ORIGINAL PAPERS

PSYCHIATRIC MORBIDITY AND COMORBIDITY IN ELDERLY PATIENTS TREATED AT THE DEPARTMENT FOR PSYCHIATRY DURING 2018

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ABSTRACT

Introduction: Globally, the most common mental disorders in the elderly include dementia (5% - 8%), depression (7%), anxiety disorder (4%), and substance abuse (1%). Moreover, 25% of suicide deaths occur among the elderly. Whether the prevalence rate of psychiatric disorders increases in later life is currently debated in the literature. During the previous two decades of their lives, older adults in Bosnia and Herzegovina have experienced many specific psychosocial circumstances. The experience of war aggression on our country, and the post-war period with a very complex socioeconomic environment of the current socio-political climate, were accompanied by special challenges for the mental health of this population. Motivated by a large number of questions and dilemmas related to the state of mental health of this population, we conducted research at the Department of Psychiatry at the University Clinical Center Tuzla.

Objective: To investigate psychiatric morbidity and comorbidity in people over 55 years of age.

Methods: The research sample consisted of all patients older than 55 years treated at the Department for Psychiatry during 2018 (N=280), divided into three age categories. To obtain data, we used medical documentation, i.e., medical records, and we constructed a special questionnaire for research purposes.

Results: Diagnoses by ICD-10 groups: 33.4% of patients in the entire sample had affective disorders (F30.0-F39.0): "young" (39.2%), "middle" (43.3%), "older "(75%) (p<0.001); women had significantly more affective disorders (61.8%) than men (26.8%) (p<0.001). Men had significantly more organic mental disorders (F00.0-F09.0) (63.3%) than women (22.6%) (p<0.001).

Hypertensio arterialis was the most common comorbid dg. of the entire sample, without significant differences according to age groups and sex (p>0.05). Diabetes mellitus was the second comorbid dg. By frequency in the total sample (19.6%) without significant differences according to age groups and according to sex (p>0.05).

Conclusion: In the entire sample, the most common diagnoses are from the affective disorders group; the most common somatic comorbidities are hypertensio arterialis and diabetes mellitus.

Keywords: morbidity, comorbidity, mental disorders, Bosnia and Herzegovina

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INTRODUCTION

Older people are vulnerable to mental disorders and face particular physical and mental health challenges [1]. Globally, the most common mental disorders in the elderly include dementia (5%-8%), depression (7%), anxiety disorder (4%), and substance abuse (1%) [1]. The World Health Organization has estimated that the overall prevalence rate of depression among older people generally varies between 10% and 20%, depending on cultural situations [2]. Research on the prevalence of mental disorders in the elderly in the European area shows a rate of 23.3% [3].

Comorbidity, by definition, indicates the occurrence of two syndromes in the same patient, and the diagnosis of one does not categorically exclude the diagnosis of the other [4]. Anxiety symptoms are common in older respondents, especially when they are medically ill, and depression and alcoholism are often comorbid diagnoses [5]. Comorbid anxiety disorders and depression are common; research data indicate that as many as 35% of depressed patients over the age of 60 have at least one lifelong diagnosis of an anxiety disorder, and 23% have a current diagnosis at the time of the examination [6]. In younger individuals, estimates range from 10 to

15% [7]. Although different, these studies show a generally increased frequency of psychiatric disorders in old age and, with it, an increased frequency of other mental disorders as well as secondary diseases [8].The presence of comorbid disorders is associated with a significantly higher rate of help-seeking [9-11]. Experiencing chronic stress is a major risk factor for developing mood disorders, and stress and mental illness can contribute to accelerated aging. It has been shown that chronic psychological stress in rats affects genes critical for longevity [12].

Whether the prevalence rate of psychiatric disorders increases in later life is currently debated in the literature. Elderly people in Bosnia and Herzegovina experienced a large number of specific psychosocial circumstances during the previous two decades of their lives before the COVID-19 pandemic. The experience of war events, and the post-war period with a very complex socioeconomic climate of the current socio-political environment, were accompanied by special challenges for the mental health of this population. Motivated by a large number of questions and dilemmas related to the state of mental health of this population, we conducted research at the Department of Psychiatry at the University Clinical Center Tuzla.

Objective

We aimed to investigate psychiatric morbidity and co-morbidity in people older than 55.

To analyze the characteristics of psychiatric morbidity and comorbidity by age group, sex, their interrelationship, as well as the relationship with certain psychosocial variables.

