ORIGINAL ARTICLE

Screening of undiagnosed depression among elderly primary care patients: a cross-sectional study from the Republic of Srpska, Bosnia and Herzegovina

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ABSTRACT

Aim To examine the prevalence of undiagnosed depression among primary care elderly patients in the entity of the Republic of Srpska (Bosnia and Herzegovina) as well as the sociodemographic and clinical risk factors associated with depression.

Methods A cross-sectional study was conducted between April and June 2019 in nine towns of the Republic of Srpska. The study sample included 1,198 primary care patients older than 65 years of age. Research instruments included a sociodemographic questionnaire and Geriatric Depression Scale - Short Form (GDS-SF).

Results Positive screening test (GDS-SF score > 5), which indicates depression was found in 484 (40.4%) participants. Multivariate regression analysis showed that lower education levels [OR = 1.565, 95% CI (1.13-2.17)], divorced and widowed [OR = 1.366, 95% CI (1.16-1.62)], poor financial situation [OR = 1.690 , 95% CI (1.25-2.29)], non-home residents [OR = 2.200, 95% CI (1.41-3.44)], non-hobby patients [OR = 2.115, 95% CI (1.54-2.91)], non-friends [OR = 3.881, 95% CI (2.70-5.57)], patients suffering from chronic pain [OR = 2.414, 95% CI (1.72-3.39)], patients with daily life limitation activities [OR = 1.415, 95% CI (1.03-1.95)], patients with three or more chronic diseases [OR = 1.593, 95% CI (1.12-2.27)], patients using five or more drugs [OR = 1.425. 95% CI (1.00-2.03)], and patients with history of previous depression [OR = 2.858, 95% CI (1.94-4.21)] were at higher risk for depression.

Conclusion The prevalence of undiagnosed depression in the elderly in Republic of Srpska is high. Future strategies are needed to strengthen screening of geriatric depression in primary health care.

Key words: age, Bosnia and Herzegovina, depression, depressive disorder, Primary Health Care, patients

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INTRODUCTION

The world's population is ageing rapidly. Between 2015 and 2050, the proportion of the world's elderly population is estimated to almost double from about 12% to 22%. In absolute terms, this is an expected increase from 900 million to 2 billion people over the age of 60. Elderly people face special physical and mental health challenges which need to be recognized (1).

Depression is one of the common problems in the elderly population and a common cause of poor functioning of these individuals with reduced quality of life. People with geriatric depression have reduced life satisfaction, social isolation, loneliness, decreased cognitive function, decreased daily life activities and increased risk of suicide. Because of their problems, they use the health system services more often (2). The World Health Organization (WHO) has found that the prevalence of depressive disorders in the elderly is between 10 and 20% worldwide, varying from country to country (3,4). It is estimated that around 300 million people suffered from geriatric depression in 2015 worldwide (5).

Studies have shown that many associated factors contribute to depression of the elderly. Thus, research in South Africa has shown that the most important determinants related to the prevalence of depression were female gender, widowhood, and a negative subjective sense of health, while positive marital status was defined as a protective factor (6).

A study in Scandinavia found that the prevalence of major depression in the elderly ranged between 0.9% and 9.4% in people living in their own households, while the prevalence was higher in institutionalized persons (14% to 42%). The most important predictors of depression are female gender, somatic diseases, impairment of cognitive function, functional impairment, lack or reduction of social contacts and history of previous depression (7). According to the National Institute of Mental Health, more than 6 million Americans over the age of 65 suffer from depression. A large percentage of those cases, though, are never identified or treated (8). The Swedish National Study on Aging and Care found that the prevalence of depression in the Swedish population aged 60-104, as measured by the Geriatric Depression Scale was 9.2% (9). A Nepalese survey on the prevalence of depression in the elderly found that more than half of the subjects had significant signs of depression (10).

In primary health care setting, depression among senior citizens is often not recognized because the symptoms may mimic other medical conditions. Therefore, depression is often untreated (1,11). Elderly individuals suffering from depression have higher morbidity and mortality, impaired neuropsychological health, and a higher dependence in performing daily activities of life (12). Depression in the elderly people has a significant impact on the overall health, frailty, and direct healthcare costs (1,13,14).

The epidemiological data in Republic of Srpska (RS) on the prevalence of depression in the elderly are lacking. Therefore, the aim of our study is to determine the prevalence of undiagnosed geriatric depression among primary care patients as well as the sociodemographic and clinical risk factors associated with depression.

PATIENTS AND METHODS

Patients and study design

A cross-sectional study was conducted in nine towns of RS: Banja Luka, Doboj, Bijeljina, Sokolac, Foča, Trebinje, Gacko, Nevesinje and Rudo (covering Northern, Southern, Eastern and Western areas of Bosnia and Herzegovina).

