, Phone: 810-762-3373, Email: mhhuang@umflint.edu

If you have questions about your rights as a research participant, please contact the University of Michigan-Flint Institutional Review Board, 4204 William S. White Building, Flint, MI 48502-1950. Phone: 810-762-3383. E-mail: irb-flint@umflint.edu

By signing this document, you are agreeing to be in the study. You will be given a copy of this document for your records and one copy will be kept with the study records. Be sure that questions you have about the study have been answered and that you understand what you are being asked to do. You may contact us if you think of a question later.

Study ID: HUM00090930 IRB: Flint Date Approved: 10/9/2014 Expiration Date: 10/8/2016

[] _____ (initial) Check the box and initial if you agree to release your contact information to the on-site social worker, Laura Macias, LMSW. If your assessment results show that you have balance problems, risks of falls, or mobility limitation, Laura can help you coordinate the follow-up care if needed.

[] _____ (initial) Check the box and initial if you would like to receive a report from us about the study findings after we complete this research project.

Signature

Date

Appendix 3: Survey**Health and YOU!**

You are being invited to participate in a survey being conducted by faculty in the departments of Public Health and Physical Therapy at the University of Michigan-Flint. The survey will be used to collect information for the development of health in the older population of Flint.

The survey requires 30-45 minutes of your time. You must be a resident of the Court Street Common. You will be given a \$15 visa card for your participation. Your confidentiality will be protected. This research will be used again in additional studies.

The purpose of this research is to understand the association between subjective and objective physical functions and the home accessibility.

Healthy Behaviors and YOU!

Please answer all questions to the best of your ability. Feel free to ask questions if you are unsure of what is being stated. Thank you in your participation it is very much appreciated!

Today's Date / /

This section of the survey asks questions related to your background. Please answer all questions to the best of your ability.

age1 What is your age? _____ years old

hgt1 How tall are you? _____ ft _____ in

wgt1 How much do you weight? _____ lbs

gen1 What is your gender?

- Male
- Female

dem1 What ethnic group do you identify with the most?

- African American
- Asian
- Caucasian, non-Hispanic
- Hispanic, Latino
- Pacific Islander
- Native American
- Other (please specify):

dem2 What is your current marital status?

- Married
- Single, never married
- Divorced
- Widowed
- Separated
- Living together

dem3 What is the highest grade in school you completed?

- Never attended school or kindergarten
- Grades 1-8 (Elementary)
- Grades 9-11 (Some high school)
- Grade 12 or GED (High school graduate)
- College 1 year to 3 years (Some college or technical school)
- College 4 years or more (College graduate)

dem5 How many members are in your household including **yourself**?

_____ people

ins1 What type of health care coverage do you have? (Check all that apply)

- Medicaid
- Medicare
- Private insurance
- The military or VA
- The Indian Health Service or Alaskan Native Health Care
- Other: _____

ins2 Do you collect from Social Security Disability Insurance (SSDI)?

- Yes
- No

ins3 Do you collect from Supplemental Security Income (SSI)?

- Yes
- No

adq1 What assistive devices do you use?

- Crutches/cane
- Power wheelchair or scooter
- Braces or other orthotic device(s)
- Service or guide dog
- Artificial limb or other prosthetic device
- Walker
- Manual wheelchair
- Hospital bed
- Other please specify _____

Disage At what age did the disability first occur?

_____ years old.

The next section of this survey is talking about impairments, these include questions that pertain to physical, mental, and emotional health. Please answer all questions to the best of your ability.

srh1 In general, how would you rate your health?

- Excellent
- Very good
- Good
- Fair
- Poor

gns1 In general, how satisfied are you with your life?

- Very satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied

Imp1 Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health NOT good?

_____ days

Imp2 Are you limited in ANY way in any activities because of any physical conditions?

- Yes
- No
- Don't know/Not sure

Imp3 What is the MAJOR impairment or health problem that limits your activities?

- Arthritis/Rheumatism
- Back or neck problems
- Fractures, bone or joint injury
- Walking problem
- Lung/Breathing problem
- Hearing problem
- Eye/Vision problem
- Heart problem
- Stroke problem
- Hypertension/High blood pressure
- Diabetes
- Cancer
- Depression/Anxiety/Emotional problem
- Other impairment/problem: _____

Imp4 For HOW LONG has your activities been limited because of your MAJOR impairment?

- A number of **days**
- A number of **weeks**
- A number of **months**
- A number of **years**

Imp5 During the past 30 days, for about how many days have you felt SAD, BLUE, or DEPRESSED?

_____ days

Imp6 During the past 30 days, for about how many days have you felt WORRIED, TENSE, or ANXIOUS?

_____ days

Imp7 During the past 30 days, for about how many days have you felt that you did not get ENOUGH REST or SLEEP?