SUBJECTS AND METHODOLOGY

The research sample consisted of all patients older than 55 years treated at the Department of Psychiatry during 2018 (N=280), divided into three age categories ("younger, amongst older" 55-64; "middle, amongst older" 65-74; "old" 75-84). There was one patient over 85 years who was excluded from our study because it is not statistically relevant. To obtain data, we used medical documentation, i.e., medical records, with the prior approval of the Ethics Committee of the UCC Tuzla, as part of research for a doctoral dissertation. A special record sheet was used for data collection, which was constructed for the purposes of this research.

RESULTS

Table 1. Distribution of elderly patients by age, category, and sex

Age by categories	N(%)			χ^2 - test	df
	Women	Men	Total		
Younger 55-64 years	76 (65,5)	123 (74,5)	199 (70,8)	3,891	3
Middle 65-74 years	31 (26,7)	30 (18,2)	61 (21,7)		
Older 75-84 years	9 (7,8)	11 (6,7)	20 (7,1)		
The oldest > 85 years		1 (0,6)	1 (0,4)		
Total	116 (100)	165 (100)	281 (100)		

N = number of patients, χ^2 = Chi square test, df = degree of freedom, p = level of statistical significance

In 2018, 1,081 patients were hospitalized at the Department of Psychiatry, of which 280 were over 55 years old (25,9%). The average age of the participants in the study was 62.39±7.01 years, with no statistically significant difference between women and men (p=0.307). In the entire sample of hospitalized elderly patients, the largest percentage, slightly more than two-thirds, are subjects of the "younger" age category, and this number decreases with the older age categories. The number of hospitalized elderly men is slightly higher than

that of women, but there is no statistically significant difference between the respondents (p=0.274) (Table 1).

More than half of the examined sample (62.36%) comes from rural areas, and slightly more than a third (37.36%) from urban areas (p=0.399).

Less than half of the entire sample (49.47%) attended secondary school, and about a third of the sample (33.80%) attended primary school (p=0.380).

Table 2. Distribution of elderly patients by the municipality of residence and age by categories (singled out)

Place of residence, municipality	Age by categories N (%)			Total	χ² - test	df
	Younger 55-64 years	Middle 65-74 years	Old 75-84 years			
Tuzla	53 (26,6)	21 (34,4)	11 (55,0)	85 (30,2)	68, 935	54
Lukavac	26 (13,1)	2 (3,3)	2 (10,0)	30 (10,7)		
Živinice	20 (10,1)	8 (13,1)	2 (10,0)	30 (10,7)		
Gračanica	22 (11,0)	3 (4,9)	2 (10,0)	27 (9,6)		

N = number of patients, χ² = Chi square test, df = degree of freedom, p = level of statistical significance

Of the twelve municipalities from the area of Tuzla Canton, and other municipalities of BiH, the largest number of hospitalized patients in the examined sample, almost a third, comes from Tuzla, followed by Živinice, Lukavac, and Gračanica (p=0.083) (Table 2).

Table 3. Distribution of elderly patients by marital status and age by categories

Marital status	Age by categories N(%)			Total	χ² - test	df
	Younger 55-64 years	Middle 65-74 years	Old 75-84 years			
Never married	13 (6,5)	5 (8,2)	2 (10,0)	20 (7,1)	32,976	12
Married	121 (60,8)	36 (59,0)	5 (25,0)	162 (57,7)		
Widow/er	20 (10,1)	9 (14,8)	10 (50,0)	39 (14,9)		
Divorced	41 (20,6)	11 (18,0)	3 (15,0)	55 (19,6)		
Non-marital union	4 (2,0)			4 (1,4)		
Total	199 (100)	61(100)	20 (100)	280 (100)		

N = number of patients, χ² = Chi square test, df = degree of freedom, p = level of statistical significance

Slightly more than half of the respondents of the entire sample are married; the percentage of divorced is somewhat higher than that of widowed people. In the "younger" age category, the number of divorced people is higher compared to the number of widowed people, while in the "old" age category, half of the respondents are widowed (p=0.001) (Table 3).

Regarding the professional education of the patients from this study, there is no statistically significant difference between the examined groups (df=15; p=0.380). Almost half of the respondents (49.5%) of the entire sample have a high school diploma; about a third of the patients in the entire sample have completed elementary education. The number of subjects with a university degree (6.1%) and those without education (6.8%) was approximately the same, while only two patients had an academic status.