With the population size of 190,730 inhabitants older than 65 years of age, calculating a 5% error with a confidence level of 95%, and CI 2.88, the estimated sample size was assessed to be 1151. A simple random sample selection was made from the geriatric patients aggregated across 12 family practices. Each family practice chose a disproportionate sample of every third geriatric patient, who visited their family physicians between April 1st and June 30th, 2019, and who signed written informed consent. Exclusion criteria were: currently undergoing depression treatment, having psychotic disorders or dementia, and being nursing homes resident. All study participants were informed about the objectives of the study. Of 1550 geriatric patients who visited a family physician in the study period, 1198 were assessed for eligibility and completed the questionnaires.

The Ethics Committee of the Health Center Banja Luka has given consent to conduct research. Directors of the health centers in which the re-

search was conducted gave their consent to conduct the research in their institutions. The study was checked in accordance with the Declaration of Helsinki, and all surveyed patients signed a written consent to participate in the study.

Methods

For the purpose of the research, a socio-demographic questionnaire was designed and it included data on age, gender, place of residence, education level, marital status, financial situation, hobby, social contacts (socializing with friends), chronic pain, loss of a close person in the last 12 months, restriction in activities of daily living, chronic illness, polypharmacy (use of 5 or more drugs), and previous episodes of depression.

To examine the presence of depression, the Geriatric Depression Scale-Short Form (GDS-SF) was used (15,16). GDS-SF consists of 15 Dichotomous questions, asking for a Yes/No. The total score ranged from 0-15. According to the categorical scoring levels, a score of 0-5 was considered normal, >5 suggested depression, and ≥10 was highly indicative of depression. GDS-SF translation into the Serbian language and pilot testing had been carried out previously (17). Cronbach's α for the Serbian language was 0.85 and it was considered to be good.

Statistical analysis

Data were presented in at least 95% of the included patients. Categorical variables were presented as numbers and percentages and compared using the $\chi 2$ test. Continuous variables were expressed as average with standard deviation or median with the first and third quartile and compared using a Student T test or Mann-Whitney U test test according to the data distribution and number of groups. The Kolmogorov-Smirnov test as well as visual assessment were used to assess the normality of distribution of all continuous variables. All significant risk factors from univariate analysis were used in the multivariate logistic regression analysis in order to identify predictors of depression.

RESULTS

The survey included 1,198 patients (655 female, 543 male). Most of the patients were aged 65-80 years, 947 (79.05%), while at the age of 80 and over there were 251 (20.95%) patients. There

Table 1. Characteristics of elderly primary care patients with undiagnosed depression

Variable		No (%) of patients				p
		No signs of depression	Low level of depression	High level of depression	Total	
Gender	Male	343 (63.2)	91 (16.8)	109 (20.1)	543	0.072
	Female	371 (56.6)	129 (19.7)	155 (23.7)	655	
Age	65-79	603 (63.7)	180 (19.0)	164 (17.3)	947	<0.001
	≥ 80	111 (44.2)	40 (15.9)	100 (39.8)	251	
Place	Rural	226 (49.0)	92 (20.0)	143 (31.0)	461	<0.001
	Urban	488 (66.2)	128 (17.4)	121 (16.4)	737	
Education	Primary school	196 (41.8)	103 (22.0)	170 (36.2)	469	<0.001
	High school/ university	518 (71.2)	116 (15.9)	94 (12.9)	728	
Marital status	Married	507 (69.1)	132 (18.0)	95 (12.9)	734	<0.001
	Divorced	39 (50.0)	19 (24.4)	20 (25.6)	78	
	Widow	168 (43.5)	69 (17.8)	149 (38.6)	386	
Bad financial situation	Yes	189 (40.8)	103 (22.2)	171 (36.9)	463	<0.001
	No	525 (71.4)	117 (15.9)	93 (12.7)	735	
Living in own home	Yes	647 (62.0)	182 (17.4)	215 (20.6)	1044	<0.001
	No	67 (43.5)	38 (24.7)	49 (31.8)	154	
Hobby	Yes	397 (78.1)	76 (15.0)	35 (6.9)	508	<0.001
	No	317 (45.9)	144 (20.9)	229 (33.2)	690	
Friends	Yes	642 (71.6)	153 (17.1)	102 (11.4)	897	<0.001
	No	72 (23.9)	67 (22.3)	162 (53.8)	301	
Chronic pain	Yes	307 (44.6)	153 (22.2)	229 (33.2)	689	<0.001
	No	407 (80.0)	67 (13.2)	35 (6.9)	509	
Recent lost (< 12 months)	Yes	86 (42.8)	35 (17.4)	80 (39.8)	201	<0.001
	No	628 (63.0)	185 (18.6)	184 (18.5)	997	
Restriction in daily life activities	Yes	252 (43.8)	122 (21.2)	202 (35.1)	576	<0.001
	No	462 (74.3)	98 (15.8)	62 (10.0)	622	
Chronic illness	1-2	529 (67.7)	129 (16.5)	123 (15.7)	781	<0.001
	≥ 3	185 (44.4)	91 (21.8)	141 (33.8)	417	
Polypharmacy (≥5 drugs)	Yes	216 (42.1)	115 (22.4)	182 (35.5)	513	<0.001
	No	498 (72.7)	105 (15.3)	82 (12.0)	685	
Prior depression	Yes	65 (28.0)	50 (21.6)	117 (50.4)	232	<0.001
	No	649 (67.2)	170 (17.6)	147 (15.2)	966	

