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## ASSESSING THE PREVALENCE OF DISABILITY AND ITS RELATIONSHIP WITH DEMOGRAPHIC CHARACTERISTICS OF THE ELDERLY IN ZAHEDAN CITY IN IRAN

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**ABSTRACT:** Aging is among the phenomena more commonly discussed in world health in recent years. Disability is a good indicator to measure health status in the aging population. Accordingly, the primary objective of this study was to determine the prevalence of disability and its relationship with demographic characteristics of the elderly in Zahedan city in Iran in 2016. This is a cross-sectional descriptive-analytic study. Using two-stage random sampling, 400 seniors were selected in Zahedan and were studied. A researcher made questionnaire was used to collect demographic information and disability study instruments included WHODAS - 36 items without time code. Collected data were analyzed using the SPSS version 16 software using the chi-square test. Of 400, 218 individuals were female and 182 were male and the mean age of the participant's was  $73.21 \pm 6.82$  years old. The overall prevalence of disability among the elderly in Zahedan was 62.3%. The prevalence of disability had a significant relationship with age, education, occupation and income level ( $p < 0.05$ ), whereas no relationship was observed between disability with gender and marital status ( $p > 0.05$ ). The highest prevalence of disability was in the areas of understanding, communication and getting around, whereas the lowest cases were in the areas of getting along and living with others, and self-care. According to the findings of this study, welfare policies and providing service packages for the elderly of higher age, lower education, and lower income level as well as the unemployed and disabled elderly can help both the individuals and the community.

**INTRODUCTION:** Aging is among the phenomena more commonly discussed in the world health in recent years.

According to the World Health Organization, due to the increase in life expectancy and health issues, the population of this group has increased <sup>1</sup>. According to the definition of World Health Organization, people aged 60 years and above are called elderly <sup>2</sup>. Reports indicate that developing countries in Asia are aging faster than other countries <sup>3</sup>. For example, the overall growth rate of world population is 1.2% and the growth rate of world's elderly population is 1.9% <sup>4</sup>.

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However, these figures in Iran are 1.6% versus 2.5% respectively<sup>5</sup>. Based on the latest statistics from the Ministry of Health (2012), 8.2% of Iran's populations are over 60 years old and it is estimated that the ratio will have become 10.5% in 2025 and 21.7% in 2050<sup>6</sup>. This growth of the elderly population in Iran makes it essential to pay further attention to the quality of life and well-being of this group and to investigate the factors affecting their health<sup>7, 8</sup>. In general, disability is a good indicator of health status assessment in the aging population. According to the World Health Organization definition in the ICF, disability is a multi-dimensional issue with features such as the existence of disorder, reduction or loss of function in one or more organs or body systems, activity restrictions and the existence of barriers to the participation of the individual in the society<sup>9</sup>. Disability decreases the older people's independence and their quality of life and increases their dependence and causes growing requirements for support and admission in nursing home care and premature death.

On the other hand, disability reduces the income and imposes economic burden on the society<sup>10</sup>. Based on the theoretical framework of the World Health Organization, the performance of a person with a disability depends on the complex relationship of their health with individual and underlying factors. These factors include: age, gender, ethnicity, education, financial status and nutrition<sup>11, 12</sup>. Reports have shown that the causes and the extent of disability in different ages and between the two sexes differ. For example, in one study, it was found that age, sex, low education level and low income are associated with disability<sup>13</sup>. A study in Iran showed that with increasing age, disability in the elderly increased and that higher education was correlated with reduced disability in the elderly and disability in the elderly people without a spouse was more than those who had spouse<sup>14</sup>.

Aging and disability shows that although aging is naturally associated with reduced physical and cognitive function and increased disabilities, the condition in this period is mainly related with the behaviours during life such as lack of enough physical activity, experience of risky behaviours such as smoking and even living in a poor socio-

economic status. Hence, in many communities, to plan for specific policies for disability and aging has been emphasized<sup>15, 17</sup>. Iran is a young country and more than half of its population is under 30 years old. This has caused policy-makers to focus their major attention to the needs of young people in the society.

This is while today's young population reaches old age in the next two or three decades and this is something that cannot be easily ignored<sup>18</sup>. Given the significance of the aging period and the growing process of this population group in Iran and also considering that the awareness of the prevalence and factors associated with disability in the different regions, cultures and races can clarify the situation and help planning and policy making to support the elderly, this study examined the prevalence of disability and its relationship with demographic characteristics of the elderly in Zahedan (a relatively large city in south-eastern Iran whose absolute majority of the population are Persian and Baluch races) in 2016.

