

Factors Related to Functional Independence in Daily Activities of Older People with Osteoarthritis in Mashhad, Iran in 2016

Mahboubeh Ahmadpour¹, Ali Darvishpoor Kakhki^{2,*}, Mitra Zandi³, Ramin Nourbakhsh⁴

¹ Department of Medical- surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

² Department of Medical- surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

³ Department of Medical- surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

⁴ Oral & Maxillofacial Radiology Post graduated Resident, Faculty of Dentistry, Tabriz University of Medical Sciences, Tabriz, Iran

* **Corresponding author:** Ali Darvishpoor Kakhki, Vali-Asr Avenue, Cross of Vali-Asr and Neiaiesh Highway, Opposite to Rajaei Heart Hospital, Tehran, Iran. Email: darvishpoor@sbm.ac.ir

DOI: 10.29252/ANM-027025

Submitted: 11.01.2017

Accepted: 16.03.2017

Keywords:

Osteoarthritis
Older People
Activities of Daily Living
Independent Living

How to Cite this Article:

Ahmadpour M, Darvishpoor Kakhki A, Zandi M, Nourbakhsh R. Factors Related to Functional Independence in Daily Activities of Older People with Osteoarthritis in Mashhad, Iran in 2016. *Adv Nurs Midwifery*. 2017;27(1):27-31. DOI: 10.21859/ANM-027035

© 2017. Advances in Nursing and Midwifery

Abstract

Introduction: Osteoarthritis is one of the leading causes of disability and reduction of functional independence in older people. The present study was conducted to investigate the factors related to functional independence in daily activities of older people with osteoarthritis in Mashhad, Iran.

Methods: In this descriptive-correlational study, 300 older people with osteoarthritis who had referred to rheumatology clinics of Mashhad University of Medical Sciences Hospitals in Mashhad in 2016 were selected and entered in the study by available sampling method. Data collection tools in this study included demographic information questionnaire and scale of activities of daily living, the validity and reliability of which were measured. SPSS-21 software was used for data analysis.

Results: The age average of the study subjects was 70.75 (\pm 7.27). The older people with higher education levels, male gender, married and who lived with a spouse or spouse and children, lower in age, economically independent (higher income and working), lower body mass index, the ones with less duration of osteoarthritis, ones who did not need to use assistive devices, did not suffer from the lack of joint mobility, and did not have hip osteoarthritis, had more independence in activities of daily living (P value < 0.05).

Conclusions: According to the obtained results and related factors from this study, it is necessary that more accurate planning be considered to prevent, control and manage factors leading to the dependence of older people.

INTRODUCTION

The world's population is rapidly aging. Between 2000 and 2050, the proportion of the elderly population over 60 years of age will increase from around 11% to 22% [1]. Aging is a natural phenomenon and the most important changes in the musculoskeletal system are reduction of resistance and joint mobility; also, individuals in this period are exposed to potential threats such as higher incidence of chronic diseases, social isolation, lack of social support; in addition, because of physical and mental disabilities and reduction of functional capacity, their personal independence is threatened in many cases [2-4]. One of the most common aging disorders is osteoarthritis which is now one of

the top ten debilitating disease in developing countries [5, 6]. Functional independence is beyond self-care and refers to the active participation of older person in daily activities, including the ability to performing activities of daily living such as bathing, walking, etc. [7, 8]. Maintaining functional independence for the elderly is one of key goals of the World Health Organization; the most important matter is improving the health and quality of life of elderlies and having a successful and healthy aging [9-11]. One of the best ways to evaluate the health of older people is checking their level of activities in daily life. For this purpose, necessary information must be provided for appropriate and consis-

tent planning, with the needs of the older people available to staff of community health centers [8]. Therefore, according to the process of increasing the elderly population and role and importance of functional independence in quality of their lives, the present study was conducted to determine the factors associated with functional independence in activities of daily living of older patients with osteoarthritis.

METHODS

Research Design and Setting

This was a descriptive-correlational study performed in Mashhad on older people of 60 years of age and higher with osteoarthritis, who were referred to rheumatology clinics hospitals of Mashhad University of Medical Sciences in 2016. The research environment included rheumatology clinic hospitals of Mashhad University of Medical Sciences.