Table 2. The impact of clinical and socio-demographic characteristics on the prevalence of depression according to uni- and multivariate analysis

Variable	Univariate			Multivariate		
	OR	95% CI	p	OR	95% CI	p
Female	1.313	1.04-1.66	0.022	0,945	0.73-1.35	0.945
Age ≥ 80	2,211	1.67-2.93	<0.001	1.300	0.89-1.90	0.177
Rural place	2,038	1.61-2.56	<0.001	1,088	0.78-1.52	0,625
Primary school only	3,443	2.70-4.39	<0.001	1,565	1.13-2.17	0.007
Divorced/Widow	1,711	1.51-1.94	<0.001	1,366	1.16-1.62	<0.001
Bad financial situation	3.624	2.84-4.63	<0.001	1.690	1.25-2.29	0.001
Not Living in own place	2.116	1.50-2.98	<0.001	2.200	1.41-3.44	0.001
Without Hobby	4.208	3.25-5.45	<0.001	2.115	1.54-2.91	<0.001
No Friends	8.008	5.92-10.82	<0.001	3.881	2.70-5.57	<0.001
Chronic pain	4.965	3.81-6.47	<0.001	2.414	1.72-3.39	<0.001
Recent lost	2.276	1.67-3.10	<0.001	1,168	0.79-1.74	0,443
Restriction in daily life activities	3.712	2.91-4.74	<0.001	1.415	1.03-1.95	0.034
Chronic illness (≥ 3)	2,633	2.06-3.36	<0.001	1.,593	1.12-2.27	0.010
Poly-pharmacy (≥5 drugs)	3.662	2.87-4.67	<0.001	1,425	1.00-2.03	0,048
Prior depression	5.260	3.83-7.22	<0.001	2.858	1.94-4.21	<0.001

OR, odds ratio; 95% CI, confidence interval;

were 737 (61.52%) patients in the urban area, and by education level, the majority had completed high school or college, 728 (60.77%). In terms of marital status, most patients were married, 734 (61.27%). Most patients stated that they were not in a bad financial situation, 735 (61.35%), and that they lived in their own home, 1044 (87.15%). Most stated that they had no hobby, 690 (57.59%), but socialized with friends, 897 (74.87%). More than half of the patients suffered from chronic pain, 689 (57.51%), and there was no limitation in their daily activities, 622 (51.92%). Fewer surveyed patients had 3 or more chronic diseases, 417 (34.81%) and no polypharmacy, 685 (57.18%). There were 232 (19.36%) patients with a history of previous depression and 201 (16.77%) had a recent loss within one year (Table 1).

Depressive symptoms (GDS SF score >5) were reported by 485 (40.4%) patients; while 22.4% of patients had more severe symptoms, highly indicative of depression (score>10) (Figure 1).

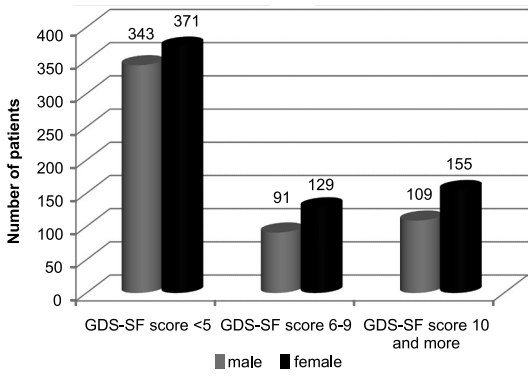

Figure 1. Geriatric depression scale (Short Form) score in male and female elderly primary care patients

Unilateral regression analysis showed that female gender, age ≥80, rural housing, low education, living without spouse, poverty, lack of social support, presence of chronic pain, recent loss, limitation in activities of daily living, presence of 3 or more chronic illnesses, use of 5 or more drugs in continuous therapy, and earlier depression all significantly contributed to the onset of depression.