The distribution of patients according to monthly income is close to the limit of statistical significance (df=12; p=0.060). Slightly less than half of the entire sample (47.3%) has a monthly income of BAM 300-599; about a fifth of the patients in the entire sample are without any income. Only eight respondents of the whole sample (2.9%) have higher incomes, over BAM 1000.

Slightly less than a quarter (22.4%) of women in the "younger" age category experience neglect, and almost a third of women in the younger age category (32.8%) experience abuse. Neglect and abuse are significantly higher among women of the "younger" sample (ρ -0.214, p=0.002) (ρ-0.298, p<0.001) consecutively (Table 4).

Table 4. Distribution of elderly patients according to the experience of neglect, abuse and according to age by category

Age by categories	Is the patient neglected?	Answers "YES" N(%)			χ² - test	df
		Women	Men	Total		
Younger 55-64 years	n	76	123	199	9,369	1
	yes	17 (22,4)	9 (7,3)	26 (13,1)		
Middle 65-74 years	n	31	30	61	0,095	1
	yes	5 (16,1)	4 (13,3)	9 (14,7)		
Older 75-84 years	n	9	11	20	2,716	1
	yes	2 (22,2)	0 (0,0)	2 (10,0)		
	n	0	1	1	N.P.	
	yes	0 (0,0)	0 (0,0)	0 (0,0)		
	Is the patient abused?					
Younger 55-64 years	n	76	123	199	18,187	1
	yes	25 (32,8)	11 (8,9)	36 (18,1)		
Middle 65-74 years	n	31	30	61	3,070	1
	yes	7 (22,5)	2 (6,6)	9 (14,7)		
Older 75-84 years	n	9	11	20	1,287	1
	yes	1 (11,1)	0 (0,0%)	1 (5,0)		

N(%) – number of patients who answered "YES" (percentage of positive answers in relation to the number of patients in the subgroup), n = number of patients in the subgroup, χ² = Chi-square test, df = degree of freedom, p = level of statistical significance

Almost a quarter of women from the "younger" age category sample have lost their spouses outside of the war. In the other age categories, there is no significant difference in sex among the respondents (Table 5).

Table 5. Distribution of elderly patients according to the experience of losing a spouse outside of the war and according to age by category in the relationship on sex

Age by categories	Loss ofspouse	Answers "YES" N(%)			χ² - test	df
		Women	Men	Total		
Younger 55-64 years	n	76	123	199	14,903	1
	yes	17 (22,4)	6 (4,8)	23 (11,5)		
Middle 65-74 years	n	31	30	61	1,747	1
	yes	6 (19,3)	4 (13,3)	10 (16,4)		
Older 75-84 years	n	9	11	20	0,423	1
	yes	5 (55,5)	5 (45,4)	10 (50)		

N(%) – number of patients who answered "YES" (percentage of positive answers in relation to the number of patients who lost their spouse in the subgroup), n = number of patients in the subgroup, χ² = Chi-square test, df = degree of freedom, p = level of statistical significance

Table 6. Distribution of elderly patients according to the experience of loss of a spouse in war and by age, by category, and by sex (singled out)

Age by categories		Women	Men	Total	χ² - test	df
		Answers "YES" N(%)				
	Lost a spouse in war					
Younger 55-64 years	n	76	123	199	9,493	1
	yes	6 (7,9)	0 (0)	6 (3,0)		
	Lost a close friend					
Younger 55-64 years	n	76	123	199	46,954	1
	yes	4 (5,3)	65 (52,8)	69 (34,7)		
Middle 65-74 years	n	31	30	61	6,661	1
	yes	1 (3,2)	8 (26,6)	9 (14,7)		
	Was in active military during the war					
Younger 55-64 years	n	76	123	199	72,194	1
	yes	2 (2,6)	78 (63,4)	80 (4,0)		
Middle 65-74 years	n	31	30	61	9,514	1
	yes	0 (0)	8 (26,6)	8 (13,1)		
	Wounded in war					
Younger 55-64 years	n	76	123	199	13,384	1
	yes	1 (1,3)	23 (18,7)	24 (12,1)		
Middle 65-74 years	n	31	30	61	5,628	1
	yes	0 (0)	5 (16,6)	5 (8,2)		
	Experienced detonation					
Younger 55-64 years	n	76	123	199	17,013	1
	yes	0 (0)	24 (19,5)	24 (12,0)		

N(%) - number of patients who answered "YES" (percentage of positive answers in relation to the number of patients in the subgroup), n = number of patients in the subgroup, χ² = Chi-square test, df = degree of freedom, p = level of statistical significance

Women in the "younger" age category have a statistically significantly higher percentage of loss of their spouse during the war. Men in the "younger" and "middle" age categories have experienced significantly more loss of a close friend in the war. Men in the "younger" and "middle" age categories were significantly more likely to be in the war as active military persons. Men in the "younger" and "middle" age categories were significantly more wounded in the war. Men in the "younger" category experienced significantly more detonation during the war (Table 6).

