Prevalence of dementia in Boyerahmad county of Iran

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Abstract: Increasing life expectancy and welfare results in increasing the incidence and prevalence of age related disorders including dementia that causes serious problems for families and patients. Health authorities' awareness of diseases prevalence in a region can help them for better managing it. The aim of this study was evaluation of dementia prevalence in Boyerahmad county of Iran. This study was a cross sectional community based study. Participants were 804 cases, 65 years old and over. 402 people from urban and 402 from rural areas were selected using cluster sampling. Diagnosis of dementia was according to Persian version of Clinical Dementia Rating Scale (CDR). Collected data were analyzed using SPSS software. We used of the frequency tables and percentiles for describes and Chi-square test for inferences. The prevalence of severe dementia in this study was 4.8 percent, moderate dementia was 5.7 percent and mild dementia was 8.7 percent. Increasing age had a significant relationship with the disease, but sex and Location had not relation with dementia prevalence. The prevalence of this disease in Boyer Ahmad was more than most of the world including Europe, Asia and America.
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1-Introduction

Important changes have occurred in the age structure of the population over the last few decades because of a decrease in mortality and birth rates and an increase in life expectancy. As a result, an increase in all illnesses related to aging has been observed. In this context, cognitive disorders are especially significant. The most common causes of dementia are Alzheimer's disease and vascular disease. Both of these are progressive illnesses that lead to functional complications. Many studies conducted within developed countries have established the prevalence and risk factors specific to their population. For instance, studies in North America, the United Kingdom and Europe have reported that dementia affects from 1% to 6% of the population over the age of 65 years and 10% to 20% over the age of 80 years. In Asia, the few studies done in India, China, Sri Lanka, South Korea, and Taiwan suggest that dementia in general, and Alzheimer's disease in particular, is lower than in developed countries. (1–10) 24·3 million people have dementia today, with 4·6 million new cases of dementia every year (one new case every 7 seconds). The number of people affected will double every 20 years to 81·1 million by 2040. Most people with dementia live in developing countries (60% in 2001, rising to 71% by 2040). Rates of increase are not uniform; numbers in developed countries are forecast to increase by 100% between 2001 and 2040, but by more than 300% in India, China, and their south Asian and western Pacific neighbors. (11) In our knowledge there is no community based study of dementia prevalence in Iran to date. Thus this study conducted to evaluate prevalence of dementia in old age people of the Boyerahmad county of Iran.

2-Materia and Methods

The study was cross-sectional, performed from June to September 2010 in Boyerahmad county of Iran. The Boyerahmad Region is situated in southern Iran with a total population of 217,741. 96,786 of this population live in city and the reminder live in rural areas of the territory. Within the population, 4.1% were 65 years or older at the time of the study (2010). The region is notable for the low educational level of the elderly. Only 13.3% of people over 65 years old had education and 0.08% had university education. (12) The subjects were selected with stratified three stage cluster sampling; at first, the population was

stratified into two clusters (rural residents and city residents); secondly, the tongs (the first sampling unit) were relatively sampled according to the number of the bans (a subdivision of tong); thirdly, the bans (the second sampling unit) were chosen from the sampled tongs with equal probability; and finally, six households were selected systematically from the all households in the sampled bans with equal sampling probability. Finally, a total of804 household was selected. Data was collected using an interviewer administered validated Persian version of Clinical Dementia Rating Scale (CDR). The CDR was developed by Hughes et al. (1982) and revised by Berg (1988). It consists of six items for evaluation of memory, orientation, judgment and problem solving, social life, home life and hobbies, and self-management. It has five Likert-type scale anchoring from functionally normal (score 0), suspicious (score 0.5), mildly disturbed (score 1), moderately disturbed (score2), and seriously disturbed (score 3). The level of dementia determined according to the total score. Another questionnaire was used to collect Socio-demographic characteristics of the patients including their age, Gender, educational level, number of children, History of chronic diseases, Substance dependence and tests for Sensory impairment. Collection of data was done by health professionals after receiving detailed training about dementia, as well as collection of data, and interviewing. Informed consent was obtained from subjects or their guardian before conducting the study. Collected data was analyzed using the Statistical Package for Social Sciences (SPSS) software version 17. We used of the frequency tables and percentiles for describes and Chi-square test for inferences.

