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Psychiatric Morbidity Among Older Hospitalized Patients

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ABSTRACT

Background: Globally, life expectancy is increasing, leading to an equal proportion of elderly and young individuals, which carries extensive implications. In Bosnia and Herzegovina (BiH), the average age at death in 2021 was 77 years, positioning BiH in the middle of the global list of average life expectancy. Current studiesinvestigate whether the prevalence of psychiatric disorders increases or decreases with age, but results are inconsistent regarding the role of age.There is no prior research on mental disorders in the elderly population in BiH. The experience of the previous war in BiH and the post-war complex "transitional period" have been associated with specific challenges to the mental health of this population, inspiring our research topic. **Objective:** The aim of this study was to investigate the psychiatric morbidity in hospitalized individuals aged≥55 years. **Methods:** The sample consisted of all patients over age 55 treated at the Department of Psychiatry in Tuzla between January 2018 and December 2020 (N=637), divided into four age categories. Data were obtained from medical records, and for research purposes, a specific questionnaire was constructed. **Results:** The predominant psychiatric morbidity stemmed from the category of affective disorders, most common within the "55-64 years" age group, while organic mental disorders were more prevalent in other age groups.Substance use disorders were present in patients aged "55-64 years", with a sharp decline in their prevalence in older age. Female participants had a significantly higher prevalence of affective, psychotic, neurotic, and stress-related disorders, whereas male participants exhibited an increased prevalence of organic mental and substance use disorders. **Conclusion:** In total sample, the most prevalent diagnoses belong to the category of affective disorders. Female were most frequently diagnosed with affective disorders, whereas organic mental disorders and substance use disorders prevail in male.
Keywords: morbidity, elderly, mental disorders, Bosnia and Herzegovina.

1. BACKGROUND

Statistical data indicate an extension of the human lifespan from 46.5 years in 1950 to approximately 73.4 years in 2023, with a projected increase to 77.0 years by 2050 (1, 2). This demographic shift will result in an equal number of elderly individuals as there are young, carrying extensive consequences globally (3). According to the Agency for Statistics of Bosnia and Herzegovina (2016), the average age at death in 2021 was 77 years, positioning our country in the middle of the global average life expectancy list (4). Older adults are vulnerable to mental disorders and face unique physical and mental health challenges. Research on the prevalence of mental disorders in older individuals in the European context has shown a rate of 23.3% (5). Globally, the most common mental disorders in older adults include dementia (5%-8%), depression (7%), anxiety disorders (4%), and substance use disorders (1%) (6). The cumulative experience of stress represents a risk factor for mood disorders, and the presence of stress and mental illnesses can contribute to accelerated aging, as supported by research on the impact of psychological stress on rat genes (7). In the literature, there is debate regarding whether the frequency of psychiatric disorders increases or decreases with age, with mixed results concerning the role of age. An American study on a nationally represen-

tative sample of 12,312 older adults suggests a decline in psychiatric disorders with advancing age. Additionally, women exhibited a higher prevalence of mood and anxiety disorders, while men had a higher prevalence of substance use disorders and personality disorders, with gender differences in most psychiatric disorders decreasing with age (8). On the other hand, research on mental disorders in older individuals in hospital settings has mainly focused on specific psychiatric disorders or samples consisting of older patients hospitalized in general hospitals or residing in long-term care facilities. To our knowledge, no research has been conducted in Bosnia and Herzegovina (BiH), neither on the general population nor in hospital settings, focusing specifically on psychiatric disorders in the elderly population. The experience of the previous war aggression from 1992 to 1995 in BiH, along with the post-war period characterized by a highly specific and complex socio-economic environment in the current socio-political context, has presented unique challenges to the mental health of this population. Motivated by numerous questions and dilemmas regarding the state of mental health in this population, we conducted a study on psychiatric morbidity of older hospitalized patients at the Department of Psychiatry in Tuzla. While there are no biological or psychological parameters that definitively define "old age", it is generally accepted that old age begins at 65 years. However, for clinical purposes, we adopted the age threshold of 55 years in defining older adults for this study. Considering the stigma associated with mental disorders and aging, we believe that it is essential to conduct more research on vulnerable groups, such as older adults.