The distribution of patients according to the first diagnoses by the group in the ICD-10 at the last hospitalization and by age by category indicates a statistically significant difference between the examined groups. About a third of the subjects of the entire sample have their first diagnosis from group F30.0-F39.0; more than

a quarter of respondents of the whole sample have their first diagnosis from group F00.0-F09.0. The percentage of those with diagnoses from the F10.0-F19.0 and F20.0-F29.0 groups is equal. In more than a third of respondents in the "younger" age category, the most common diagnosis is from the group F30.0-F39.0. The percentage of respondents with a diagnosis from the group F00.0-F09.0 is slightly higher than those with a diagnosis from the group F10.0-F19.0. Among respondents in the "middle" age category, somewhat less than half of the respondents have a diagnosis from the F00.0-F09.0 group, followed by a quarter of the respondents with a diagnosis from the F30.0-F39.0 group. Among the respondents in the "old" age category, two-thirds of the respondents have a diagnosis from the group F00.0-F09.0 (Table 7).

Table 7. Distribution of elderly patients according to the first diagnoses by groups in ICD 10 at the last hospitalization and according to age by categories

Psychiatric dg. ICD-10 by groups	Age by categories N(%)				χ² - test	Df
	Younger 55-64 yrs	Middle 65-74 yrs	Older 75-84 yrs	Total		
No diagnosis	3 (1,5)	1 (1,6)	0 (0,0)	4 (1,4)	45,286	18
F00.0-F09.0	35 (17,6)	26 (43,3)	15 (75,0)	76 (27,1)		
F10.0-F19.0	32 (16,1)	8 (13,3)	0 (0,0)	40 (14,2)		
F20.0-F29.0	31 (15,6)	7 (11,6)	2 (10,0)	40 (14,2)		
F30.0-F39.0	78 (39,2)	15 (25,0)	1 (5,0)	94 (33,4)		
F40.0-F49.0	16 (8,0)	4 (6,6)	2 (10)	22 (7,8)		
F60.0-F69.0	1 (0,5)	0 (0,0)	0 (0,0)	1 (0,3)		
F70.0-F79.0	3 (1,5)	0 (0,0)	0 (0,0)	3 (1,1)		
Total	199	61	20	280		

N (%)= number of patients, χ² = Chi square test, df = degree of freedom, p = level of statistical significance

Table 8. Distribution of elderly patients according to the first diagnoses by groups in ICD 10 at the last hospitalization and by age by category, and sexs

Age by categories	Psychiatric dg. by groups 0-9	N(%)			χ² - test	Df
		Women	Men	Total		
Younger 55-64 years	N	76	123	199	52,633	6
	No dg.	1	2	3		
	F00.0-F09.9	2 (2,6)	33 (26,8)	35 (17,6)		
	F10.0-F19.0	2 (2,6)	30 (24,3)	32 (16,1)		
	F20.0-F29.0	14 (18,4)	17 (13,8)	31 (15,6)		
	F30.0-F39.0	47 (61,8)	31 (25,2)	78 (39,2)		
	F40.0-F49.0	10 (13,2)	6 (4,8)	16 (8,1)		
	F60.0-F69.0	0 (0,0)	1 (0,8)	1 (0,5)		
	F70.0-F79.0	0 (0,0)	3 (2,4)	3 (1,5)		
	Subtotal with dg.	75	121	196		
Middle 65-74 years	N	31	30	61	23,391	4
	No dg.	1	0	1		
	F00.0-F09.9	7 (22,6)	19 (63,3)	26 (42,6)		
	F10.0-F19.0	1 (3,2)	7 (23,3)	8 (13,1)		
	F20.0-F29.0	5 (16,1)	2 (6,6)	7 (11,5)		
	F30.0-F39.0	13 (21,3)	2 (6,6)	15 (24,6)		
	F40.0-F49.0	4 (12,9)		4 (6,5)		
	Subtotal with dg.	30	30	60		
Old 75-84 years	N	9	11	20	3,434	3
	F00.0-F09.9	6 (66,6)	9 (81,8)	15 (75)		
	F20.0-F29.0	2 (22,2)	0 (0,0)	2 (10)		
	F30.0-F39.0	0 (0,0)	1 (9,1)	1 (5,0)		
	F40.0-F49.0	1 (11,1)	1 (9,1)	2 (10,0)		
	Subtotal with dg.	9	11	20		

N = number of patients, χ² = Chi-square test, df = degree of freedom, p = level of statistical significance

Among patients in the "younger" and "middle" age categories, women have significantly more disorders belonging to the group of affective and neurotic disorders (p<0.001, p=0.40, consecutively). Men have significantly more disorders belonging to the group of organic disorders and addiction diseases (p<0.001, p<0.001, consecutively) (Table 8).