**MATERIALS AND METHODS:** This descriptive analytical cross-sectional study was carried out on 400 elderly people in Zahedan city in Iran in 2016. The sample size was calculated according to the results of the previous studies examining the prevalence of disability. The sampling was done through a two-stage random sampling. It should be noted that Zahedan has two regions whose lists along with their districts were first prepared and then five districts from each region were randomly selected and finally 10 allies were selected from each district using simple random sampling technique and about four elderly from each alley were studied.

This research used a researcher-made questionnaire to collect the demographic information of the participants. The instrument applied to assess disability included WHODAS II -36 items without time code. In general, the questionnaire assesses disability in six fields of understanding and communication, getting around, self-care, getting along with people, life activities and job and participation. First, the WHODAS II questionnaire was translated from English into Persian using back and forward<sup>19</sup> translation methods. In this method, the original version was simultaneously translated

into Persian by two translators and then it was translated back into English and eventually one person worked as coordinator to put together the Persian and English translations and prepared the questionnaire in Persian. Then, the validity of the instrument was confirmed using face validity and content validity by professors familiar with rehabilitation language. The reliability of the instrument was examined using test-retest method in a 10 day interval on 20 elderly and the correlation was obtained 0.81. Although the questionnaire could provide prevalence, type, and severity of disability among the elderly, this study, considered only the prevalence and type of disability among the elderly. In this questionnaire, Likert scale was used in which any answer was assigned a score of 0 to 4 (no disability = 4, mild disability = 3, moderate disability = 2, severe disability = 1, I've been disabled = 0) that the sum of the scores ranged from 0-144. According to the results, based on the procedure proposed by Rose<sup>20</sup> scores ranging from 0-108 represent different degrees of disability (higher scores shows less disability) and scores ranging from 109-144 reflect lack of disability. Inclusion criteria were the age range of 60 years old and higher, residency in Zahedan and consent to participate in the study.

The questionnaire was self-completed by the literate, and for the illiterate, the researcher read the

questions and recorded the answers. In addition, if the elderly was in a situation such as memory problems or hospitalization and was unable to answer, the questions were asked of the closest members of their family or another participant from the same alley or neighbourhood was replaced. After explaining about the purpose of study, written informed consent including the right of voluntary participation, confidentiality of information and the right to withdraw from the study at any time was obtained from all participants. For data analysis, the research data were collected, entered into SPSS-16 software and Descriptive (absolute and relative frequency) and analytical statistics (chi square test) were run and the significance level was considered  $P < 0.005$ .

**RESULTS:** In general, out of 400 elderly in this research, 218 people (54.5%) were female and 182 ones (45.5%) were male. The age ranges of the participants were 60 to 97 years old who's mean and standard deviation was  $73.21 \pm 6.82$ . 244 elderly (61%) had disabilities among which 136 (62.3%) individuals were female and 108 (59.3%) ones were male and 156 (39%) participants were without disabilities, of which 82 (37.7%) were female and 74 (40.7%) were male. According to **Table 1**, the prevalence of disability in three age groups of 60-70, 71-80 and 81< were 49.2%, 72.7% and 91.7%, respectively.

**TABLE 1: DEMOGRAPHIC CHARACTERISTICS AND ITS RELATIONSHIP WITH THE PREVALENCE OF DISABILITY IN ELDERLY PEOPLE LIVING IN IRAN CITIES**

Variable	Group	Number (%) of the elderly	With disabilities (Percent)	Without disabilities (Percent)	P-value
Age	70-60	234 (58.5)	49.2	50.8	<0.001
	80-71	121 (30.25)	72.7	27.3	
	≥ 81	45 (11.25)	91.7	8.3	
Gender	Female	218 (54.5)	62.3	37.7	0.811
	Male	182 (45.5)	59.3	40.7	
Education	Illiterate	204 (51)	70	30	0.009
	low level of literacy	161 (40.2)	54.6	45.5	
	With literacy	35 (8.8)	37.1	62.9	
Job	Practitioner	61 (15.25)	32.8	77.2	0.022
	Retired	27 (6.75)	50	50	
	Unemployed	208 (52)	62.5	37.5	
	Disabled	104 (26)	76.9	23.1	
Marital status	Married	245 (61.2)	59.6	40.4	0.771
	Widow(er)	144 (36)	63.2	36.8	
	Divorced	11 (3.8)	63.6	36.4	
Income level	≥ 700	241 (60.2)	68	32	0.037
	1400 to 700	115 (28.8)	53.9	66.1	
	≤ 1400	44 (11)	40.9	59.1	

The difference in the prevalence was statistically significant ( $p < 0.001$ ). The prevalence of disability in three levels of education including illiterate, low level of literacy and literate were 70%, 54.6% and 37.1%, respectively. This difference in prevalence was statistically significant ( $p = 0.009$ ) too. In addition, the prevalence of disability in three income levels  $\leq 700$ , 700 to 1400 and  $\geq 1400$ , were 68%, 53.9% and 40.9%, respectively, which was statistically significant ( $p = 0.037$ ). Moreover, the prevalence of disability in four groups of employed, retired, unemployed and disabled were 32.8%, 50%, 62.5% and 76.9% respectively, which was statistically significant ( $p = 0.022$ ) as well.

