

Depression Prevalence and Underlying Risk Factors in the Elderly of Hamadan, Iran

Mohamad Ali Seif Rabiei ¹; Ali Ghaleiha ^{2,*}; Seyed Mohamad Hosseini ²; Mahshid Nikooseresht ³; Mahya Zahirnia ¹

¹Department of Community Medicine, Hamadan University of Medical Sciences, Hamadan, IR Iran

²Research Center for Behavioral Disorders and Substance Abuse, Hamadan University of Medical Sciences, Hamadan, IR Iran

³Department of Anesthesiology, Hamadan University of Medical Sciences, Hamadan, IR Iran

*Corresponding author: Ali Ghaleiha, Research Center for Behavioral Disorders and Substance Abuse, Hamadan University of Medical Sciences, Hamadan IR, Iran. Tel: +98-9123378337, E-mail: alighaleiha@yahoo.co.uk

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Background: Depression is the most frequent psychiatric disorder in the elderly. Nowadays, because of the rise in the absolute number and proportion of elders in societies, the numbers of elders with this condition may be increasing.

Objectives: This study was conducted to evaluate depression prevalence and its underlying risk factors in the elder population of Hamadan, Iran.

Patients and Methods: In a descriptive-analytic cross-sectional study, 240 over 65 year old subjects (121 males, 119 females), were enrolled in the study. Depression was diagnosed based on the Center of Epidemiological Studies Depression Scale Revised (CESD-R) questionnaire and pooled data were analyzed by SPSS 16 software (SPSS Inc. Chicago IL, USA).

Results: Of the total number of 240 elderly, 116 (48.3%) had depression (score 17 or more, based on CESD-R questionnaire). Women were significantly more affected (61.3% vs. 35.7%, P value < 0.001). Other factors, which revealed a significant relationship with depression, were: illiteracy, being jobless or retired, having a chronic disease and dissatisfaction of daily activities. After performing a logistic regression method, only two variables (sex and dissatisfaction of daily activities) were significantly related to depression in the study population.

Conclusions: In our study, depression had a remarkable prevalence in elderly, especially in women and in those who suffered from inactive or sedentary life.

Keywords: Depression; Iran; Aged; Risk Factors; Sedentary Lifestyle; Women

1. Background

With the increase of the elderly in modern society, an unprecedented number of these individuals are expected to be in need of psychiatric attention. Depression is the most frequent psychiatric disorder in the elder population (1). Geriatric mood disorders cause suffering, increase medical burden, worsen the outcomes of many medical conditions, and contribute to disability (2). Prevalence of depression is associated with the number of chronic medical conditions (3). Depression is among the 10 diseases that increase disability-adjusted life-years (DALY) the most (2, 4).

Several of the risk factors for depression in old age are (incident) physical disorders, sleep disorders or loss of spouse (1). Also, major depression is more frequent in urban than in rural residents (5). Depression worsens the course and prognosis of comorbid somatic disorders. A major consequence is the high suicide rate in the elderly. Depression is also a risk factor for other disorders like dementia or institutionalization (1). Mood disorders occur in the older geriatric population at a rate lower than

in younger adults. However, very high rates of depression occur in medically ill, disabled or institutionalized elderly persons (5). On the other hand, there are inverse associations between dementia and depression with overall physical activity (6). The relatively low prevalence of depressive syndromes identified in elderly populations may, in part, be due to methodological problems, including the tendency of elder persons to express psychiatric symptoms in somatic terms, their reluctance to recall and report psychiatric symptoms, and clinical use of diagnostic categories unsuitable for the elderly. The number of elders with bipolar disorder is increasing because the absolute number of elders is rising and the proportion of elders with this illness may be increasing. In addition to high medical morbidity, depression increases the perception of poor health and the utilization of medical services. Depressed patients had almost twice the number of appointments per year and almost more than twice the number of hospital days over the expected length of stay compared to non-depressed patients (5).

2. Objectives

This study was conducted to evaluate depression prevalence and underlying risk factors in the elder population of Hamadan, Iran.

3. Patients and Methods

This cross-sectional study was conducted during September 2012 to May 2013. Totally, 240 over 65 year old elders, who came to primary health care centers in Hamadan (one of the western cities in Iran) for routine care, were enrolled the study. We randomly selected six centers from all the 12 primary health centers in the area. Thereafter, we selected our samples consequently (40 subjects in each center) until the sample size was completed. We used the Center of Epidemiological Studies Depression Scale Revised (CESD-R questionnaire, which is frequently used in the USA and European countries for detecting depression in geriatrics. The questionnaire contains 20 questions and each answer is structured as a five degree Likert scale, from zero to five (worst situation). Depression was diagnosed when the total score was 17 or more. The SPSS 16 Software (SPSS Inc., Chicago IL., USA) was used for data analysis. For statistical inferences, we used chi-square, student t and logistic regression tests.