2. OBJECTIVE

The aim of this study was to analyze psychiatric morbidity and its characteristics in individuals aged ≥55 years, with a focus on gender and different age groups, as well as their interrelationships.

3. PATIENTS AND METHODS

The sample consisted of 637 in-patients aged ≥55 years treated at the Department of Psychiatry in Tuzla between January 2018 and December 2020, divided into four age groups: young-old (ages 55-64), middle-old (ages 65-74), old-old (ages 75-84), and oldest-old (ages 85+). The data were obtained from the medical history of hospitalized patients, and the diagnosis of mental disorder was made by a psychiatrist according to ICD-10 guidelines. This research was approved by the Ethical Committee of the University Clinical Center Tuzla.

4. RESULTS

Over the course of the three-years, out of total 2 683 in-patients receiving treatment at the Department of Psychiatry in Tuzla, 637 individuals (comprising 23.7% of the total) were found to be aged ≥55 years. The mean age of total sample was 63.15±7.34 years, with no significant difference between female and male (63.72±7.67 vs. 62.70±7.04, t=-1.738, p=0.083). In the three-year period, the highest number of patients was hospitalized in 2018

Sociodemographic characteristics	N (%)
Age groups (in years)	
55-64	431 (67,7)
65-74	137 (21,5)
75-84	65 (10,2)
>85	4 (0,6)
Gender	
Male	356 (55,9)
Female	281 (44,1)
Education level	
No education	67 (10,5)
Elementary education	186 (29,2)
High school	328 (51,5)
University Degree	56 (8,8)
Residence	
Rural	386 (60,6)
Urban	251 (39,4)
Marital status	
Single	43 (6,8)
Married	371 (58,2)
Divorced	118 (18,5)
Widow	97 (15,2)
Unmarried partnership	8 (1,3)
Monthly Income	
No income	155 (24,3)
<300 BAM	50 (7,8)
300-599 BAM	302 (47,4)
600-999 BAM	92 (14,4)
>1000 BAM	38 (6,0)
Family structure, lives with:	
Alone	161 (25,3)
Spouse	244 (38,3)
non-marital partner	11 (1,7)
spouse and own children	120 (18,8)
non-marital partner and own children	3 (0,5)
a non-marital partner and adopted children	1 (0,2)
biological children	55 (8,6)
Parents	22 (3,5)
brothers and/or sisters	12 (1,9)
Siblings	6 (0,9)

Table 1. Sociodemographic characteristics of the participants (N=637)

(N=282) with a tendency to decrease in 2019 (N=206) and 2020 (N=149). In 2020, the avarage age of elderly patients (64,7±7,8) was significantly higher than in 2018 (62,4±7,0) (t=-3060; p=0,002). Sociodemographic characteristics of the sample groups are presented in Table 1.

Regarding to the diagnostic categories of mental disorders, the most frequently diagnosed were affective disorders (30.5%), organic mental disorders (29.4%), psychotic disorders (17.3%), and mental disorders related to alcohol and psychoactive substance use (13.2%) (Table 2).

Significantly more female were diagnosed with affective, neurotic, stress-related disorders, and psychotic disorders, whereas significantly more male were diagnosed with organic mental disorders and substance use disorders (Table 3). Within the category of affective disorders, the most frequent diagnosis in female was recurrent depressive disorder (29.9%). In the group of neurotic and stress-related

Psychiatric diagnoses ICD-10 by categories	Frequency	N %	χ²–test	df	p
Mental disorders due to organic conditions	187	29,4	397,758	6	0,000
Mental and behavioral disorders due to PAS use	84	13,2			
Psychotic disorders	110	17,3			
Mood (affective) disorders	194	30,5			
Neurotic and stress related disorders	48	7,5			
Disorders of adult personality and behavior	7	1,1			
Pervasive and specific developmental disorders	7	1,1			
Total	637	100,0			

Table 2. Distribution of psychiatric diagnoses according to ICD-10 by categories in the sample of older in-patients hospitalized at the Department of Psychiatry in Tuzla from 2018 to 2020. N = number of patients, χ² = chi square test, df = degrees of freedom, p = level of statistical significance, PAS = Psychoactive substances

