Age-Friendly Neighborhood Environment, Life Space Mobility and Self-Care Behaviors among Older Adults: an Exploratory Study

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ABSTRACT

Background: Mobility is essential component of life space to maintain active lifestyle, self-care behavior and independence among older adults. Neighborhood environment affects the health of older adults by influencing their lifestyle and behaviors. Moreover, developing age-friendly communities create more age-friendly environments for everyone, especially older adult and can improve the access to key services and enable them to be and do what they value. **Aim:** This study aimed to evaluate the effect of age-friendly neighborhood environment on life space mobility and self-care behaviors of older adults. **Subjects and Methods: Design:** A descriptive correlation design was utilized. **Setting:** It was conducted in the only Club for Elderly found in Zagazig City, Egypt. **Subjects:** Two hundred older adults were enrolled by using simple random sampling technique. **Tools of data collection:** Data was collected by three tools: Tool I: included socio-demographic form, questions about comorbidities and health state, and Age-Friendly Cities and Communities Questionnaire, Tool II: Life Space Assessment, and tool III: Self-care Behaviors Scale. **Results:** The older adults were moderately satisfied with their neighborhood environment with mean score 26.3±11.8. Mean score of total life space mobility was 38.8±28.1, Moreover, 65% of older adults have unsatisfactory level of total self-care behaviors. There was highly statistically significant positive correlation between total age-friendly neighborhood environment score and total life space mobility score (r= 0.689, p=<0.01), and total self-care behaviors score (r= 0.651, p=<0.01). **Conclusion**: Older people who live in urban, highly educated and in good health condition had satisfactory level of life space mobility and self-care behaviours. As well as, age-friendly neighborhood environment was a strong positive predictor and had an imposing effect on both life space mobility and self-care behaviors. **Recommendations:** Educational programs for older adults and their caregivers to utilize from resources in neighborhood environment and using technology to enhance the life space mobility and self-care aspects, particularly physical and social self-care.

Keywords: Age-Friendly, Life Space, Mobility, Neighborhood Environment, Older adults.

Introduction

World health organization incorporates the age-friendly city guideline, whose focus is on environmentally friendly aspects such as outdoor spaces and buildings, transportation, housing, social engagement,

respect and inclusion in society, civic engagement and employment, information and communication, support from the community, and health care. Interestingly, age-friendly neighborhoods will not only meet the demands of aging people but also will optimize their ongoing personal development, independence, health, well-being, and quality of life. As, it improves the access to key services and enable the older persons to age well in a place that is suitable to age actively and with dignity **(World-health-orgaization, 2023)**.

Life Space Mobility (LSM) is being able to reach various locales described as life spaces, which range from the person's sleeping quarters to locations outside one's homeland. Furthermore, life-space movement frequently incorporates physical activity, which has well-documented benefits for human health **(Fristedt et al., 2022)**. Mobility is an essential component of life space to maintain active lifestyle and independence among older adults **(Robles Cruz et al., 2024)**. Loss of LSM increases the risk of many negative health-related characteristics in older people, such as limited physical health and functionality, cognitive impairment, poor quality of life, limited social engagement, admission to a nursing home, loss of independence, and an elevated risk of death **(Caldas et al., 2020)**.

Self-care is the ability of older adults to prevent disease and maintain health and well-being by decisions and actions **(Alqahtani and Alqahtani, 2022)**. In order to achieve and maintain both mental and physical well-being, older adults and their caregivers make health-related decisions. These decisions include regular exercise, healthy eating, sleep, financial fitness, healthy relationships, and community engagement. It is assumed that in communities with limited resources, self-care is crucial as the first health response before people seek external health care **(Murugan et al., 2024)**.