Multivariate regression analysis showed that low education level (no school or primary school) was a risk factor for depression [OR = 1.565, 95% CI (1.13-2.17)]. Being divorced or widowed [OR = 1.366, 95% CI (1.16-1.62)], having low income [OR = 1.690, 95% CI (1.25-2.29)], not living in their own home [OR = 2.200, 95% CI (1.41-3.44)], having no hobby [OR = 2.115, 95% CI (1.54-2.91)], being socially isolated [OR = 3.881, 95% CI (2.70-5.57)], suffering from chronic pain [OR = 2.414, 95% CI (1.72-3.39)], having limitation in daily life activities performance [OR = 1.415, 95% CI (1.03-1.95)], having three or more chronic diseases [OR = 1.593, 95% CI (1.12-2.27)], using five or more drugs [OR = 1.425, 95% CI (1.00-2.03)] and having a history of previous depression [OR = 2.858, 95% CI (1.94-4.21)] were determinants of depression (Table 2).

DISCUSSION

The results of our study showed a high prevalence of patients with positive GDS–SF on geriatric depression, previously undiagnosed in primary care patients (40.4%). In the study in South Africa, Padayachey et al. obtained similar results, with the prevalence of depression of 40% (6).

Results of a study conducted in Ireland in primary care showed a high prevalence of depression in people over 50 years of age; about two-thirds of depressed individuals did not use antidepressants or antipsychotics, indicating the need for increased attention by healthcare professionals to detect depression early (18). A Bangladesh study (19) showed a high prevalence of geriatric depression in healthy people aged 60-80 years (36.9%), which is similar to the results of our study; the most important risk factors for depression included living in rural areas, a history of previous depression or depression in the family, not engaging in daily life activities, not exercising regularly, having no poor diet and not engaging in religious practices regularly. Most authors cite the presence of chronic conditions in their research as an important determinant of geriatric depression (20).

Elderly patients often suffer from chronic obstructive pulmonary disease (COPD) and asthma, and depressive symptoms occur more frequently in this group of patients (21). A study in Nepal showed the prevalence of undiagnosed depression in patients with hypertension of 15% (22). The results of our study have shown that the presence of associated chronic diseases is a significant risk factor for depression, suggesting the need for screening of these patients for depression.

Although the majority of authors (23-25) proved that geriatric depression was more common in women, the results of our study did not show a significant difference in the geriatric population among females vs. males. As a reason for this phenomenon, we consider the situation that in our country, women, after retirement, are much more engaged in domestic and other household chores, feeling more useful, which could be a reason for the lower prevalence of depression in our respondents than in other studies.

Comparing the results of other similar studies conducted in other countries, the associated risk factors for geriatric depression are the same or similar.

One of important reasons for the high percentage of undiagnosed depression in elderly patients in Republic of Srpska is the fear of creating addictions and side effects of antidepressant drugs and the stigma of going to a psychiatrist and using psychoactive drugs. Medical disease treatment is still more socially accepted compared to the treatment of mental disorders, which is why most patients somatize their illnesses and do not receive adequate treatment.

Many authors, considering that geriatric depression is a global problem worldwide, recommend mass screening programs for early detection of depression in the elderly. Primary care provides good opportunities to identify undiagnosed mental disorders, especially in patients with somatic comorbidities (26).

Given that elderly with depression are at risk for dementia, coronary heart disease, stroke, carcinoma, and suicide, the need for disease prevention is imposed, especially in patients with underlying known risk factors. In order to better solve this problem, it is necessary to cooperate with physicians in primary health care with secondary and tertiary levels of health care (27,28).

To our knowledge, this is the first study exploring the prevalence of geriatric depression among the population of the Republic of Srpska. The sample size is large and representative of the country. However, there are several limitations to be discussed. The cross-sectional design allowed data collection at a single point of the time. There might be other risk factors associated with geriatric depression, not analyzed in the current study. Future, longitudinal studies exploring the effectiveness of the mandatory screening of geriatric depression in family medicine are required.

In conclusion, the results of this study showed a high prevalence of participants with positive screening test on geriatric depression, previously undiagnosed, among primary care patients in the Republic of Srpska. Depression is associated with a number of associated risk factors, and special attention should be paid to the patients having them. To address psychological well-being of elderly individuals, future strategies are needed to strengthen screening and early detection of geriatric depression in primary health care, which is the point of the first contact between patients and healthcare system.

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Competing interest: None to declare.

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