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Risk factors for depression in residents of gerontology center in Sarajevo

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ABSTRACT

Introduction: Depression is the most common mental problem in elderly and is often under-recognized or is inadequately treated, thus significantly affecting the quality of life of elderly people. The reasons for the occurrence of depression in the elderly are multiple. The most common are neurobiological and psychosocial risk factors as well as physical illness. The aim of this study is to determine the presence of the most common risk factors related to the degree of depression, determined by the geriatric depression scale.

Methods: This is cross-sectional, descriptive and analytical study undertaken on the sample of 150 psychologically and physically capable residents of the "The Gerontology Center" in Sarajevo older than 65 years. The following instruments were used for research: the Geriatric Depression Scale (GDS) and the modified questionnaire on risk factors important in the depression development.

Results: Women are more depressed than men (p<0.01). Depression severity increases with age (p=0.008). The marital status of respondents was significant factor affecting the GDS scores (p=0.009). GDS score and education are weakly correlated (p=0.07) and more educated are less depressed. Also, independently mobile elderly are less depressed (p<0.0005). GDS scores and presence of depression in younger age are dependent (p=0.004). Depression and subjective sleep disturbances are dependent (p=0.002).

Conclusion: The most common risk factors for depression in elderly are gender, age, marital status, history of depression in younger age and mobility.

Keywords: elderly; risk factors; geriatric depression scale; GDS

INTRODUCTION

Depressive disorder is a major public health problem and its prevalence takes the high fourth place in general public. It is the second most frequent health problem of female population (1). Depression, as the most common mental problem in elderly (2) is often not recognized, or is inadequately treated (3) which significantly affect the quality of life of the elderly (4). There are multiple reasons for the occurrence of depression in elderly. The most common are neurobiological and psychosocial risk factors as well as physical illness (5).

The combined results of prospective studies of risk factors state that five factors, namely: loss/grief, sleep disturbances, disability, previous diagnosis of

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depression and gender, are the most important risk factors for the depression occurrence (6, 7). Lower socio-economic status is proportional to the depression prevalence rate. The impact of education is more clearly seen in men than in women (longer formal education - lower depression prevalence rates). Other factors that are associated with the onset of depression are the existence of a family history of depression in gender, alcohol consumption (8) and smoking (9). Decrease of mental and physical abilities (10) and the weakening of the vision and hearing loss in older people increases the risk of depression (11). Knowledge on potential risk factors for depression in the elderly population could help health professionals to timely recognize it and to channel their activities to its treatment. The principle aim of this study is to determine the frequency of the most common risk factors for depression and their relation to degree of depression, determined by the geriatric depression scale.

METHODS

The study was descriptive, analytical and cross-sectional. We included 150 randomly selected, psychically and physically capable residents of the Public Cantonal Institution "Gerontology Center" in Sarajevo, older than 65 years, who voluntarily accepted to participate in the study. The criteria for exclusion of subjects were: age under 65 years, physical or psychical inability to complete the questionnaire. Out of the total number, 60% (90) were women, while the rest were men, 40% (60). Age ranged from 65 to 105.

We used Geriatric Depression Scale (12) to measure the depression severity, consisting of 30 Yes-No questions. Scores: 0-9 means no depression; 10-19: mild depression; 20-30: severe depression. We also used modified questionnaire on risk factors important in the development of depression.

Secondary source of data were medical records of the residents of Gerontology Centre in Sarajevo, and those sources were used for data verification. Age, sex, marital status, education level, physical mobility of the subjects and previously diagnosed depression were evaluated in relation to GDS.

Statistical analysis

For statistical analysis SPSS 16 for Windows (IBM, USA) was used. Mann-Whitney test was used to test the differences in the mean (median) of GDS scores between males and females. Kruskal-Wallis test was used to test the differences in the mean GDS score between groups stratified by marital status, educational level, and mobility of residents. Chi-square test was used to test the differences between the means of presence of depression in younger age and sleeping disturbances in residents. $P < 0.05$ was considered statistically significant.

RESULTS

By analyzing the gender structure of the sample and the degree of depression we noticed that women were more depressed than men.

The difference in the median of GDS score between men and women was statistically significant U=2007.00, p=0.008 (Figure 1). The median GDS score in males was 9.5, with the interquartile range (Q1-Q3) between 7.00 and 17.00. Females had the median GDS score 5 with interquartile range 9.75 to 19.00 points.

Depression severity increases with age and it is much more pronounced in women (p = 0.008) (Figure 2).