Significance of the study

Researchers and policymakers signify the environment role and recommended the investigation of the impact of both social and physical neighborhood environments on older adult's physical and mental health **(Liu et al., 2023, Tang et al., 2021)**. Previous studies investigated the impact of age-friendly communities on certain variables such as quality of life, social participation and functional ability of older adults **(Yu et al., 2021, Mullen et al., 2022) (Levasseur et al., 2023).** At the time of research, within the Egyptian context, little research was performed to examine age-friendly features in certain Egyptian communities **(Ahmed et al., 2023)** that explore older adults' challenges and needs. Besides, Egyptian surroundings are typically constructed based on cost, laws, space requirements, standards, and the desires of contractors, without considering the evolving needs of individuals throughout the span of their lives. With this background, the present study emphasizes on age-friendly neighborhood environment, life space mobility, and self-care behaviors among Egyptian older adults.

Aim of the study

This study aimed to evaluate the effect of age-friendly neighborhood environment on life space mobility and self-care behaviors of older adults.

Research question

What are the relations between age-friendly neighborhood environment, life space mobility, and self-care behavior among old adults?

Subjects and methods
Research design
A descriptive correlation design adhering to the STROBE checklist for a cross-sectional research.

Study setting
It was conducted in the only Club for Elderly found in Zagazig City.

Study subjects
The sample size is calculated for a multiple regression analysis with a small effect size of 0.11, for the age-Friendly neighborhood environment score **(Choi, 2020).** Using the software package of G*Power at 95% level of confidence and 80% power, the size of sample required was 183 older adults, increased to 200 to compensate for an expected non-response rate. The Participants' selection was according to the following **inclusion criteria:** older adults $\geq$ 60 years, had no problem of speaking, and accepted to participate in the study. While the **Exclusion criteria** were older adults with significant psychiatric disorders, cognitive impairments (using Mini-Mental State Examination [MMSE]), as these factors could introduce biases related to life space mobility and self-care behaviors.

Tools of data collection
Tool I: It composed of three parts:

A. *Socio-demographic form:* constructed from eight closed ended questions asked about age, sex, residence, marital status, educational level, monthly income, with whom live, and stay duration in the current neighborhood.

B. *Comorbidities and health state*: composed questions asked about history of chronic diseases, and general health status of older adults.

C. *Age-Friendly Cities and Communities Questionnaire (AFCCQ)*:

AFCCQ is a comprehensive valid questionnaire adapted by **Dikken et al., (2020)** It measure the experiences of older people on the WHO Age-Friendly Cities model's eight domains as well as an extra financial domain. It comprises 23 items distributed across nine dimensions: housing, social engagement, civic engagement, employment information, communication, health services and community support, social inclusion and respect, buildings and outdoor areas, transportation, and financial status.

Scoring system:
Items were answered on a five-point scale, varying from totally disagree= minus two; disagree= minus one; neutral= 0; agree= one and totally agree= two. While, items number seven and eight were in the opposite direction of recording. Add up all of the AFCCQ scores to get the overall score, then add up all of the scores from different domains to get the domain-specific score. "Respect and social inclusion" have been assessed using two negative questions, and their scores were reversed because the other twenty-one questions were positive. The total score is calculated by summing all individual question scores. A higher total score indicates a more age-friendly city or community,

Tool II: Life Space Assessment (LSA):
It developed by **(Baker et al., 2003)** for assessing the level of dependence, amount of time spent outside, and the extent of the individual's normal life space. The scale consists of five levels: Level 1 (Home) means moving of older adult between the house' rooms, Level 2 (Outdoor House) indicates moving to or through, places immediately outside the home area but still adjacent to the home, Level 3 (Neighborhood) includes moving beyond the property where their home is located, Level 4 (Town) indicates

going to, or through, places outside the neighborhood surrounding the home, and Level 5 (Unlimited) means transferring to places outside the town or community area.

Scoring system:

Responses of the participant were by (yes or no), each "yes" is given a point value, increased with levels; yes, of level 1= one, level 2 = two, level 3= three, level 4= four, and level 5= five. In addition to the scores of responses about how often the participant visited each level of life space and the scores of questions asked about the independence level. The total score ranges from zero to 120. LSA has a positive score, and greater scores signify a bigger life space.