Sampling and Selection Criteria

The required sample size was determined to include 300 older people. Samples were selected using accessible sampling method, so that first, the referrals to relevant clinic were identified, and then the sample size was calculated according to the number of patients referred to every clinic. The inclusion criteria were patients aged 60 years or older who were diagnosed with osteoarthritis, willing to participate in the study, no history of joint replacement surgery and no physical or mental disability.

Instrument and Data Collection

Data collection tools in this study were demographic information questionnaire, and in order to investigate the level of activities of daily living, activities of daily living questionnaire was used [12] among older people. The validity and reliability of these instruments were measured (Cronbach's alpha coefficient = 0.97). Activities of daily living included eating, getting dressed and undressed, walking, doing work related to appearance, taking bath or shower, going in or out of bed and going to toilet; three questions were raised for each activity and each answer was selected between Yes and No options. Scores of 7 to 21 were variable. After scoring the questions of the questionnaire, the total score was calculated by adding up the scores in questions, and on the basis of the earned points in three categories they were divided to low, medium and fine, so that a high score indicated greater functional independence of the individual.

Statistical Analysis

To find the relationship between variables according to the non-normal data, Spearman, Kruskal–Wallis and Mann–Whitney U test were used. The used software in this study was SPSS-21.

RESULTS

Demographic Information

Based on the results, the age average of the older people was 70.75 (\pm 7.27) years old, with a minimum of 60 and maximum of 95; 48.34% of the participants were in the age group of 60-69, 61% were female, and 29% had primary school education level, and 37% were housewives; 53% of research units were married, 28.33% had spouse and children, 72% lived in their own home, 49% had an income of 10-20 million Rials per month, and 63% had social security insurance. The duration of disease in 42.66% of the research units was between 5 to 10 years and 65% of them had a body mass index of 25-30 (low to moderate obesity). In 40.66% of the participants, knee was involved as the most common joint; in 99% pain was in the affected joint, 48% of them used medication therapy, 45% had hypertension, and 41.66% used eyeglasses.

The Status of Activities of Daily Living

Table 1 shows daily activities of life in the surveyed older people in this study; among activities of daily living, they had the highest independence in eating (97%) and the least independence was in taking bath (54%).

The Relationship Between Variables

Investigating the relationship of activities of daily living and demographic variables (Tables 2 and 3) indicated that there was a statistically significant relationship in the level of activities of daily living with gender, education level, occupation, marital status, life fellows, joints condition, symptoms of the disease, and use of assistive devices (P value < 0.05). As an older man, married ones who lived with their wives and children, had higher levels of education, were employed, did not require to use assistive devices, did not suffer from lack of joint mobility, and their osteoarthritis were not pelvic, had average scores of higher daily activities. There was no significant association in activities of daily living with variables such as housing, insurance, type of treatment and the underlying disease (P value > 0.05).

Table 1: The Status of Performing Activities of Daily Living in older People

	Not Able to Do		With a Little Help		Without Help	
	Percent	Number	Percent	Number	Percent	Number
Eating food	-	-	3	9	97	291
Getting Dressed and undressed	-	-	15	46	85	254
Performing tasks related to appearance	-	-	7	21	93	279
Walking	4	13	18	53	78	234
Going in or out of bed	3	10	15	46	82	244
Taking bath	9	27	37	110	54	163
Going to toilet	I have a catheter or colostomy		I do not have problem		I have a problem	
	Percent	Number	Percent	Number	Percent	Number
	1	2	69	208	30	90

Table 2: Demographic Variables Correlation Relationship with Activities of Daily Living in Older People

Variables	Score of Activities of Daily Living	P value
Gender		0.001
Female	19.25	
Male	19.62	
Level of Education		0.03
Primary	17.58	
Illiterate	19.10	
middle school	19.39	
High school diploma	19.94	
University	20.45	
Employment status		0.0001
Employed	20.84	
Retired	15.97	
Unemployed	19.71	
Housewife	19.45	
Marital status		0.0001
Widowed	17.22	
Married	20.53	
Single	20.08	
Divorced	19.98	
Life fellows		0.007
Relatives	20.49	
Friends	19.69	
Alone	17.60	
Children	17	
Wife	19.63	
wife and children	18.88	

