

## Disability in the Elderly and its Relationship with Demographic Characteristic

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### Abstract

**Background:** Developing countries in Asia are aging faster than other countries in the world and disability has become one of the greater public health concern in these countries. Therefore, this study aims to disability in the elderly and its relationship with demographic characteristics in 2007.

**Methods:** A cross-sectional analytical study was conducted on a two-stage clustered sample of 350 elderly cases in Kashan, Iran. The data collection tools were demographic and also WHO-DAS-II questionnaires. Chi-square, Fisher Exact test, Spearman correlation coefficient were used to analyze the data.

**Results:** Among the studied samples, 75.7% had no or low level disability and only 4.3% had sever one. A Significant relationship was observed between disability and variables such as sex, need to help, place of residency, addiction, regular physical activity, marriage, level of education, lifestyle and job.

**Conclusions:** The severity of disability in the elderly was low, but it was more prevalent among women. However, more studies are needed to confirm the findings.

**Keywords:** Elderly, Disability, Demographic Characteristics

## Introduction

Improvement of living conditions and increase in life expectancy and life expectancy has led to the phenomenon of aging in societies. The increase in the elderly population is one of the most important economic, social and health challenges (1). Currently, 60% of the world's elderly live in developing countries, and this number will reach 80% by 2050. That is, in the next 30 years, one billion six hundred million people out of two billion elderly people in the world will live in developing countries, including Iran (2). Aging is associated with a decrease in functional performance and various disabilities, including mental, cognitive, physical, social and economic; So that after middle age, the efficiency of a person's physical and mental performance decreases by an average of 1.5% per year (3). As the population ages, priorities in the health care system also change. One of the main criteria for measuring the level of health in the elderly is disability (4).

Studies show that one-fifth of elderly people with disabilities need help to perform daily activities (5). In general, disability is a good indicator of health risk in the elderly population. According to the definitions, disability in the elderly is: the limitation of losing the ability to perform social roles and activities related to work or continuing an independent life (4). With the increase in the elderly population, the prevalence of disabilities as a serious public health problem is on the rise. In the process of aging, various body systems are depleted, and by reducing the abilities of the elderly, which is often the result of illness, it increases their dependence on others (5).

The results of a study on the elderly covered by Tehran Municipality showed that 38.7% of people with chronic diseases were disabled (6). In a study, one third of the elderly had cognitive disabilities and 60% of them needed help in daily life activities. Disabilities include different dimensions of their lives and their personal, social and economic consequences affect the life of the individual, family, other people involved and even the society (7). On the other hand, chronic diseases and movement problems and hospitalization are among the main reasons for the aggravation of disabilities in the elderly (8).

Many of the problems that occur with aging are considered potentially preventable and even reversible, and thus aging can be associated with minimal disability, which can lead us to the goals of successful aging and lead to a reduction in geriatric medical care costs. Let it be that they currently account for nearly 60% of the total medical care expenses. Achieving this goal requires knowing the factors affecting the health of the elderly (9). One of the important indicators that are needed for any kind of decision-making is the state of disability in the elderly of a society (10).

Considering the importance of the old age period and the growing trend of the population of this group in the country and considering that knowing the disabilities and related factors can help to clarify the situation and better planning for the support of the elderly, the current research with the aim of disability and related factors were done.

## Materials and Methods

A cross-sectional study with ethics code 8508 is conducting on a random sample of elderly people residing in Kashan, Iran. Sample size was calculated based on the previous report by Melzer (11)

who estimated 30% of aging population have some form of disability. The formula listed below was used [ $p = 0.30$ ,  $q = 0.70$ ,  $d = 0.05$ ,  $a = 0.95$ ] for 350 subjects in the study. Having 65 years of age or older, willing to participate in the study and not having a medical diagnosis of Alzheimer disease helped with a multi-stage random selection and sampling strategy. The reason for excluding subjects with the diagnosis of Alzheimer was based on the necessity to have clear cognition of all participants. The demographic map of the city was divided into 35 region based on the population covered by each health care facility. Each region had between 1–3 section. One or two alleys selected in each section and subjects were selected from residence of homes in each alley. Subjects were selected by age 65 and older and assessed for exclusion criteria. The researcher identified potential subjects, introduced study purpose and obtained voluntary informed and written consent. Subjects completed a questionnaire.