Tool III: Self-care Behaviors Scale:

It designed by (**Torres et al., 2021**) to assess self-care behaviours and its association with health and wellbeing. It is composed of 52 items distributed across three main domains: Physical self-care (20 items) asked about physical activity, balanced diet, periodic medical check-ups, etc. Psychological self-care (23 items) as "I do things that give me pleasure", and Spiritual self-care (9 items) as "I have learned to forgive other people".

Scoring system:

Each item evaluated as "always was scored as two degrees, sometimes was scored as a one degree and never was scored as a zero". The scale's total scores were 104 grades. These scores had been added together to calculate a percentage score. Two categories were assigned to it: Satisfactory if score (63-104 grades) and Unsatisfactory if score (0-62 grades).

Content validity and reliability

Five experts in the fields of gerontological and community health nursing assessed the validity of the Arabic-translated AFCCQ, LSA, and Self-care Behaviors Scale. The tools demonstrated satisfactory reliability and internal consistency, and A Cronbach's alpha values were (0.917) for AFCCQ, (0.901) for Life Space Assessment, and (0.933) for Self-care Behaviors Scale.

Field work

The researchers were granted all official permission from faculty of nursing, Zagazig university, and the club of older adults' administration. An organized individual interview schedule was carried out to clarify the research aim, assured about the confidentiality of data, build trust, and take the participants' consent. Participants eligible for this study selected by random sampling method from the registered older adults' list of the Club for Elderly.

The researchers divided the participants into small groups on rounded tables found at the c;ub garden. The researchers distributed the tool questionnaire for each participant and asked them to listen carefully and follow the instructions which enable them to answer the tool questionnaire, and they ensured that each of them should have his/her own answer. The total time of the tool questionnaire was 20 minutes for each participant. The researchers stayed with the participants to answer any specific questions that arose during completing the questionnaire. The researchers went to the elderly clubs 3 days per week. Data collection period took around two months, starting from the mid of August 2024 to the mid of October 2024.

Pilot study

It included 20 older adults to represent (10%) of the main study samples to evaluate the clarity, and relevance of the translated instruments. Since no changes were needed in the tools, the pilot sample was included in the main study sample.

Administration and ethical consideration

The study proposal was accepted by the Zagazig University Faculty of Nursing's Post Graduate Committee and Research Ethics Committee (REC) with the code of (ZU.Nur.REC#:0142).

Statistical analysis

Statistical Package for Social Science (SPSS) version 25 for Windows were used to organize, tabulate, and statistically analyze the collected data. The correlation between the variables was tested using the correlation coefficient test (r). Linear regression model was using for examining the effect of age-friendly neighborhood environment on life space mobility and self-care behaviors of older adults.

Results

Regarding demographic characteristics of the older adults, 69.0% of them were in the age group 60-<70 years old. Also, 62.0% and 83.5% were male and married, respectively. Moreover, 51.5% live in urban areas. Likewise, 72.5% didn't have enough income. Furthermore, 42.0% have lived in their current neighborhood for 20 to less than 30 years. The table also displays that 92.5% of the older adults had a history from chronic diseases.

As shown in **Table 1**, the older adults were moderate satisfied with their neighborhood environment with mean score 26.3±11.8. Besides, the older adults were very satisfied with their housing with mean score 3.5±1.2. While, they were low satisfied with their social participation and financial situation with mean score 2.5±2.0 and 1.9±1.8, respectively.

Table 2 demonstrates that the mean score and standard deviation of total life space mobility was 38.8±28.1. In terms of participants' mobility at each LSA level,

58.5% said they regularly visited level one. As the life-space expanded, there was a decrease in mobility within the environments used by each participant, as well as in access frequency. At level four, for example, 49.6% stated that they used this place fewer than once per week. The percentage of people who were independent in life spaces was 43.7% for level five and 71.6% for level one. However, level four and above demonstrated an increased demand for personal support for life-space mobility.