Psychiatric diagnoses ICD-10 by categories	Gender N (%)			χ²-test	df	p
	Female	Male	Total			
Mental disorders due to organic conditions	49 (17,4)	138 (38,8)	187 (29,4)	34,441	1	0,000
Mental and behavioral disorders due to PAS use	4 (1,4)	80 (22,5)	84 (13,2)	60,776	1	0,000
Psychotic disorders	62 (22,1)	48 (13,5)	110 (17,3)	8,094	1	0,004
Mood (affective) disorders	127 (45,2)	67 (18,8)	194 (30,5)	51,581	1	0,000
Neurotic and stress related disorders	33 (11,7)	15 (4,2)	48 (7,5)	12,781	1	0,000
Disorders of adult personality and behavior	3 (1,1)	4 (1,1)	7 (1,1)	0,005	1	0,946
Pervasive and specific developmental disorders	3 (1,1)	4 (1,1)	7 (1,1)	0,005	1	0,946
Total	281 (100,0)	356 (100,0)	637 (100,0)	8,030	1	0,003

Table 3. Distribution of mental disorders groups according to ICD-10 by gender N = number of patients, χ² = chi square test, df = degrees of freedom, p = level of statistical significance, PAS = Psychoactive substances

Psychiatric diagnoses ICD-10 by categories	Age categories N (%)				Total	χ²-test	df	p
	Younge-old age 55-64 y	Middle 65-74 y	Old 75-84 y	Oldest > 85 y				
F00-F09	84 (19,5)	52 (38,0)	47 (72,3)	4 (100,0)	187 (29,4)	102,667	16	0,000
F10-F19	67 (15,5)	17 (12,4)			84 (13,2)			
F20-F29	78 (18,1)	23 (16,8)	9 (13,8)		110 (17,3)			
F30-F39	157 (36,4)	31 (22,6)	6 (9,2)		194 (30,5)			
F40-F49	32 (7,4)	13 (9,5)	3 (4,6)		48 (7,5)			
F60-F69	6 (1,4)	1 (0,7)			7 (1,1)			
F70-F79	7 (1,6)				7 (1,1)			
Total	431 (100,0)	137 (100,0)	65 (100,0)	4 (100,0)	637 (100,0)			

Table 4. Psychiatric diagnoses ICD-10 by categories according to age groups. N = number of patients, χ² = chi square test, df = degrees of freedom, p = level of statistical significance

5. DISCUSSION

In this study, 637 hospitalized patients aged ≥55 years were included, constituting 23.7% of the total hospitalized patients (2683 patients) during the three-year period. The proportion of hospitalized elderly patients is influenced not only by the current clinical presentation but also by the number of available beds at the Department of Psychiatry in Tuzla and the organizational structure of the institution. However, our findings fall within the range of results reported in general population studies, which indicate a prevalence of psychiatric disorders among individuals aged over 65 years of 23.3% in the European context (5) and 20.4% in a national American study [8]. The average age of patients in our study was 63.2±7.3 years. The number of hospitalized older patients gradually decreased from 2018 to 2020, while the average age of hospitalized patients increased. Likely reasons for this trend may include organizational changes during the COVID-19 pandemic at our department (9) and the overall increase in life expectancy. The largest number of hospitalized patients was from the age group of 55-64 years, and this number decreased with advancing age, which is in line with findings from other studies (10, 11).

There were more male than female patients in our sample that is consistent with some similar research [12], while other studies report a higher proportion of female participants [10,13]. Cultural factors that influ-

disorders, dissociative disorder was the most common diagnosis (7.5%), while in the category of psychotic disorders, schizophrenia was the prevailing diagnosis (5.7%). Among men, the most common diagnosis within the organic mental disorders category was organic disorder due to brain damage and dysfunction (27.8%), while in the group of substance use disorders, alcohol use disorder was the most frequently diagnosed (22.5%).