The distribution of respondents according to the first individual psychiatric diagnoses according to ICD 10 at the last hospitalization and according to age by category indicates a significant difference between the examined groups (df=264; p=0.010). The largest number of subjects in the entire sample (11.0%) had the first diagnosis of F33.2. This is followed by subjects with a first diagnosis of F33.3 (9.2%) and subjects with an

F10.2 (8.9%) diagnosis. Respondents in the "younger" age category have significantly more F33.2 diagnoses, followed by F10.2, as their first individual psychiatric diagnosis. Among respondents of the "middle" age subgroup, the most represented diagnosis from the organic group is F06.2, while among respondents of the "old" age category, F06.2 and F06.3 appear as the most represented single psychiatric diagnosis.

The distribution of respondents according to the first individual psychiatric diagnoses according to ICD 10 at the last hospitalization and according to age by category and by gender in the "younger" age category indicates a statistically significant difference between the examined groups (p<0.001). A quarter of the total number of women (25.0%) has F33.2 as the most common diagnosis. Among men in this age category, the most common diagnosis is F10.2 (17.8%), while there is not a single woman in this age category with this diagnosis. Among respondents in the "middle" age category, the most common diagnosis among women is F33.3 (12.9%), and among men of this age group, F06.2, but without a statistically significant difference (df=36; p=0.310). Among respondents in the "old" age category, there is no statistically significant sex difference according to the first individual psychiatric diagnoses (df=12; p=0.399).

More than half of the respondents of the entire sample (62.3%) do not have a first psychiatric comorbid diagnosis; of that, the highest percentage of those who do not have a first psychiatric comorbid diagnosis is among the respondents of the "old" age category (85%). The most common first comorbid psychiatric diagnosis is F06.7 (8.9%), followed by F10.2 (4.3%). Respondents in the "younger" age category have statistically significantly more first comorbid psychiatric diagnoses of F10.2, which does not appear in older age groups (df=96; p<0.001).

Men in the "younger" age category have statistically significantly more first psychiatric comorbid diagnoses F06.7, followed by F10.2 (df=25; p=0.001). According to the first comorbid psychiatric diagnoses, there is no significant difference between women and men of other age categories.

An almost complete sample of women in the "younger" age category does not have a first comorbid psychiatric diagnosis of a personality disorder. Men of this age group have significantly more as the first comorbid psychiatric diagnosis of personality disorder F62.0 38 (30.9%) (χ^2 - test =39.627, df=10; p<0.001).

Table 9. Distribution of elderly patients according to somatic comorbidities at the last hospitalization and according to age by category (singled out)

Somatic comorbid diagnoses	Age by categories N (%)				χ^2 – test	df
	Younger 55-64 (n=199)	Middle 65-74 (n=60)	Older 75-84 (n=20)	Total (n=280)		
Hypertensio arterialis	87 (43,7)	44 (73,3)	9 (45,0)	140 (50,0)	10,423	3
Diabetes mellitus	34 (17,1)	16 (26,7)	5 (25,0)	55 (19,6)	3,117	3
Arthropathiae	14 (7,0)	4 (6,6)	3 (15)	21 (7,5)	1,849	3

N = number of patients, χ^2 = Chi square test, df = degree of freedom, p = level of statistical significance

Among respondents of all age categories, the most frequent somatic comorbid diagnoses are hypertensio arterialis (50.0%), diabetes mellitus (19.6%), and arthropathiae (7.5%). Hypertensio arterialis is significantly more present in the "middle" age subgroup (df=3; p=0.015). Among respondents of all age categories, there is no significant difference in the presence of diabetes mellitus (df=3, p=0,374) and arthropathy (df=3; p=0,604) as comorbid somatic diagnoses (Table 9).