The WHO DAS II 36 items were used as the generic disability measure in this survey. The WHODAS II has been developed to assess the activity limitations and participation restrictions experienced by an individual irrespective of medical diagnosis. The WHO DAS II explores what people do in different areas of life using 36 items that ask for respondents to state the level of difficulties experienced in six domains of life during the last 30 days. The domains included in the instrument are: Understanding and communicating (cognition), Getting around (mobility), Self-care (attending to one's hygiene, dressing, eating and staying alone), Getting along with people (interpersonal interactions), Life activities (domestic responsibilities, leisure, and work) and Participation in society (joining in community activities). Self-reported health status was also assessed using a single question ("In general, would you say your health is excellent, very good, good, fair or poor?"). Socio-demographic data included age, sex, living status, needing help in activities, marital status, insurance status, education, employment status, addictions (dependency), work status, household income, housing type (a reliable surrogate indicator of socioeconomic and income status), living arrangement, having regular bodily activities, and caregiver availability. The original version of WHO DAS II was translated into Farsi according to the standardized guidelines proposed by Guillemin et al. (12). A native English speaker living in Iran who understood Farsi language quite well and did not have in-depth knowledge of disability assessment carried out back translation. The final version derived from reconciliation of the original and back translation and tested on 15 elderly people. The content validity of translated WHO DAS II was approved by 10 faculty members in Kashan Medical University. Translated WHO DAS II also was repeated in 20 before mentioned people in 2 weeks apart for test-retest analysis. Reliability was determined from Cronbach's alpha and test-retest. Cronbach's alpha was higher than 0.91 for domains and it was 0.93 for overall scores. Spearman's rank correlation was also 0.89 for WHO DAS II and it was higher than 0.73 for WHO DAS II domains.

The WHO DAS II has a Likert scale format rated on a scale of 1–5 [from none to extreme disability], however, the researchers will rate it on a scale of 0–4 [0 = none, 1 = Mild, 2 = Moderate, 3 = Severe and 4 = Extreme disability or cannot do]. The maximum score is 144 and the minimum score 0. The participants' total score will categorize under the 5 categories of extreme, severe, moderate, mild and without disability for the score levels of 0–36, 37–72, 73–108, 109–143 and 144 respectively. Descriptive statistics will computed for all variables. Chi-square, t-test analysis

and ANOVA will also utilize to check significant differences between the subgroups. This study was granted Institutional Review Board approval by Kashan University of Medical Sciences and received ethics approval from the ethic committee of KAUMS. All subjects were provided a copy of the written consent and assured of their anonymity and confidentiality of data obtained.

The data were analyzed using descriptive and analytical statistics such as Chi-square test, Fisher's exact test, Spearman's correlation coefficient in SPSS software ver/26.

## Results

Of all the studied units, 61.7% were male and 38.3% were women and most of them were in the age group of 65-70 years. More than two thirds of the units The research is married and most of them are illiterate or have elementary literacy. There were 12% of them lived alone. About two thirds Among the surveyed elderly (73%) are able to perform activities. They were independent and unaided in their daily life. Two thirds lived in the city. 26% of the elderly are under investigation of drugs or substances. More than two thirds of the elderly (77.7%) lacked regular physical activity. 75.7% of them were placed in the classes without disability or low disability. Only 4.3% had severe disability .Also, the average disability score of the elderly ( $93.34 \pm 29.94$ ) in approx. There was little disability. According to table 1, the most disability The elderly studied in the areas of life and road activities Leaving, by getting about 60% of the grade and the least disability The field of self-care was related to obtaining 82% of the score. Spearman's correlation coefficient is a significant direct correlation ( $r=0.282$  and  $P<0.001$ ) between age and the degree of disability in the elderly shows. Also, the results of statistical tests indicate the existence a significant difference between the disability of the elderly with age, gender, and status marriage, need for help, place of residence, addiction, regular physical activity, Literacy level, way of life and job (Table 2).

**Table 1. The average score of disability in different areas in elderly**

variables	X $\pm$ SD
Understanding and communicating	18/1 $\pm$ 5/8
Walking	12/3 $\pm$ 5/8
Self-care	13/2 $\pm$ 3/9
Interaction with people	14/6 $\pm$ 4/8
Life activities	9/6 $\pm$ 4/8
Job activities	11 $\pm$ 4/5
Social activities and family	21/3 $\pm$ 7/5

**Table 2. Frequency of severity disability according to some related factors in the elderly**

variables		Without disability	Mild disability	Moderate disability	Severe disability	p
Sex	Male	99 (45/8)	91 (42/1)	23 (10/7)	3 (1/4)	0/001
	Female	31 (23/1)	44 (32/8)	47 (35/1)	12 (9)	
Marital Status	Married	118 (45)	103 (39/3)	36 (13/7)	5 (1/9)	0/001
	Widowed and unmarried	12 (13/6)	32 (36/4)	34 (38/6)	10 (11/4)	