Table 3 presents that 58.5% and 65.5% of the older adults had unsatisfactory physical and psychological self-care, respectively. While, 76.0% of them had satisfactory spiritual self-care. Moreover, 65.0% had unsatisfactory level of total self-care behaviors.

Table 4 clarifies a highly statistically significant positive association between total neighborhood environment score and total life space mobility score (r= 0.689, p=<0.01) and total self-care behaviors score (r= 0.651, p=<0.01) among the older adults. Furthermore, there was a highly significant positive association between total life space mobility score and total self-care behaviors score (r= 0.543, p=<0.01) among the older adults.

Table 5 indicates that age-friendly neighborhood environment has a strong positive predictor of life space mobility with (B= 1.656, Beta= 0.698). Also, the F-test result of 106.3 with a p-value of 0.000 shows the existence of a highly significant model two in the same table. With an R-squared value of 0.349, this model accounts for 34.9% of the variation in self-care behaviors. Moreover, it reveals that age-friendly neighborhood environment has a strong positive predictor of self-care behaviors with (B= 0.864, Beta= 0.591).

Table 6 shows the presence of a very significant model 1, this model accounts for 57.1% of the variation in life space mobility. Also, it reveals that university/postgraduate education, urban residence and good health status have a strong positive predictor with a p-value of (<0.01). In addition, the F-test result of 54.01 with a p-value of (0.000) indicates the existence of a highly significant model two in the same table. With an R-squared value of 0.627, this model accounts for 62.7% of the variation in self-care behaviors. Moreover, it indicates that female gender, university/postgraduate education, urban residence, and good health status have a strong positive predictor of self-care behaviors, while low monthly income and living alone have a strong negative predictor with a p-value of (<0.01).

Discussion

The present study revealed that the majority and nearly half of older adults live with their families and in current neighborhood for 20 years or more, respectively. It reflects that older adults are warming to the idea of "aging in place," or like to move through their golden years in their own homes as opposed to transferring into elder housing facility. Such a result is in accordance with report of Pew Research Center which indicated that living with an extended-family household, including relatives, is the most popular sort of household arrangement for the older adults worldwide. Precisely, the percentage of participants live in this type of arrangement is more than two thirds in India, Iraq, and Namibia comparing to six percent only in the United States of America **(Pew-Research-Center, 2019).**

The presents study clarified moderate satisfaction of older adults with their neighborhood environment. Besides, older adults were highly satisfied concerning their housing domain, while they were low satisfied with their social participation and financial situation domains. It might be because the house environment is the most stable and controllable domain, while they are facing challenges concerning the income and outside neighborhood environment, including lack of resources and policies to promote social activity opportunities and mobility. Considerably, **(Black & Hyer, 2020)** indicated significant differences across the generational age groups in all domains with the greatest distinctions pertaining to preferences in housing, outdoor spaces, employment, and participation in varied social activities.

In accordance with the current results, Canadian study indicated that two important age-friendly elements—outdoor areas and structures and communication and information—as well as less material deprivation were linked to increased social participation at the individual level **(Levasseur et al., 2023)**. In the same vein, the age-friendly environment can act as a social engagement facilitator, increasing the chance that a person will go outside and engage in activities and involvement **(Townsend et al., 2021).**

As the life-space expanded, there was a decrease in mobility within the environments used by every participant, as well as in access frequency. Nevertheless, there was an increased demand for personal help for LSM at level four and higher, which reflects low or restricted LSM among older adults. These findings might be attributed to the physiological changes attached by aging, chronic disease, or factors associated with the neighborhood environment. Declining functions and limited energy reserves in older persons contribute to barriers in their social

and physical surroundings compared to younger ones **(Hoof et al., 2021).**

Moreover, more than two fifth of participants in a South American study experiencing limited life space and females were having the lowest level of LSM **(Narsakka et al., 2022).** In contrast, a previous study by **(Kuspinar et al.**, **2020)** in Canada indicated that the mean LSM score was average, and the participants were independently able to move outside of their neighborhood. These discrepancies among studies might be attributed to infrastructure and services differences among communities regarding this age group.