Table 3: The Correlation Relationship Between Variables Related to Disease and Activities of Daily Living in Older People

Variables	Score of Activities of Daily Living	P value
Type of suffered joint		0.0001
Hand	19.40	
Knee	19.20	
Spinal cord	19.31	
Neck	19.90	
Pelvis	17.44	
Disease Symptoms		0.001
Pain	19.40	
Drought	18.67	
Rigidity	17.04	
Immobility	14.30	
Mobile assistive devices		0.0001
Cane	18.92	
Walker	16.71	
Wheelchair	12.1	
Glasses	19.39	
Hearing aids	15.85	
Does not have	20	
Etc.	19.55	

Variables	Activities of Daily Living	
	P value	The Correlation Coefficient
Age	0.0001	0.64 -
Income	0.01	0.16
Body mass index	0.012	0.21 -
Suffering Duration	0.0001	0.53 -

Table 4 indicates that there was a significant and negative relationship in age, body mass index and suffering duration of older people osteoarthritis with activities of daily living. In higher age, body mass index and suffering duration of osteoarthritis were lower, and they had more independence levels. There was a significant and positive relationship between income and the level of activities of daily living, as older people with higher incomes were more independent.

DISCUSSION

The risk of living with chronic diseases like osteoarthritis in older people has increased, considering that their problems are essential [2, 3]. As a result of this study, most of the surveyed older people were females, and knee was the most common joints affected by osteoarthritis. In this regard, the results of different researches indicated the relationship of the suffering risk of knee osteoarthritis with gender [13, 14]. The surveyed older people in this study had the highest independence in activities of daily living in eating and the least independence in walking, going to toilet and bathing. Although activities such as walking, going to toilet and bathing are daily and non-instrumental activities of life, in comparison with other activities in this category they required higher power, and this may be the reason that older people had less independence in such activities. On the other hand, older people have do basic sport and physical activities in Iran, and the importance of the role of cultural and social restrictions are included as effective factors on types of activities of older people [8, 15]. Based on the obtained findings from this study, it was determined that older people with lower age had greater independence level in the field of activities of daily living. In general, with increase of age, the independence level of the individual is reduced. These findings are consistent with the results of other studies [16, 17]. In addition, according to the results of the survey, it was determined that men had greater independence in performing activities of daily living. This finding is consistent with previous studies [16, 18, 19]. Increase of disability in women can have a relationship with their lifestyle and social activity [19, 20]. Furthermore, the relationship between lower body mass index and independence of older people in this regard is the confirmation of the fact that mobility and exercise can play a role in weight loss, health, and functional independence of elderlies. Regarding the relationship of ability to perform activities of daily living with marital status in the older people, results of the present study showed that the subjects living with their husband and children were more independent, which is in accordance with previous studies [8, 17]. In this regard, Adib Haj Bagheri et al. [17] stated that older people with wives can maintain a higher level of activity and social relationships, while the ones without wives were gradually more dissociable, with

lower activity level, mobility and social interface. It seems that this difference may be the result of the impact of more perceived social support in the married older people compared to others. Another finding of the present study indicated that the elderlies with higher education levels also had higher functional independence in activities of daily living. This result is consistent with the results of other similar studies [15, 17, 21]; it seems that in older people with higher education levels, since they benefit from greater awareness and understanding, and also since a lot of activities are required to be savvy enough and to acquire necessary skill, they do activity in a better way [15, 17]. Also in this study, the economically independent elderlies (with higher income and employment) had higher levels of functional autonomy; the findings are consistent with previous studies [15, 22]. It seems that individuals with better economic conditions can also have better physical performance, because they have power to prepare resources and facilities necessary to perform everyday activities [21]. Also in this study, the majority of cases had mild to moderate obesity, and the findings indicated that older people with lower body mass index had greater independence level in regards with activities of daily living. This finding is consistent with previous studies [23, 24]. Kroon et al. [25] in their study stated that in those who had a body mass index greater than 30, the chance of getting osteoarthritis is significantly increased by 2%, and obesity was mentioned as a risk factor for osteoarthritis. The findings indicated that older people whose duration of osteoarthritis was less had greater independence levels in activities of daily living. With increase in age and duration of osteoarthritis, quality of life is reduced. Osteoarthritis is often disabling because it has a progressive course, because by increase in the duration of illness, complications and symptoms get more severe, and this issue is also affects both quality of life and functional independence to a greater extend [26]. In this study, the majority of doctors had prescribed medications for patients, and the majority of them had more complaint regarding their joint pains compared to other signs; the finding is consistent with results of previous studies [3, 23]. Older people who also suffered from lack of mobility in the affected joints had lower levels of functional independence in life activities. The loss of mobility and function is one of the reasons that limits everyday activities such as walking, climbing the stairs and doing household chores [24].