The prevalence of disability in females and males were 62.3% and 59.3%, respectively which was not a statistically significant difference ( $p = 0.811$ ). In addition, the prevalence of disability in the three conditions of marital status including married, widow(er) and divorced were 59.6%, 63.2% and

63.6% respectively which was not statistically significant ( $p = 0.771$ ) (**Table 1**).

According to **Table 2**, the highest prevalence of disability among men were in the fields of life activities and job (80.9%) as well as understanding and communication (69.4 %), and the lowest prevalence were in the fields of self-care (42.6%) and getting along with people (44%) respectively. Among females, the highest prevalence of disability were in the fields of comprehension and communication (73.8%) and getting around (72.7%), and the lowest prevalence of disability were in the fields of getting along with people (47.1%) and self-care (55%), respectively. The difference of disability prevalence between men and women was statistically significant only in life activities and job ( $p < 0.001$ ), but in other five fields, the difference of disability prevalence among men and women was not statistically significant ( $p > 0.005$ ) (**Table 2**).

**TABLE 2: PREVALENCE OF DISABILITY IN THE SIX FIELDS AND ITS RELATIONSHIP WITH GENDER IN THE IRANIAN ELDERLY LIVING IN CITIES**

Gender Variable	Male		Female		P-value
	With a disability (%)	Without disabilities (%)	With a disability (%)	Without disabilities (%)	
Comprehension and communication	69.4	30.6	73.8	26.2	0.333
Getting around	67.8	32.2	72.7	27.3	0.646
Self-care	42.6	57.4	55	45	0.119
Getting along and living with others	44	56	47.1	52.9	0.257
Life and job activities	80.9	18.1	59	41	0.001>
Participation	51.3	48.7	66.5	33.5	0.053

**DISCUSSION:** In this study, the prevalence of disability and its relationship with demographic characteristics of the elderly in Zahedan city in Iran were studied. The results substantiated that the prevalence of disability in the elderly in Zahedan was generally 62% with 62.3% females and 59.3% males, respectively. Most Iranian studies reporting on the prevalence of disability among the elderly are inconsistent with and far higher than that in the present study<sup>5, 10, 13-14</sup>. For instance, in the study by Mozaffari *et al.*, the frequency of disability among elderly Iranian was reported 87.3%<sup>14</sup> whereas in Vafayi *et al.*, it was reported 88.3%<sup>10</sup>. The difference in the reported prevalence of disability in the elderly people of Iran can be attributed to the different communities in the research study,

because Iran is a vast country with people of different cultures and ethnicities.

A bulk of studies outside Iran has reported the prevalence of disability among elderly people much lower than that in the present study and other Iranian studies<sup>21-26</sup>. For example, the frequency of disability among the elderly in India in the study by Mandel *et al.*, was reported 17.4%,<sup>21</sup> Wolin *et al.*, in America reported it 24%<sup>22</sup> and Patel *et al.*, in Mexico reported it 16.3%<sup>23</sup>. Compared to non-Iranian elderly, higher prevalence of disability in the Iranian elderly can be justified as the following:

- a. Rehabilitation treatments are time-consuming and consequently expensive and health insurance companies in Iran rarely cover



rehabilitation treatments. In addition, elderly people reaching the age of retirement have reduced incomes. This can reduce their access to appropriate rehabilitation treatment and the possibility of using rehabilitation aids and assistive devices for life activities.

- b. Patterns and ways of life of the elderly and lack of proper family diets especially lack of nutrients such as milk in the family food basket can be effective in disorders such as osteoporosis which ultimately increase disability.
- c. Lack of adequate facilities and physical spaces in the workplace (e.g. unsuitable chairs and tables for the staff and lack of appropriate equipment in factories, mines, etc. used by workers) and urban environments that can cause accidents and create disability in the society.