3- **Results**

This study was performed to evaluate the prevalence of dementia among old population of Boyerahmad County of Iran. Table 1 shows Socio-demographic characteristics of study population. Most of studied subjects were illiterate. Because the number of educated subjects were very low, thus we didn't divided them into subgroups according to level of education. In this region of Iran, the number of children is very high. Therefore 74 percent of subjects had more than 6 children. A large number of populations suffered from hypertension. 40 percent were nicotine dependent. In addition, opium dependence was 4 percent. About half of the subjects were visual and auditory impaired

Table 1. Socio-demographic characteristics of study population of 804 respondents in a community-based epidemiological survey, Boyerahmad County of Iran, June to September 2010

Socio-demographic characteristics	Number	Percent
1- Gender:		
Male	428	53.2
Female	376	46.8
2- Education level:		
Illiterate	713	89
Any education	14	11
3- Age:		
65-75	426	53
76-85	314	39
Over 85	64	8
4- Number of children:		
< 6	217	27
6-10	515	64
> 10	72	9
5- History of chronic diseases:		
Diabetes Mellitus	61	8
Hypertension	380	47
Epilepsy	15	2
Psychiatric disorders	106	13
6- Substance dependence:		
Nicotine	322	40
opium	31	4
7- Sensory impairment:		
Visual	375	47
Auditory	270	34

. Table 2 shows age-adjusted prevalence of dementia in the studied population. 12.4 percent of the studied population had suspicious dementia, 8.7 percent mild dementia, 5.7 percent moderate dementia and 4.8 percent severe dementia. The difference between three age groups in dementia was statistically significant. Therefore, with rising age the prevalence of dementia was increased. In the group of 65-75 years old group only 8% suffered from dementia. Whereas, this rate was 23.5% and 73% in the 75-85 and over 85 years old groups respectably.

Table 2. Age adjusted prevalence of dementia among 804 respondents, Boyerahmad County of Iran, June to September 2010

Age / Diagnosis	65-75	76-85	>85
No dementia	363(85.2%)	177(56.36 %)	8(12.5%)
Suspicious dementia	29(6.8%)	62(19.74%)	9(14%)
Mild dementia	22(5.16%)	37(11.78%)	11(17.2%)
Moderate dementia	9(2.1%)	22(7%)	15(23.4%)
Severe dementia	3(0.70%)	15(4.77%)	21(32.8%)
Total	426(100%)	314(100%)	64(100%)

$P<0.05$ $df=3$ $x^2=2.75$

Table 3. Prevalence of dementia among 804 respondents in a community-based epidemiological survey, Boyerahmad County of Iran according to gender, June to September 2010

Dementia	Female	Male	Total
No dementia	261(69.4%)	287(67%)	548(68.6%)
Suspicious dementia	44(11.7%)	57(13.3%)	101(12.6%)
Mild dementia	32(8.5%)	38(8.9%)	70(8.7%)
Moderate dementia	21(5.6%)	25(5.8%)	46(5.7%)
Severe dementia	18(4.8%)	21(4.9%)	39(4.8%)
Total	376(100%)	428(100%)	804(100%)

X^2=0.75 df=3 p>0.05

There was no statistically significant difference between males and females for dementia prevalence. (Table 3)

4-Discussion

Because of increasing the number of old people in recent decades, the health care system burden for caring this population would be growing in the future. The results of present study showed that prevalence of dementia in this region was 19.2%. This is more than its prevalence in other studies performed in Europe, Asia and America. Several factors may participate for this. 89% of the studied subjects were illiterates. Illiteracy is a risk factor for dementia. Also the prevalence of hypertension was 47% in the studied subjects. This factor may also contribute for per development of dementia too. (particularly vascular dementia). There was no statistically significant difference between females and males in the dementia rate. This differs from the results of mentioned studies. An interesting result of this study was the large dimension of family in this region. This can be an index of no development. Also the prevalence of opium and nicotine dependence was high in the studied population.

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