According to the obtained results and related factors, appropriate training is suggested in the field of individual factors which should be amendable for older people with osteoarthritis. Planning training courses, preparation of educational posters with a focus on life style correction and preventive suggestions for musculoskeletal diseases in the communities, maintaining the development and implementation of comprehensive programs, and promoting the independence of

older people in the society, considering that the majority of Iranian population is aging, should be initiated in the future in order to have an older population with healthy and successful aging period.

ETHICAL CONSIDERATION

Approval to conduct the study was obtained from Shahid Beheshti University of Medical Sciences in 2016 was adopted by the Ethics Committee and Research Council of Shahid Beheshti University of Medical Sciences. The ethics code was IR.SB-MU.PHNM.1394.332.

ACKNOWLEDGEMENTS

We appreciate and thank the older people who participated in this study.

CONFLICTS OF INTEREST

There is no conflict of interest to be declared.

FUNDING

This study was funded by Shahid Beheshti University of Medical Sciences, Tehran, Iran.

AUTHORS' CONTRIBUTIONS

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

REFERENCES

- World Health Organization. Ageing and Life Course, Facts about ageing: World Health Organization; 2014 [cited 2015 July 20]. Available from: www.who.int/aging/about/facts/en.
- Vahdani Nia M, Goshtasebi A, Montazeri A, Maftoon F. [Health-related quality of life in older people: population-based study]. *J Kermanshah Univ Med Sci*. 2005;4(2):113-20.
- Goncalves LC, Vale RG, Barata NJ, Varejao RV, Dantas EH. Flexibility, functional autonomy and quality of life (QoL) in elderly yoga practitioners. *Arch Gerontol Geriatr*. 2011;53(2):158-62. DOI: [10.1016/j.archger.2010.10.028](https://doi.org/10.1016/j.archger.2010.10.028) PMID: [21167613](https://pubmed.ncbi.nlm.nih.gov/21167613/)
- Sanaee M, Zardoshtian S, Norouzi Seyyed Hosseini R. [The effect of physical activity on quality of life and life expectancy in older people of Mazandaran province]. *Sports Manage Stud*. 2014;17:137-58.
- Bitton R. The economic burden of osteoarthritis. *Am J Manag Care*. 2009;15(8 Suppl):S230-5. PMID: [19817509](https://pubmed.ncbi.nlm.nih.gov/19817509/)
- World Health Organization. Chronic rheumatic conditions: World Health Organization; 2015 [cited 2015 July 21]. Available from: www.who.int/chp/topics/rheumatic/en.
- Mohammadi H, Rashedi V, Nazari H, Yoosefi M. [Relationship between cognitive status and activities of daily living among older people of nursing home]. *J Kermanshah Univ Med Sci*. 2015;18(12):744-56.
- Moeini B, Barati M, Jalilian F. [Factors associated with the functional independence level in older adults]. *Bimonthly J Hormozgan Univ Med Sci*. 2012;15(4):318-26.
- Jedrzejewski MK, Lee VM, Trojanowski JQ. Physical activity and cognitive health. *Alzheimers Dement*. 2007;3(2):98-108. DOI: [10.1016/j.jalz.2007.01.009](https://doi.org/10.1016/j.jalz.2007.01.009) PMID: [18379636](https://pubmed.ncbi.nlm.nih.gov/18379636/)