The results of this study indicated that the difference in the prevalence of disability between elderly men and women was very low and statistically insignificant. This finding is contrary to the findings of the previous studies so that in many previous studies, the prevalence of disability among older women was reported higher than that among older men<sup>10, 13, 24, 27-30</sup>. In this study, in general, the lowest prevalence of disability were in the fields of getting along with people and self-care, whereas the highest prevalence of disability were in the fields of understanding and communication and getting around which is partly consistent with previous studies<sup>5, 10, 13, 25, 33-34</sup>. For example, Hajbaqheri *et al.*, in Iran reported higher prevalence of disability in the fields of life activities and walking, and lower disability in self-care<sup>13</sup>, Posl<sup>32</sup> and Ozyuksel<sup>33</sup> and a research in North Korea,<sup>25</sup> reported the highest rate of disability in the fields of life activities and getting around.

On the other hand, some studies have reported that 20-80% of the elderly over the age of 70 years old face some degree of disability in life activities and self-care such as bathing, dressing, toileting and bladder and bowel control<sup>34</sup>. Comparing the prevalence of disability in the six fields of disability showed that significant difference

between men and women existed only in the fields of life activities and job. The reason for this finding could be that older men work significantly more than elderly women in hard jobs with higher attrition. In the study conducted by Shahbazi *et al.*, disability in terms of getting around, home and family responsibilities and social participation between men and women showed significant differences<sup>27</sup>.

In this study, the prevalence of disability in the age group of 60-70, 71-80 and  $81 \leq$  was respectively increased which is consistent with most previous reports on this issue<sup>5, 10, 13, 23, 35</sup>. In his study on the health status of the elderly, Nejadi found that age does not affect their disability<sup>36</sup> which is inconsistent with the findings of previous studies as well as this study; however in general, according to the results of previous studies and this study, it can be concluded that "disability increases with age." However, according to the fact that developing countries in Asia are aging faster than other countries, it can be predicted that in the future the number of disabled elderly of developing countries in Asia including Iran will increase. This issue reveals the necessity of the attention of developing countries including Iran to strategies for the prevention of disability in old age. This important objective could be accomplished through further and wider studies on predictive factors for disability in old age. In this study, most of the elderly surveyed were illiterate or had low levels of literacy and with higher educational levels, the prevalence of disability in elderly people decreased significantly. This finding is consistent with previous research findings in this field<sup>10, 13, 14, 21, 35, 36, 37</sup>.

It seems that with increasing levels of education, older people's information about healthy life styles and health promotion behaviours increases, which leads to less disability. The findings showed that the prevalence of disability was higher in the elderly people who were employed compared to the retired ones. This could be because of the monthly income of the employed and retired, and consequently their more favourable mental health than the unemployed and disabled ones. This group also maintain higher levels of satisfaction and social ties, while the disabled and unemployed elderly gradually face more limited social ties and

reduced level of activity and that their social relations decreases. In this study, by an increase in the income level, the prevalence of disability in the elderly decreased. Mozaffari *et al.*, found that by increasing level of income, disability significantly reduced<sup>14</sup>.

The findings by Miden *et al.*, show that disability reduces income level of the elderly and increases their need for help in daily life so that 85% of the elderly in the study by Miden required help in everyday life, and 40% required assistance in housekeeping activities<sup>38</sup>. It also appears that the elderly with lower income have less access to timely rehabilitation treatment and rehabilitation aids for life activities, which in turn could lead to increased disability. So, given the fact that "inability reduces income and reduced income causes increased disability", it can be concluded that disability and low income have a cause and effect relationship which calls for more comprehensive research in this regard. In this study, disability was not significantly related to marital status which is inconsistent with previous studies. So that in most previous studies, disability in elderly people with spouse was less than the elderly without spouse<sup>13, 14, 39, 40, 41</sup> Mozaffari *et al.*, explain the reason for this as higher activities and social relationships of married elderly and less activity and social relations of the elderly without a spouse<sup>14</sup>.

**CONCLUSION:** According to the findings of this study, risk factors for disability in the elderly include older age, lower education, lower income, being unemployed, or disabled. Therefore, by welfare policy and providing service packages for the elderly with higher age, lower education, and lower income levels as well as the disabled and unemployed elderly, the government can help them and the society. Still the point to be further investigated is that whether disability is related to gender and marital status or not. The findings obtained in this regard were contrary to most previous studies. It is therefore suggested to perform such research to more accurately determine disability prevalence and investigate the related factors in other cultural fields. Moreover, to gain an overview of the disability of the elderly in the society of Iran, it is suggested that more

comprehensive studies based on secondary data (secondary analysis) be performed.

**Ethical Considerations:** This research project was approved by the ethics committee of Zahedan University of Medical sciences and name and Specifications of patient were kept.

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