Regarding to self-care behaviors among older adults, the results indicated that the participants were having unsatisfactory level of total self-care behaviors, toward the physical and psychological self-care. It might be explicated by the adverse effect of chronic diseases or lack of physical and social activities and recreation. In agreement with the present findings, Iranian studies indicated that the psychological and total self-care had the lowest score, with more than two third of older adults had low self-care ability **(Noohi et al., 2022, Yoosefifard et al., 2023**).

On the other hand, the current investigation discovered that many of the participants had satisfactory spiritual self-care, which reflect the role of the religion and spirituality in directing lives of older adults, understanding meaning of life and adaptation to old age's disadvantages. In the same line, the earlier study conducted in United Kingdom by **Malone and Dadswell, (2018)** indicated that beliefs, spirituality and religion can increase the feeling of comfort, hope and sense of belonging, that can lead to successful aging and influence positively on older adults' health and well-being. **Spiritual Health Association, (2021)** conducted a study that revealed a positive experience of

spiritual care among many participants and they were able to meet their needs.

Concerning to the effect of age-friendly neighborhood environment on LSM and self-care behaviors, the results indicated positive correlation between LSM and self-care behaviors among older adults. Such result might be explained by the fact of that older person who can move around can take care of himself and vice versa, as limited mobility in the older adults may restrict their self-care. Consistent with the present results **(Buss et al., 2017)** carried out a study in Germany and found restricted life space mobility among the participants and indicated significant correlations between dependency of care and restricted LSM.

The present findings demonstrated that high education, urban residence, and good health status were strong positive predictors to life space mobility. It may be due to the fact of life space mobility is influenced by physical condition of person, availability and access to places and services that found in urban areas more than rural. At the same vein (**Chen et al., 2017**) in China affirmed that the rural built environment challenges the life quality of the older adults because of the long-standing gap in the allocation of support facilities for everyday activities between rural and urban areas. Also, results of a recent study suggested integrating the issue of mobility into rural policies from a more complex sociological perspective, addressing demographic challenges, regional development and territorial cohesion **(Camarero and Oliva, 2024).**

United Nations Economic Commission for Europe supported the current findings and reported that rural residents had limited access to services compared to the urban population due to their lower socioeconomic conditions **(United-Nations-Economic-Commission-for-Europe, 2017).** Thus,

older adults in the rural areas may face potential risks of insufficient medical care, social isolation, and decreased mobility. Similarly, Dunlap et al. in USA found that comorbidities, psychosocial and financial domains of mobility and personal factors especially age, sex, and education were significantly associated with LSA score **(Dunlap et al., 2022).**

The results found that female gender, high education, urban residence, and good health status represented strong positive predictors of self-care behaviors, while low monthly income and living alone are strong negative predictors. It may be attributed to weak motivation, limited physical and economic resources of older adult to care themselves. Likewise, **Noohi et al., 2022)** revealed that self-care ability is worse in men, illiterates, and villages, and it declines with age. In addition, greater age was linked to less self-care, and an increasing education level and use of insurance improved the levels of self-care and life quality **(Yoosefifard et al., 2023).**

Finally, the results also indicated that the age-friendly neighborhood environment was a strong predictor of life space mobility and self-care behavior among older adults with positive correlations between them. This reflects the important role of the availability of health, social, and recreational services in the community and that the accessibility of these services greatly influences the facilitation of self-care and mobility of the older adults to benefit from these services and enhance their health. In agreement with the present findings **(Choi, 2020) c**oncluded that low functional limitations and high self-rated health were associated with the availability of fit environment and communities with age-friendly features**.** Moreover, the domains of transportation, buildings, outdoor spaces, inclusion, and social participation were

consistently related to these results. In the same context, **Moreno-Agostino et al., (2021)** stated that neighborhood environment, support, and social network may improve or limit functional ability of older adults. Moreover, age-friendly environments can support the older adults to stay active, and connected to economic, cultural, and social life of their communities **(World-health-orgaization, 2024).**

Conclusion

Older people who are highly educated, live in urban, and in good health condition had satisfactory level of life space mobility and self-care behaviours. As well as, age-friendly neighborhood environment was a strong positive predictor and had an imposing effect on both life space mobility and self-care behaviors.