In our sample, women were statically significantly more neglected and abused (ρ=0.202; ρ=0.291) (P=0.001; P=0.000; consecutive). Neglect is directly correlated with abuse (ρ=0.539; P=0.000) and with the frequency of dg: F22.0-F22.9 (ρ=0.131; P=0.028). A significantly larger number of men actively participated in the war in the Army of the Republic of BiH as active military personnel (ρ=0.536; P=0.000), experienced significantly more injuries (ρ=0.261; P=0.000), had significantly more frequent dg: F62.0 (ρ=0.415; P=0.000) compared to women and had significantly

more frequent dg: F07.0-F07.9 (ρ=0.134; P=0.024). Participation in war is directly related to suicide attempts (ρ=0.193; P=0.001), self-harm (ρ=0.206; P=0.001), cigarette smoking (ρ=0.217; P=0.000) and alcohol consumption (ρ=0.311; P=0.001). P=0.000). Women had statistically significantly more frequent dg: F31.0-F31.9 (ρ=0.118; P=0.047) and F44.0-F44.9 (ρ=0.228; P=0.000) compared to men. Men had significantly more frequent liver damage in comorbidity (ρ=0.185; P=0.002) than women. The experience of abuse is directly correlated with joint diseases in comorbidity (ρ=0.166; P=0.005), suicidal wishes (ρ=0.133; P=0.026), and suicidal thoughts (ρ=0.174; P=0.003). Suicide in the family is directly related to the experience of neglect (ρ=0.132; P=0.027). The experience of being wounded in war is directly related to the experience of detonation injuries (ρ=0.305; P=0.000). Alcoholism correlates directly with being wounded in war (ρ=0.174; P=0.003) and liver damage (ρ=0.359; P=0.000) and inversely related to hypertension (ρ=- 0.161; P=0.007). Diabetes mellitus

is directly related to dg. F31.0-F31.9 (ρ=0.121; P=0.043). Anemia is directly related to dg: F20.0-F20.9 (ρ=0.141; P=0.018), F22.0-F22.9 (ρ=0.139; P=0.019) and with liver damage (ρ=0.232; P =0.000).

DISCUSSION

Two hundred and eighty patients over the age of 55, who were hospitalized, participated in this study. The average age of the patients was 62.03, with a standard deviation of 7.01 years. The largest number of hospitalized patients belongs to the 55-64 age group, namely 199 (70.8%), and this number decreases with increasing life expectancy. Other studies also report a higher number of patients in the younger older age group [13-15]. The results of an American national survey show a decrease in the prevalence of psychiatric disorders during the life of an older adult, especially among the age groups of late-life [15,16]. The sample has a slightly higher number of hospitalized men than women. Other studies report more female respondents in their sample [13, 15]. Our results can perhaps be explained by a specific socioeconomic milieu that would also include previous war events in which men were mostly involved as active military personnel. Some authors explain the pattern of an overall decrease in the rate of psychiatric disorders with increasing age with the socioemotional theory of selectivity [15,17]. More than half of the respondents in this research are from rural areas, mostly having completed secondary education, and around a third of respondents have completed elementary education. The largest number of respondents in this research were married. Similar studies also found the largest number from the married group [13]. The respondents from this research are of a weaker socioeconomic status; only eight have a monthly income of over BAM 1000. Socioeconomic factors, low levels of education, and living in a poor environment have been identified as risk factors for multimorbidity [18].

The results of our research indicate that the most prevalent psychiatric disorders, in about a third of the respondents, were from the group of affective disorders (33.4%), slightly more than a quarter of the respondents were diagnosed with the group of organic disorders (27.1%), while the same percentage belongs to addiction and psychotic disorders (14.2%), then anxiety disorders (7.8%), and personality disorders (0.3%). Analyzing psychiatric morbidity across age groups, the percentage of the aforementioned disorders is almost identical in the "younger" age category, so with increasing age, the most represented percentage would be disorders from the organic group, followed by disorders from the affective group.Contrary, with increasing age, addiction disorders are reducing, and there is not a single respondent with a disorder from this group in the "old" age category.If we look at the sex distribution, in more than half of women from the "younger" age group (61.8%), the most common disorders are from the affective group, then from the psychotic group (18.4%), followed by disorders from the anxiety group (13.2 %). Among men of this age group, slightly more