_____ days

Imp8 During the past 30 days, for about how many days have you felt VERY HEALTHY and FULL OF ENERGY?

_____ days

Imp9 How often do you get the social and emotional support you need?

- Always
- Usually
- Sometimes
- Rarely
- Never

Imp10 Are you limited in the kind or amount of work you can do because of any impairment or health problem?

- Yes
- No

Imp11 Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating?

- Yes
- No

imp12 During the past 30 days, how much of the time has your physical health or emotional problems interfered with you social activities (like visiting with friends, relatives, ect.?)

- All of the time
- Most of the time
- Some of the time
- A little of the time
- None of the time

This section of the survey asks questions that pertain to activities. Please answer all of the questions to the best of your ability.

pf1 Have you been participating in regular moderate physical activities such as off-road pushing, swimming, arm cranking, gardening, yoga, or ect? (Regular physical activity = 5 days or more per week for 30 minutes or more a day)

- Yes, I have been for more than 6 months
- Yes, I have been, but for less than 6 months
- Not regularly, but I engage in such activities occasionally and plan to start on a regular basis within the next month
- No, but I'm thinking of starting in the next 6 months
- No, and I am not thinking of starting in the next 6 months

pfq4 When you are engaging in physical activity, how would you describe the intensity on average?

- Mild intensity (walking to the mailbox)
- Moderate intensity (pushing a vacuum cleaner)
- Vigorous intensity (running)
- I do not engage in any physical activity

How long have you lived in this place?

_____ year(s) AND _____ month(s)

How often do you and other people visit in each other?

Would that be.....

- Never
- Rarely
- Sometimes
- Often

pf1 Have you been participating in activities such as visiting friends, attending meeting, going to social gatherings etc?

- Yes, I have been for more than 6 months
- Yes, I have been, but for less than 6 months
- Not regularly, but I engage in such activities occasionally and plan to start on a regular basis within the next month
- No, but I'm thinking of starting in the next 6 months
- No, and I am not thinking of starting in the next 6 months

By yourself, and without using any special equipment, how difficult is it for you to participate in activities such as visiting friends, attending meeting, going to gatherings etc ?

- Not at all difficult
- Only a little difficult
- Somewhat difficult
- Very difficult
- Can't do at all
- Do not do the activity
- Don't know

The following are activities that you might do during a typical day. Does your health limit you in these activities? Please fill in the circle that best explains your limitation.

Activities	Yes, Limited a lot	Yes, Limited a little	No, Not limited at all
act1 Vigorous activities, such as running, lifting heavy objects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act2 Moderate activities, such as moving a table, pushing a vacuum cleaner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act3 Lifting or carrying groceries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act4 Climbing several flights of stairs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act5 Climbing one flight of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act6 Bending, kneeling or stooping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act7 Walking more than a mile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act8 Walking several blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act9 Walking one block	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
act10 Bathing or dressing yourself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the past 30 days, have you had any of the following problems with your work or other regular daily activities as a result of your physical health? Please put a check mark in the appropriate box.

	Yes	No
rda1 Cut down on the amount of time you spent on work or other activities	<input type="checkbox"/>	<input type="checkbox"/>
rda2 Accomplished less than you would like	<input type="checkbox"/>	<input type="checkbox"/>
rda3 Were limited in the kind of work or other activity	<input type="checkbox"/>	<input type="checkbox"/>
rda4 Had difficulty performing the work or other activities (for example, it took extra effort)	<input type="checkbox"/>	<input type="checkbox"/>

bfe1 Please check the MAIN issue that keeps you from being physically active?

- Chronic illness
- Pain
- Lack of energy
- No place to be active at
- Lack of time
- Other _____

bfe2 There are many possible benefits to becoming more physically active. Read through the list and check ONE that is MOST important to YOU.

- Weight loss
- Lower blood cholesterol
- Lower blood pressure
- Reduce depression and anxiety
- Build and maintain healthy bones, muscles, and joints
- Control blood sugar levels/diabetes
- Strengthen heart and lungs
- Increased stamina
- Improve mood
- Sleep better
- Decrease stress
- Increase energy
- Feel better
- Reduce risk of dying prematurely

This section of the survey has questions that pertain to your health and chronic conditions. Please answer all questions to the best of your ability.

hif1 Where do you get information about your health? Check all that apply.

- Hospital/clinics
- Books, magazines, and newspapers
- Internet
- Television
- Faith community
- Friends and family members
- None

When was the last time you had the following care by any health care provider? Please check the appropriate box.