Affective disorders are most prevalent in the "young-old" age group, while organic disorders become predominant in the older age groups. Substance use disorders are most common in the "young-old" age group, with their prevalence decreasing with age, to the extent that there are no individuals with these disorders in the "old" and "oldest > 85 years" age groups (Table 4).

ence women's attitudes toward mental health issues in BiH could be an interesting topic for analysis.

More than half of the subjects (58.2%) were married, with the percentage of divorced individuals (18.5%) and widows/widowers (15.2%) being comparable. Other similar studies have also found a high prevalence of married individuals (10). The majority of our subjects came from rural areas (60.6%), had completed secondary education (51.5%), and had a lower socioeconomic status–nearly half (47.4%) had monthly incomes ranging from 300-599 BAM, and almost a quarter (24.3%) had no income at all. Studies suggest increased psychiatric morbidity in individuals in unfavorable socioeconomic positions (14, 15). More than a third of the subjects (38.3%) lived with their spouse, about a quarter (25.3%) lived alone, and close to a fifth (18.8%) lived with their spouse and their own children. Bosnian families are traditionally considered patriarchal, with a lifestyle where two to three generations live together, enabling mutual support and stability, as described in some other studies (16). Demographic changes and other contributing factors in the post-war period in Bosnia and Herzegovina over the last two decades have been associated with a trend of disrupting this family structure, although the role of social factors is rarely considered in research on the health of older adults, especially in developing countries (17).

In this study, mood (affective) disorders predominated (30.5%), with a higher prevalence in female (45.2%), which is consistent with the results of previous studies (8, 18). The prevalence of neurotic and stress-related disorders in our sample decreased with age, which is in line with research showing a lower prevalence of anxiety disorders in older adults compared to younger adults (19). In comparison to other studies focusing on the prevalence of depression and anxiety, our research results differ from those of a National American study [8], where the prevalence of anxiety disorders (11.4%) was higher than that of depression (6.8%), and from a European study where the prevalence of depression was 8.0% and anxiety disorders were 11.9%. However, our results are closer to the findings of a study in the Iraqi region (15), which could be attributed to the impact of war-related events and/or socioeconomic parameters.

More than a quarter of our sample (29.4%) had organic, including symptomatic, mental disorders, with male having a significantly higher prevalence (21.7%) compared to female (7.7%). Our results are somewhat consistent with previous studies indicating a slightly higher prevalence of organic mental disorders in older men than in women (21). As age increases, disorders from this group become more prevalent, which is in accordance with results of previous studies (22).

In our sample, male had a significantly higher prevalence of substance use disorders (22.5%) compared to female (1.4%). Disorders from this category were most common in the "young-old" age group (55-64 years) (15.5%). As age increased, their prevalence sharply decreased, to the point that in the age groups "old 75-84 years" and "oldest > 85 years," there were no patients diagnosed with substance use disorders. The results

of our study are consistent with a previous study in the Tuzla Canton, which focused on alcohol dependence and also found that the majority of cases were male matching our "young-old" agegroup (23). It should be noted that only four women in this study had substance use disorders. The issue of alcoholism in women in our region may be associated with cultural characteristics such as shame and stigma, as suggested in some other research (24). Increased alcohol consumption in old age can be a risk factor for mental and somatic health problems, as well as a coping mechanism for dealing with mental and somatic health issues (25). As mental health professionals, we need to be aware of these factors, especially considering our history of war-related events and the overall consequences.

Limitations and weaknesses of this study

Since most published studies describe the prevalence of psychiatric morbidity in older adults compared to the general population, the results of this study cannot be interpreted as the incidence in the general population, as this study analyzed older hospitalized psychiatric patients.

6. CONCLUSION

The most common psychiatric morbidity in older in-patients treated at the Department of Psychiatry in Tuzla from 2018 to 2020 was in the category of affective disorders, which predominated in the age group of "55-64 years", while in the age groups "65-74 years", "75-84 years", and "85+ years",mental organic disorders were more prevalent. Substance use disorders were most prevalent in the age group "55-64 years" and their prevalence sharply decreased with increasing age. Women in the entire sample had a significantly higher prevalence of affective, psychotic, neurotic, and stress-related disorders. On the other hand, men in the entire sample had a significantly higher prevalence of mental organic disorders and substance use disorders.

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