- Habibi Sola A, Nikpoor P, Rezaei M, Haqani H. [The relationship between health promoting behaviors with the activities of daily living and activities of daily living in older people with tools West of Tehran]. *Iranian J Age*. 2008;2(5):332-9.
- World Health Organization. Ageing and Life Course, What is "active ageing"? : World Health Organization; 2015 [cited July 13 2015]. Available from: www.who.int/aging/activeageing/en.
- Network CRDC. Canadian Community Health Survey: Canadian Research Data Center Network; 2000 [cited 2015 Nov 23]. Available from: www.Rdc-cdr.ca/datasets/cchs-canadian-community-health-survey
- Zhang Y, Jordan JM. Epidemiology of osteoarthritis. *Clin Geriatr Med*. 2010;26(3):355-69. DOI: [10.1016/j.cger.2010.03.001](https://doi.org/10.1016/j.cger.2010.03.001) PMID: [20699159](https://pubmed.ncbi.nlm.nih.gov/20699159/)
- Heidari B, Hajian K. [The role of weight and age on knee osteoarthritis]. *J Qazvin Univ Med Sci*. 2004;7(5):10-5.
- Tavafian SS, Aghamolaei T, Moeini B. [Functional independence level of physical activities in older people: a population based study]. *J Iranian Instit Health Sci Res*. 2014;13(4):449-56.
- Shahbazi M, Mirkhani M, Hatamizadeh N, Rahgozar M. [The evaluation of the rate of disabilities in Tehran, 2007]. *Salmad*. 2008;3(9-10):84-91.
- Adib Haj Bagheri M. [Evaluate the disability and associated factors among older people in Kashan in 2008]. *Iranian J Age*. 2010;3(8):547-55.
- Zunzunegui MV, Alvarado BE, Beland F, Vissandjee B. Explaining health differences between men and women in later life: a cross-city comparison in Latin America and the Caribbean. *Soc Sci Med*. 2009;68(2):235-42. DOI: [10.1016/j.socscimed.2008.10.031](https://doi.org/10.1016/j.socscimed.2008.10.031) PMID: [19036488](https://pubmed.ncbi.nlm.nih.gov/19036488/)
- Nejati V. [Assessing the health status of older people in province of Qom (2007)]. *J Qazvin Univ Med Sci*. 2009;13(1):67-72.
- Shahbazi M, Mirkhani M, Hatamizadeh N, Rahgozar M. [Assessment of disability in Tehran older people]. *Iranian Journal of Ageing*. 2009;3(910):81-9.
- Masoumi N, Jafroudi S, Ghanbari A, Kazemnejad E. [Assessment of retired older people autonomy and its affecting factors in Rasht]. *Holist Nurs Midwifery J*. 2011;21(65):46-51.
- Darvishpoor Kakhki A, Abed Saeedi J. [Factors related to Health-Related Quality of Life (HRQoL) of older people in Tehran]. *Adv Nurs Midwifery*. 2013;23(82):8-16.
- Agha Amiri M, Mohammad Zadeh S, Seifi B, Alavi Majd H. [The relationship between lifestyle and incidence of osteoarthritis in older men and women]. *J Women Cult*. 2011;1(4):55-64.
- Gholam Khoojin R. [Osteoarthritis News]. *Wkly Mod Med*. 2012;508:826-33.
- Riyazi N, Rosendaal FR, Slagboom E, Kroon HM, Breedveld FC, Kloppenburg M. Risk factors in familial osteoarthritis: the GARP sibling study. *Osteoarthritis Cartilage*. 2008;16(6):654-9. DOI: [10.1016/j.joca.2007.10.012](https://doi.org/10.1016/j.joca.2007.10.012) PMID: [18226556](https://pubmed.ncbi.nlm.nih.gov/18226556/)
- Keshkaran Z, Ghodsbin F, Solouki S, Razeghi M, Zare N. [The impact of selfcare education on quality of life of those clients suffering from osteoarthritis in rehabilitation centers of shiraz university of medical science (Iran)]. *J Babol Univ Med*. 2010;12(1):65-70.