The marital status of respondents was significant factor affecting the GDS scores. Lower scores were observed in married respondents compared to single, widowed and divorced. These differences were statistically significant (Kruskal Wallis, U=11.59,
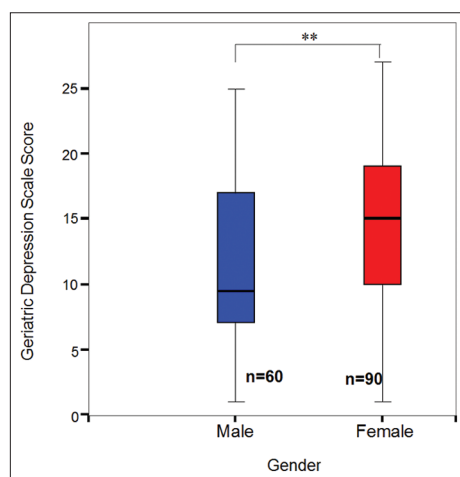
FIGURE 1. Geriatric depression scale score in male and female subjects. ** p<0.01

p=0.009) (Figure 3). Moreover, the depression was much more frequent among widowed and divorced respondents.

The frequency and distribution of GDS scores indicate that the most frequent category of depressed residents of the Gerontology Center in Sarajevo were widowed (Figure 4).

There were no statistically significant differences in the GDS scores stratified by level of education of the respondents (p=0.07). Although, there is an impression that the depression decreases with higher levels of education (Table 1)
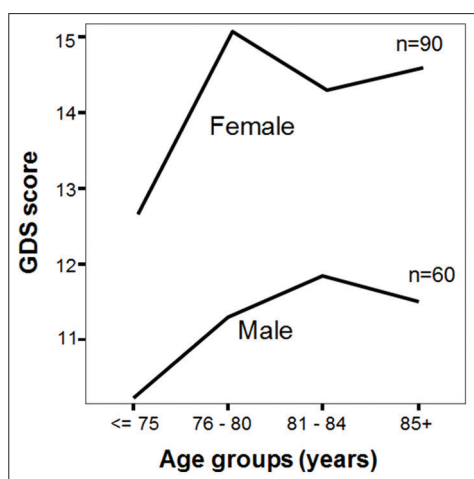

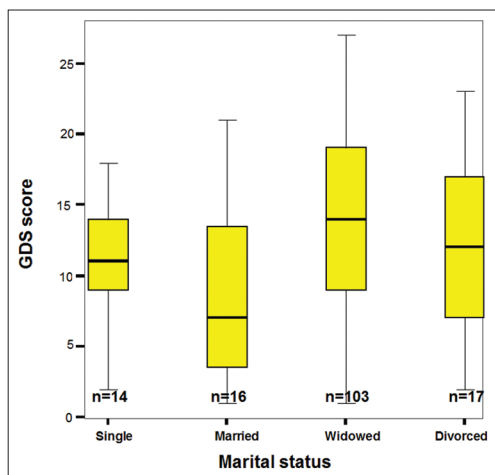**FIGURE 2.** Relationship between GDS score and age

FIGURE 3. Relationship between GDS score and marital status. Married respondents were less severely depressed

Chi-square independence test confirmed that presence of depression in respondent's medical records, diagnosed in young age, was more frequently found in respondents with higher GDS scores and that dependence was significant (χ^2 (2, n=150) = 11.304, p=0.004). Out of 133 patients without a diagnosis of depression in their young age, 83 of them according to the GDS scale had unrecognized depression. Only two patients with a diagnosis of depression in their young age were not depressed according to the GDS scale (p=0.004).

GDS score and sleeping disturbance are dependent (p=0.002). Residents without sleeping disturbances (N=57) were without depression in 43.9% of cases, or had mild depression in 50.8% cases. Only 5.3% were severely depressed (Table 2).

The difference in GDS scores between physically mobile, mobile with use of aids- and immobile respondents are shown in Table 3.

Kruskal Wallis test showed that significant differences in the level of depression between the mobile and respondents using the mobility aids χ^2 (2, N=150) = 16.89, p<0.0005. Among others there was no statistically significant difference.

DISCUSSION

By the analysis of important factors for the development of depression in the elderly people we found that females are more susceptible to depression. The same was noted by Ariba L. et al when conducting study in nursing homes during 2010 in Tunisia (13). Large representative study on depression of old people in the community, conducted in the UK in 2002, also found that female gender and age are related to the depression development (14). Our research shows that depression increases with age and is significantly more pronounced in women. Cross-sectional study, conducted in the community, in Mexico City, among people over 60 years of age reported a slightly higher rate of depression in respondents older than 80 years compared to younger elderly (15). We have shown that the differences in the mean (median) on a depression scale between groups of "married" and "widowed" are statistically significant (p=0.004).