Need Help with Activities	No	125 (48/6)	100 (38/9)	29 (11/3)	3 (1/2)	0/001
	Yes	5 (5/4)	35 (37/6)	41 (44/1)	12 (12/9)	
Place of Residence	City	111 (41/4)	97 (36/2)	48 (17/9)	12 (4/5)	0/01
	Suburbs	19 (23/2)	38 (46/3)	22 (26/8)	3 (3/7)	
Regular Physical Activity	Yes	47 (60/3)	29 (37/2)	2 (2/6)	0	0/001
	No	83 (30/5)	106 (39)	68 (25)	15 (5/5)	
Education	Illiterate	56 (26/4)	86 (40/6)	58 (27/4)	12 (5/7)	0/001
	Primary	60 (56/1)	34 (31/8)	10 (9/3)	3 (2/8)	
	High school and above	14 (45/2)	2 (48/4)	2 (5/6)	0	
Job	Worker	36 (36)	45 (45)	17 (17)	2 (2)	0/001
	Employee	14 (70)	5 (25)	1 (5)	0	
	Free and homely	80 (84/3)	85 (74)	52 (22/6)	13 (5/7)	
Age	65-70	87 (49/2)	59 (33/3)	26 (14/7)	5 (2/8)	0/001
	71- 80	35 (27/6)	57 (44/9)	30 (23/6)	5 (3/9)	
	81 and above	8 (44)	19 (60/5)	14 (30/4)	5 (10/9)	
Addiction	Yes	25 (27/5)	39 (49/2)	27 (29/7)	0	0/002
	No	105 (40/5)	96 (37/1)	43 (16/6)	15 (5/8)	
Living Status	Only	5 (11/9)	17 (40/5)	16 (38/1)	4 (9/5)	0/001
	With wife	112 (44/8)	97 (38/8)	36 (14/4)	5 (2)	
	With children	13 (24/1)	20 (37)	16 (29/7)	5 (9/3)	
	With others	0	1 (25)	2 (50)	1 (25)	
General Disability		130 (37/1)	135 (38/6)	70 (20)	15 (4/3)	-

## Discussion

The results of the present study showed that the disability of the elderly was in the low range, but they were very disabled in the two areas of life activities and walking, and they had little disability in the area of self-care. Bagheri Kakhki et al.'s study showed that most of the elderly had little disability (10). In Mozafari et al.'s research, the results showed that 47% of the rural elderly in Ilam had moderate disability. Also, the highest level of disability was related to occupational activity and walking respectively (13).

Also, with increasing age, the degree of disability of the studied elderly increased. The results of the study showed that disability in the study group had a significant relationship with age, and with increasing age, the amount of disability increased (6). The findings of another study also confirm this finding (5).

This research showed that there is a relationship between disability and gender, so that severe and moderate disability was far more common in women than in men. The findings of the study by Mehrabian and colleagues also show that disability was more in women than in elderly men (14). The results of the study conducted on the elderly in Qom are in line with the findings of our study (5). Maybe this issue can be due to childbirth, breastfeeding, menopause, arthritis and osteoporosis.

Cases of severe disability were related to illiterate and elementary literate people. The results of Arsang et al.'s study showed that people with low education have more disability (5). The results

of a study conducted on the elderly in Amirkola indicate that with the decrease in the level of education, the disability of the elderly increases significantly (15).

Most of the elderly lacked regular physical activity and all cases of severe and moderate disability were related to lack of regular physical activity. These results are consistent with the findings of Samadi et al.'s study (16). Regular physical activity can delay disability.

The rate of severe and moderate disability in divorced, widowed and unmarried people is more than married people. The findings of a study conducted in this regard showed that disability is less in married elderly people than in elderly people without a spouse (10).

The severity of disability of the elderly who lived with their spouse or children was less than the elderly who lived alone or with other acquaintances. In this regard, the findings of a study showed that those who lived with other people other than their family had more disability (17).

About a quarter of the elderly people under investigation were taking drugs or addictive substances. Half of the addicts also reported moderate impotence. Some reports show the effect of addiction in increasing the severity of disability and show that addiction and consumption of cigarettes and alcohol are important risk factors for disability in the elderly (18).

The rate of severe disability in the city has been somewhat higher than in the suburbs. The results of a study in Brazil showed that the rate of disability was lower in the suburbs and rural areas (19). People who were employed had more disability. The results of the study by Vafai et al. confirm this finding (17).

## Conclusion

The results showed that there is a significant relationship between the disability of the elderly with age, gender, regular physical activity status, need for help, place of residence, addiction, marriage, job, lifestyle and literacy level. Considering the growth rate of the elderly population in the country, it can be expected that the number of disabled people will increase in the near future. Therefore, paying attention to the health and improving the quality of life of this vulnerable group is very important. It is suggested that similar research be done at the national level to get a general view of the disability of the elderly in the country. One of the limitations of the study was the possibility of low cooperation of the participants, which was obtained by a detailed explanation of the research objectives.