Recommendations

- Educational programs for older adults and their caregivers to utilize from resources in neighborhood environment and using technology to enhance the life space mobility and physical and social self-care.
- Enhancement of the neighborhood participation strategies, like community meetings, activities, and cultural festivals, to promote feeling of respecting, and connecting among older adults.
- Further studies to assess the effect of age-friendly neighborhood environment on other aspects of older adults' life and health.

Author's contributions

E.M.A-E.A-H; contributed in problem and title selection, aim of the study and research questions, performed data collection, statistical analysis and interpretation, wrote the subjects and methods. N.G E-S.G; contributed in problem and title selection, aim of the study and

research questions, performed data collection, statistical analysis and interpretation, wrote the subjects and methods. N.A.M.A; contributed extensively participated in aim, research questions, introduction, significance of the study, discussion, conclusion, and recommendations. M.M.A-E.D; contributed extensively participated in aim, research questions, introduction, significance of the study, discussion, conclusion, and recommendations, and conducted the overall supervision and provided the first draft of the manuscript before the publication. All authors participated, revised, and approved the final manuscript.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

Table (1): Categorization of the participants according to domains of age-friendly neighborhood environment and the financial situation domain (n=200)

Domains	No. of items	Min	Max	Mean ± SD	Mean Interpretation
Housing	2	-4	4	3.5±1.2	Very satisfied
Social Participation	4	-6	6	2.5±2.0	Low satisfied
Social Respect and Inclusion	2	-4	4	2.49±1.8	Moderate satisfied
Civic participation and employment	2	-2	4	2.9±1.5	Moderate satisfied
Communication and Information	2	-4	4	2.3±1.3	Moderate satisfied
Community Support and Health Services	5	-5	10	6.2±4.3	Moderate satisfied
Outdoor Spaces and Buildings	2	-4	4	2.0±1.7	Low satisfied
Transportation	2	-4	4	2.7±1.7	Moderate satisfied
Financial Situation	2	-4	4	1.9 ±1.8	Low satisfied
Total score	**23**	**-5**	**43**	**26.3±11.8**	**Moderate satisfied**

SD: Standard Deviation

Table (2): Participants' categorization based on their Life Space Scale (LSC) scores

Levels		No.	%	Weekly frequency	No.	%	Independence	No.	%	Min	Max	Mean ± SD
Life Space Level-1 (Home)	Yes	183	91.5	< 1 time	30	16.4	Personal assistance	33	18.0	0	8	5.36±3.0
				1-3 times	25	13.6	Devices	19	10.4			
	No	17	8.5	4-6 times	21	11.5	None	131	71.6			
				daily	107	58.5						
Life Space Level-2 (Outside house)	Yes	177	88.5	< 1 time	30	16.9	Personal assistance	20	11.3	0	16	9.9±6.1
				1-3 times	29	16.4	Devices	33	18.7			
	No	23	11.5	4-6 times	24	13.9	None	124	70.0			
				daily	94	53.1						
Life Space Level-3 (Neighborhood)	Yes	148	74.0	< 1 time	34	23.0	Personal assistance	24	16.2	0	24	11.3±9.6
				1-3 times	27	18.2	Devices	26	17.6			
	No	52	26.0	4-6 times	31	20.9	None	98	66.2			
				daily	56	37.9						
Life Space Level-4 (Town)	Yes	127	63.5	< 1 time	63	49.6	Personal assistance	39	30.7	0	24	6.1±5.9
				1-3 times	61	48.0	Devices	35	27.6			
	No	73	36.5	4-6 times	3	2.4	None	53	41.7			
Life Space Level-5 (Unlimited)	Yes	112	56.0	< 1 time	67	59.8	Personal assistance	44	39.3	0	30	6.1±6.8
				1-3 times	42	37.5	Devices	19	17.0			
	No	88	44.0	4-6 times	3	2.7	None	49	43.7			
Total score										**0**	**86**	**38.8±28.1**