than a quarter (26.8%) have disorders from the organic group, followed by, in a very small percentage difference, disorders from the affective group (25.2%) and from the addiction group (24, 3%). Through the next age group, the percentage of disorders from the group organic (22.6%) and affective (21.6%) in women is approximate, while in men, there is a significant percentage increase in the representation from the group of organic (63.3%), followed by disorders from the addiction group (23.3%). Earlier research suggests that the prevalence of mood disorders, anxiety, and addiction is lower for older people (65+) compared to younger age groups (age 18-64) [19]. Our results differ somewhat from the results of the American national survey [15], in which the prevalence of anxiety disorders (11.4%) was higher than the prevalence of affective disorders (6.8%). Furthermore, research in India showed that the largest number of elderly people suffer from neurotic, stress, and somatoform disorders (37.0%) (13). In our research, mood disorders dominate and are more prevalent in women, which aligns with the results of earlier research [20,15]. A study in China shows that the overall prevalence of depression in the elderly was 36.9%, and the prevalence of symptoms was higher in women (50.4%) compared to men (33.3%) [21]. The percentage of anxiety disorders in our sample of respondents is reduced across age groups, which is in line with research in which it is observed that the percentage of prevalence of anxiety disorders is lower in older adults compared to younger adults [22,23]. Ritchie et al. (2004) reported a lifetime prevalence of anxiety disorder of 30% in the French elderly population. We can assume that elderly people, with the clinical picture of this group of disorders, are probably treated at the level of mental health centers and that their condition does not require hospitalization [24].

Women from the "younger" age group face unfavorable psychosocial circumstances. Slightly less than a quarter were divorced; they had significantly more experience of neglect and abuse outside of war, which is directly correlated with joint diseases in comorbidity and experienced significantly more loss of spouse outside of war and during the war. Early life stress, such as childhood abuse, neglect, and parental mental illness, are the strongest predictors of disorders [25], and over time, sensitization to stress develops in individuals who are exposed to early maltreatment [26]. Stress plays an important role in triggering and exacerbating HPA axis dysregulation function, which is associated with physical, cognitive, emotional, and behavioral symptoms of depressive disorder and PTSD [27,28]. Basso et al. (2022) found that, also, the highest percentage of mental-physical comorbidity in women was found in diseases of the musculoskeletal system (21.43%), followed by diseases of the digestive system (20.71%) and skin diseases (13.39%) [29], while an Iraqi study reveals a significant association between depression and chronic joint pain and cardiovascular disease [30]. Research conducted by Avdibegović and Sinanović (2006) in the area of Tuzla Canton, among 283 women aged 43 (+/-9.6 years)were included, indicates that domestic violence as a traumatic experience was associated with

various psychological disorders in all female victims of domestic violence, which had a significantly higher degree general neuroticism, depression, somatization, sensitivity, obsessive-compulsive symptoms, anxiety, and paranoid tendencies compared to women who were not abused. Results from studies looking at the risk for depression following spousal loss are inconsistent across cultures [31]. Canadian/American data [32-34] show that men suffer more, while data from Hong Kong [35] show that women are more vulnerable. Studies from Denmark and Sweden [36] and Korea [37] do not find differences in depressive symptoms among sexes, while a German study by Försteret al. (2019) indicates that the association of the loss of a spouse with later severe depression is more pronounced in men [38]. The experience of abuse, in our research, is directly correlated with suicidal wishes and attempts, while for men, participation in war is directly related to self-harm and suicidal attempts. Incidentally, the percentages of suicide attempts are highest in Eastern Europe and lowest in Central and South America, with the United States, Western Europe, and Asia in the middle [39]. Suicide attempts are known to be more common among older men [40,41], and mood and substance use disorders appear to be more prevalent among older men who attempt suicide [42], as indicated by the results of our research.

The most common individual diagnosis in the entire sample is F33.2 (11.0%), followed by F33.3 (9.2%), which also dominates in women of the "younger" age group, while in men of this age group, the individual diagnosis is significantly more common, namely F10.2 (17.8%), followed by F06.3 (13.0%). A significantly larger number of men in our research participated in the war as active military personnel and experienced significantly more injuries. Participation in the war is directly related to suicide attempts, self-injury, cigarette smoking, and alcohol consumption. With age, men bear the burden of stressful war experiences, have an increasing problem with alcohol, a greater risk of physical health problems due to previous traumas, social isolation, etc., and often deal with family conflicts and social isolation [43]. The first comorbid diagnosis in the entire sample is also alcohol addiction disorder, significantly more in the "younger" subgroup (55-64 years old), and also significantly more in men of that subgroup, followed by a mild cognitive disorder, significantly more in men of the same age subgroup. Men also have significantly more primary comorbid diagnoses of F62.0 (permanent personality changes after catastrophic events) than women. The results of our research are consistent with earlier research in the area of Tuzla Canton, which focused on the problem of alcohol addiction, where also the most numerous were men whose age corresponds to our "younger" age subgroup [44]. It should be noted that in this study, there is not a single woman with an individual diagnosis of alcohol dependence, while there are only two women with a comorbid diagnosis of alcohol dependence in the "younger" age category, which confirms the results of earlier studies in these areas [44]. The problem of alcoholism among women and in our area can be connected to the cul-