4. Results

From the 240 participants, 121 (50.4%) were male and 119 (49.6%) were female. Almost 70% of the samples were illiterate, 20% were under diploma, 6% had diploma and only 4% had academic degree. Of the participants, 79% of lived with their spouses and while 21% were widowed or divorced. Only 13% of participants were still working, whereas the rest (87%) were retired or jobless. Also, 45.8% were financially dependent. Chronic disease complaints were present in 62.5% of the participants. The majority of

participants, 84.4% of participants (203 people) did not use cigarette or any other substances.

Totally, 116 out of 240 participants (48.3%) had depression, according to CESD-R criteria for depression (score 17 or more based on the CESD-R questionnaire). Women were frequently more depressed compared to men (61.3% vs. 35.7%, $P < 0.001$, respectively). The relationship between depression and education was significant. Depressed patients were mostly illiterate persons (55% of all participants were illiterates, while 33.3% possessed academic degrees (P value = 0.01).

There was a significant association between depression and employment status. Therefore, that depression was more prevalent in jobless or retired participants compared to active workers (62.5% vs. 25.8%, $P < 0.001$). We found a statistically significant relationship between having chronic diseases and depression, (58% in chronic diseases vs. 32.6% in healthy elders, $P < 0.001$). Also, there was a significant association between daily activity and depression, which was more frequent in those who did not had enough daily activities (83.7% vs. 26.2%, $P < 0.001$). Depression was less frequent in married couples than in single ones, although the difference was not significant (46.35 vs. 56%, $P = 0.23$).

There was no significant relationship between depression and having children, although depression was less prevalent in those who had children (33.3% vs. 48.7%, $P = 0.13$). Living with the family reduced the chance of depression, yet the relationship was not significant (54.2% vs. 47.7%, $P = 0.2$). We did not find any significant relationship between cigarette smoking and depression (49.3% vs. 45.9%, $P = 0.11$). Finally, we performed a logistic regression analysis to evaluate the role of these variables in geriatric depression. Among the variables entered in the logistic regression equation (sex, education, job, chronic illness, daily activities, etc.), only two variables showed a significant relationship with depression. These variables were the gender ($B = 2.33$, $P < 0.001$) and daily activities ($B = 1.22$, $P < 0.001$) (Table 1).

Table 1. Summary of Logistic Regression Analysis for Variables Predicting Depression in the Elder Population of Hamadan, Iran ^a

Predictor	B ^b	SE B	Exp (B)	P Value
Sex	2.33	1.31	0.083	0
Education	1.75	1.41	0.174	0.21
Marriage status	1.38	1.29	3.97	0.28
Job	1.27	1.43	3.58	0.037
Chronic disease status	0.22	0.34	0.8	0.052
Living condition	0.54	0.65	0.58	0.4
Daily activities	1.222	0.52	0.059	0
Constant	1.76		5.85	

^a Abbreviations: Exp (B), Exponential B; SE B, Standard Error B; A $P < 0.05$ was considered as statistically significant.

^b B, Regression Coefficient.

5. Discussion

Depression is a chronic disease in many cases, and by the year 2020, is projected to reach the second place in DALY's ranking for all ages and in both genders (4). Based on CESD-R criteria, depression was a common problem (48.3%) in our participants. Similar studies which were conducted in Indiana and Maryland universities, revealed that significant depression symptoms were present in about 15% of the elder population, which is less common than in our study group (7, 8). The World Health Organization (WHO) also estimates that the point prevalence of depressive disorders in the elderly population worldwide varies between 10% and 20%, depending on cultural situations, which also is lower compared with our study group (9). Depression was more frequent in women than men in our study (61.3% vs. 35.7%). The most consistent finding in most studies assaying the prevalence of unipolar major depression is the sex difference of the illness, predominating in women compared to men (5, 10).

Although there are other studies which did not find any differences in depression prevalence between genders (8), we discovered a significant relationship between depression and educational level, which means depressed persons were mostly from the low educational level group. The relationship between depressive symptoms and low social class is also well documented. These individuals have a low level of education, lower income and poor living conditions, as well as a higher rate of unemployment and, ultimately, homelessness (5). Results of another study in undertaken at George Town Medical University indicate that depression is less frequent in educated persons (11).

Results of a study from Cairo also showed that a lower social class, insufficient income, partial independence and feelings of loneliness are significant predictors for depression (12). Although we did not find any significant relationship between depression and marriage status, other results indicate that, divorced, separated or widowed individuals are more depressed than the others who live with their spouses (5, 13, 14). However, we found that elders who live alone are more depressed than the others (54.3% vs. 45.7%). There was a significant relationship between employment status and depression, revealing that depressed persons were mostly jobless or retired and the most prevalent depressed groups were housewives. In the study of Tractenberg et al. a higher depression rate was related to lower economic productivity state (11).

Results from another study in Mississippi State University showed that productive activities are associated with fewer depressive symptoms in older adults (15). Chronic disease was related to depression in our study, which is similar to what has been reported in the literature (8, 16-18). Insufficient daily activities were related to depression too, and those who were satisfied with daily activities had

less depression (19). Cigarette smoking and alcohol abuse are important factors in depression in elder people and several studies have confirmed their roles in this subject (20-22). In our study, we did not find any significant relationship between cigarette smoking and depression, although smokers were relatively more depressed than non-smokers.

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