Table (3): Domains of self-care behaviors among the older adults (n=200)

Domains	No. of items	Min	Max	Mean ± SD	Satisfactory		Unsatisfactory	
					No.	%	No.	%
Physical self-care	20	12	40	26.7±7.1	83	41.5	117	58.5
Psychological self-care	23	12	46	30.1±9.5	69	34.5	131	65.5
Spiritual self-care	9	10	37	15.3±2.8	152	76.0	48	24.0
Total score	**52**	**37**	**117**	72.2±17.3	**70**	**35.0**	**130**	**65.0**

Table (4): Correlation between age-friendly neighborhood environment, life space mobility, and self-care behaviors among the older adults (n=200)

Variables	Age-friendly Neighborhood environment		Life space mobility	
	r	p-value	R	p-value
Life space mobility	0.689	0.000**		
Total self-care behaviors score	0.651	0.000**	0.543	0.000**

r= Pearson correlation coefficient test.   *** Correlation is significant at < 0.01.*

Table (5): Multiple linear regression model examining the effect of age-Friendly neighborhood environment on life space mobility and self-care behaviors of older adults (n=200)

Items	B	Std. Error	Beta	t	P-value	95% Confidence interval		R^2	ANOVA	
						Lower	Upper		F	P-value
Life space mobility										
Model 1								0.488	188.5	0.000**
(Constant)	-4.658-	3.474		-1.341-	.182	-11.510-	2.193			
Age-Friendly neighborhood environment	1.656	.121	.698	13.731	0.000**	1.418	1.894			
Self-care behaviors										
Model 2								0.349	106.3	0.000**
(Constant)	49.519	2.414		20.509	0.000**	44.758	54.280			
Age-Friendly neighborhood environment	0.864	0.084	0.591	10.313	0.000**	0.699	1.030			

Dependent Variable in model 1: Life space mobility.
Dependent Variable in model 2: Self-care behaviors.
B=Unstandardized Coefficients.   Beta=Standardized Coefficients.   t: Independent t-test.
R^2 = Coefficient of multiple. **highly significant at p ‹ 0.01.

Table (6): Multiple linear regression model examining associations of older adults' characteristics and their life space mobility and self-care behaviors (n=200)

Items	B	Std. Error	Beta	t	P. value	95% Confidence interval		R²	ANOVA	
						Lower	Upper		F	P. value
Life space mobility										
Model 1								0.571	87.12	0.000**
Constant	-32.527-	4.850		-6.706-	.000	-42.092-	-22.962-			
University or Postgraduate education	2.659	.896	.159	2.968	.003	.892	4.426			
Urban residence	24.458	2.988	.435	8.184	.000	18.564	30.351			
Good health status	13.324	2.235	.350	5.961	.000	8.916	17.733			
Self-care behaviors										
Model 2								0.627	54.01	0.000**
Constant	47.426	6.078		7.802	0.000**	35.437	59.414			
Female gender	3.513	1.597	0.098	2.199	0.029*	.362	6.663			
University or Postgraduate education	1.850	0.538	0.180	3.441	0.001**	.789	2.910			
Not enough income	-4.211-	1.567	-0.125-	-2.687-	0.008**	-7.302-	-1.121-			
Urban residence	8.904	1.784	0.257	4.990	0.000**	5.385	12.423			
Living alone	-8.460-	2.398	-0.158-	-3.528-	0.001**	-13.190-	-3.730-			
Good health status	13.099	1.310	0.559	10.002	0.000**	10.516	15.681			

Variables entered and excluded in model 1: Marital status, educational level, monthly income, living condition, length of stay in the neighborhood and history from chronic diseases.
Variables entered and excluded in model 2: Age, marital status, length of stay in the neighborhood, and history from chronic diseases.

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