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## References

1. Borhaninejad V, Kazazi L, Haghi M, Chehrehnegar N, Quality of Life and Its Related Factors among Elderly with Diabetes, Iranian Journal of Ageing 2016;11(1):162-73.
2. Aseyedali M, Sadeghi Mahalli N, Norouzi Tabrizi K. A review on adult daycare centers in the world. Salmand: Iranian Journal of Ageing. 2019; 13(4):518-29.
3. Tak E, Kuiper R, Chorus A, Hopman-Rock M. Prevention of onset and progression of basic ADL disability by physical activity in community dwelling older adults: A meta-analysis. Ageing Research Reviews. 2013; 12(1):329-38.
4. Kooshyar H, Ghanbari Hashemabadi BA, Esmaili H, Parvandi Z, Ghandeharian F, Habibi R. Effects of Group Reminiscence Therapy on Disability of Nursing Home Residents in Mashhad—Iran 1390. Iranian Journal of Ageing. 2012;7(3):21-9.
5. Arsang-Jang S, Jafari-Koshki T, Afshari A, Arsang-Jang M. Prevalence of disability and related factors in elderly of Qom City. Journal title 2018; 4 (3).
6. Noei H, Sahaf R, Akbari Kamrani AA, Abolfathi Momtaz Y, Pourhadi S, Shati M. The Relationship Between Gender and Disability in the Elderly People in Tehran Municipality Pension Organization. Salmand: Iranian Journal of Ageing 2017; 12 (1) :6-17.
7. Chatterji S, Byles J, Cutler D, Seeman T, Verdes E. Health, functioning, and disability in older adults—present status and future implications. The Lancet. 2015;385(9967):563-75.
8. Huohvanainen E, Strandberg AY, Stenholm S, Pitkälä KH, Tilvis RS, Strandberg TE. Association of self-rated health in midlife with mortality and old age frailty: a -26-year follow-up of initially healthy men. Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences. 2016;71(7):923-8.
9. Torkaman Gholami J, Mohamadi Shahbolaghi F, Norouzi K, Reza Soltani P. The relationship between fear of falling and activity limitations among seniors of Ghaem Shahr city in 2013. Iranian Journal of Rehabilitation Research in Nursing. 2015; 2(1):45-52.
10. Baghery Kakhki S, Basiri Moghadam M, Sadeghmoghadam L. The Prevalence of Disability and Its Relationship with the Demographic Characteristics of the Elderly in Gonabad City, Iran, in 2019. Intern Med Today 2020; 27 (1) :34-47.
11. Melzer D, McWilliams B, Brayne C, Johnson T, Bond J. Profile of disability in elderly people: estimates from a longitudinal population study. BMJ. 1999; 318(7191): 1108-11.
12. Guillemin F, Bombardier C, Beaton D: Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. J Clin Epidemiol. 1993, 46(12):1417-1432.

13. Mozafari M, Salimi E, Bastami M, Azami M, Borji M. Disability status in the rural older adults in Ilam. *joge* 2016; 1 (1) :48-54.
14. Mehrabian F, Aminian MR, Heidarzadeh A. Study of age at Onset and Causes of Disability of Elderly People in Hospice (Nursing home) of Disabled and Elderly People of Rasht. *Journal of Guilan University of Medical Sciences*. 2017;26(101):46-57.
15. Hosseini S, Zabihi A, Jafarian Amiri S, Bijani A. The Relationship between Chronic Diseases and Disability in Daily Activities and Instrumental Activities of Daily Living in the Elderly. *J Babol Univ Med Sci* 2018; 20 (5) :23-29 .
16. Samadiv S, Bayat A, Taheri H, Joneid BS, Rooz-Bahani N. Knowledge, attitude and practice of elderly towards lifestyle during aging. *The Journal of qz University of Medical Sciences & Health Services* 2007; 1(11): 83-84.
17. Vafaei Z, Haghdooost A A, Alizadeh M, Dortaj E. Prevalence of Disability and Relevant Risk Factors in Elderly Dwellers in Isfahan Province-2012. *Salmand: Iranian Journal of Ageing*. 2014; 8(4):32-40.
18. Hewitt B, Turrell G, Baxter J, Western M. Marriage dissolution and health amongst the elderly: the role of social and economic resources. Available at: <http://melbourneinstitute.com/hilda/Biblio/wp/hewitt.pdf>
19. Parahyba MI, Veras R, Melzer D. Disability among elderly women in Brazil. *Rev Saude Publica* 2005; 39(3): 383-90.