Type of care	Never	Within the past year	Within the past 2 years	Within the past 3 years	Within the past 5 years	5 years or more
Immunizations/vaccines	<input type="checkbox"/>					
Weight Check	<input type="checkbox"/>					
Prostate Exam (Men)	<input type="checkbox"/>					
Pap smear (Women)	<input type="checkbox"/>					
Mammogram (Women)	<input type="checkbox"/>					

Please answer each question as they have bothered you within the LAST YEAR.

chi1 Blood pressure too HIGH?

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi2 Blood pressure too LOW?

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi3 Poor circulation, such as swollen or cold feet or hands/blood clots

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi4 Diabetes

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi5 Fatigue

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi6 Injuries

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi7 Osteoporosis

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi8 Pressure sores

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi9 Alcohol or other drugs overuse/ abuse

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi10 Muscle spasms

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi11 Urinary tract infection/bladder problems

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi12 Yeast infections/vaginal infections

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem
- Not applicable(Men)

chi13Pneumonia

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi14Repetitive motion pain (carpel tunnel, shoulder pain)

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi15Weight management/weight gain

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi16Chronic pain

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi17Stomach problems

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

chi18Constipation or bowel problems

- Not experienced during the past year
- Mild problem
- Moderate problem
- Significant problem

jtp1Have you ever been told by your doctor that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?

- Yes
- No

jtp4Has your doctor EVER suggested physical activity or exercise to help with arthritis or joint symptoms?

- Yes
- No

LIFE-SPACE LEVEL		FREQUENCY				INDEPENDENCE	SCORE
During the past four weeks, have you been to ...		How often did you get there?				Did you use aids or equipment? Did you need help from another person?	Level X Frequency X Independence
<i>Life-Space Level 1.</i> Other rooms of your home besides the room where you sleep?	Yes 1	No 0	Less than 1 /week 1	1-3 times /week 2	4-6 times /week 3	Daily 4	1 = personal assistance 1.5 = equipment only 2 = no equipment or personal assistance _____ Level 1 Score
Score _____ X _____ X _____ =							
<i>Life-Space Level 2.</i> An area outside your home such as your porch, deck or patio, hallway (of an apartment building) or garage, in your own yard or driveway?	Yes 2	No 0	Less than 1 /week 1	1-3 times /week 2	4-6 times /week 3	Daily 4	1 = Personal assistance 1.5 = Equipment only 2 = No equipment or personal assistance _____ Level 2 Score
Score _____ X _____ X _____ =							
<i>Life-Space Level 3.</i> Places in your neighborhood, other than your own yard or apartment building?	Yes 3	No 0	Less than 1 /week 1	1-3 times /week 2	4-6 times /week 3	Daily 4	1 = Personal assistance 1.5 = Equipment only 2 = No equipment or personal assistance _____ Level 3 Score
Score _____ X _____ X _____ =							
<i>Life-Space Level 4.</i> Places outside your neighborhood, but within your town?	Yes 4	No 0	Less than 1 /week 1	1-3 times /week 2	4-6 times /week 3	Daily 4	1 = Personal assistance 1.5 = Equipment only 2 = No equipment or personal assistance _____ Level 4 Score
Score _____ X _____ X _____ =							
<i>Life-Space Level 5.</i> Places outside your town?	Yes 5	No 0	Less than 1 /week 1	1-3 times /week 2	4-6 times /week 3	Daily 4	1 = Personal assistance 1.5 = Equipment only 2 = No equipment or personal assistance _____ Level 5 Score
Score _____ X _____ X _____ =							

Short Version of Activities-specific Balance Confidence Scale (ABC-6)

Instructions to Participants:

For each of the following, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady from choosing one of the percentage points on the scale from 0% to 100%. If you do not currently do the activity in question, try and imagine how confident you would be if you had to do the activity. If you normally use a walking aid to do the activity or hold onto someone, rate your confidence as it you were using these supports. If you have any questions about answering any of these items, please ask the administrator.

For each of the following activities, please indicate your level of self-confidence by choosing a corresponding number from the following rating scale:

0%	10	20	30	40	50	60	70	80	90	100%
no confident										completely confident

"How confident are you that you will not lose your balance or become unsteady when you..."

1. ...stand on your tiptoes and reach for something above your head? _____%
2. ...stand on a chair and reach for something? _____%
3. ...are bumped into by people as you walk through the mall? _____%
4. ...step onto or off an escalator while you are holding onto a railing? _____%
5. ...step onto or off an escalator while holding onto parcels such that you cannot hold onto the railing? _____%
6. ...walk outside on icy sidewalks? _____%

References:

Powell, LE & Myers AM. The Activities-specific Balance Confidence (ABC) Scale. *J Gerontol Med Sci* 1995; 50(1): M28-34

Peretz C, Herman T, Hausdorff JM, Giladi N. Assessing fear of falling: Can a short version of the Activities-specific Balance Confidence scale be useful? *Mov. Disord.* 2006;21:2101–2105.

Thank you for your participation in the survey!