With correlation tests, we have confirmed that the depression scale and education are weakly correlated
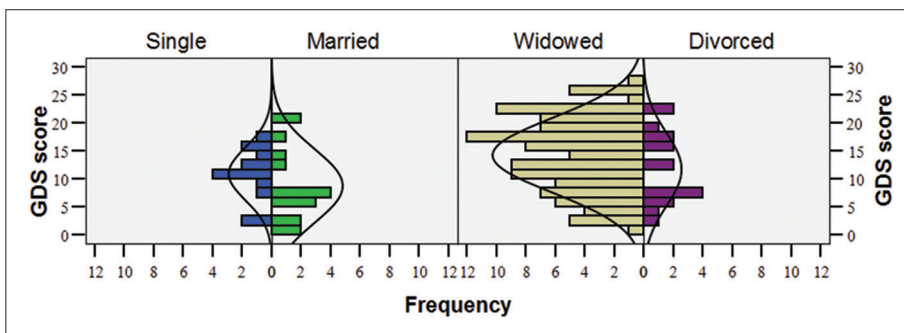
FIGURE 4. Frequency and the distribution of GDS scores according to marital status

TABLE 1 . The impact of education on GDS score

Education level	N	Mean GDS score	Std. deviation	Min.	Max.	25th	50th	75th	U	p
No formal education	18	15.66	5.12	4.00	23.00	12.75	17.00	19.00	8.67	0.07
Grammar	41	14.31	6.65	1.00	26.00	9.00	15.00	19.50		
High school	48	11.85	7.26	1.00	26.00	5.25	11.00	17.75		
Colledge	23	12.82	7.09	2.00	25.00	8.00	12.00	19.00		
University	20	10.85	5.45	4.00	27.00	7.00	10.00	13.00		

Kruskal-Wallis test was used to test the significance between the groups

TABLE 2. Sleeping disturbances and Geriatric depression scale

Sleeping disturbance present	GDS score						Sum	
	No depression		Mild depression		Severe depression			
	N	Percentage	N	Percentage	N	Percentage	N	Percentage
No	29	50.9	25	43.9	3	5.3	57	100.0
Sometimes	8	26.7	16	53.3	6	20.0	30	100.0
Yes	15	23.8	29	46.0	19	30.2	63	100.0
Total	52	34.7	70	46.7	28	18.7	150	100.0

Chi-square independence test confirmed that the GDS and sleep disorders are dependent χ^2 (4, n=150) = 17.376, P=0.002.

TABLE 3. Relationship between geriatric depression scale and mobility of residents

Mobility	N	Percentiles			p
		25th	50th (median)	75th	
Immobile	10	9.50	15.50	21.25	<0.0005
With aids	48	12.00	16.00	20.75	
Mobile	92	6.00	10.00	17.00	

Kruskal-Wallis test was used to test the significance between the groups.

(p=0.014) and that those more educated are less depressed. The same relationship between depression and level of education was confirmed by multiple studies, such as study conducted in our country among people over 65 years, treated in primary health care (16), study conducted in the Primary Health Care Center Ćuprija, Serbia (17) and a survey among hospitalized persons older than 65years in General Hospital Novo Mesto in Slovenia on internal and surgical departments (18). Marino et al. in Brazil in 2010 conducted a study on the incidence of depression which confirmed that risk factors: female gender, being widowed and a low level of education are important in the depression development (19).

We confirmed that history of depression and Geriatric Depression Scale are dependent, which is also noted by Tiong WW et al. in Singapore in a study conducted in elderly homes during 2013 (20).

Mobility, a significant factor in the health of elderly, in our study showed as significant for the presence of depression (p<0.0005). This also confirmed study of Sarro-Maluquer et al. conducted in Spain during 2013 (21).

The physical condition of the person-functional status is the variable associated with depression according to the study among elderly people living in home for elderly in Hong Kong, which stated that participants with poorer functional status are more likely to have depression, and that if their functional status is distorted or worsened, their chance of developing depression increases by 1.96 times (22). Descriptive analytical study, conducted in a nursing home in Tunis confirmed the dependence of depression and functional status (23).

The same results about dependent relation between depression and sleeping disturbance have got Cong L. at all (24) conducting research in community-dwelling elderly in China. They also found that disturbed sleep is risk factor for depression in old age.

CONCLUSION

The most common risk factors for depression in the elderly are gender, age, marital status, history of depression in younger age and mobility. Women are more depressed than men. Depression severity increases with age. Geriatric Depression Scale and education are weakly correlated and more educated are less depressed. Mobile elderly are less depressed. Health professionals need to develop interventions for the prevention and control of depression considering confirmed risk factors for its occurrence.

COMPETING INTERESTS

The authors declare no competing interests.

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