tural characteristics of shame, condemnation, and stigma, as well as in some other research [45,46]. Older men have been identified as having an important risk factor for drinking-related problems [47]. In the United Kingdom, a household survey found that 17% of men and 7% of women aged ≥65 years consumed more than the recommended alcohol limit, and 3–9% were heavy drinkers [48]. Increased alcohol consumption in old age can be a risk factor for mental and somatic health problems, but also a way of coping with mental and somatic health problems [49]. Men in our study have significantly more frequent liver damage in comorbidity, which aligns with earlier observations that chronic liver diseases and cirrhosis were observed in patients with alcoholic and drug addiction psychoses [50]. The presence of alcoholism, organic cognitive disorders, organic affective disorders, and permanent personality changes in the men in our research, we can try to connect with previous traumatic war experiences in BiH. All the men in our sample were of military age at the time of the aggression against Bosnia and Herzegovina, a significant number of them (ages 55-74) actively participated in the war as military personnel, a significant number experienced injuries, detonations, and the loss of close friends. Diagnosing F62.0 as a comorbid diagnosis of personality disorder is, certainly, in our area, twenty-three years after the end of the war, related to wartime traumatic experiences, and bearing in mind the absence of adequate social and health support, especially for men who participated in war events [51,52], it is very likely also prompted by certain legal acts that validate the social rights of war participants. Our results are somewhat consistent with some earlier research [53], which indicates that the prevalence of organic mental disorders was slightly higher in older men than women. The research conducted at our Clinic confirmed some earlier results that the presence of PTSD symptoms could have a significant impact on accelerated additional damage to cognitive processes (54) and organic changes in the brain, especially in the cerebral cortex [55]. There are a number of studies dealing with the relationship between traumatic experience and organic changes in the brain, especially in the cerebral cortex [55-59], which can be connected with the diagnostic determination when it comes to the subjects of our sample.

The most common somatic comorbidities were arterial hypertension and diabetes mellitus. Although there was no significant difference between the examined groups, the percentage of hypertension among men in the "middle" and "old" age categories was slightly higher than among women in the same age groups. The results of our research suggest a connection between diabetes mellitus and bipolar affective disorder, which is in line with the results of a recent meta-analysis [60]. A genome-wide association study suggests that bipolar disorder and metabolic disorders, such as coronary artery disease and type 2 diabetes, have strong genetic links and may share some common pathophysiological pathways [61]. The prevalence of diabetes mellitus is up to three times higher in patients with schizophrenia, schizoaffective and bipolar disorders than in the

general population, and the causes are linked to factors specific to the disease, low socioeconomic status, which results in an unhealthy lifestyle [62,63], and unfavorable side effects of certain psychotropic drugs cannot be excluded either [64]. In our research, anemia is directly related to disorders from the group of psychoses and to liver damage. We believe that this is related to certain antipsychotics, the use of which can cause aplastic anemia [65]. For psychiatric conditions, comorbidity rates are known to be significant [66], especially those affecting the cardiovascular, respiratory, nervous, endocrine, and digestive systems [67]. Most studies point to a connection between depression and hypertension, with some pointing to a higher prevalence in older men [68]. Research conducted in the immediate environment on samples of war veterans indicates a connection between wartime traumatic experiences and comorbid somatic disorders, including metabolic syndrome [69,70]. A study from India shows that more than two-thirds of elderly patients with depression have at least one chronic somatic disease, with hypertension being the most common diagnosis in about half of the patients, followed by cataracts (25.7%) and diabetes mellitus [71]. A study from the USA showed that three-quarters of depressed elderly patients have at least one comorbid condition, of which diabetes mellitus is the most common disease (70%), followed by hypertension (40%) and arthritis (25%) [72]. Other studies indicate that women have a higher rate of comorbidity with sex-specific patterns [73-75], but the results of our study do not confirm this. Bearing in mind the specificity of our area, with the history of war trauma, and in the context of post-war psychosocial circumstances, further research in that area will undoubtedly be important.

Limitations and weaknesses

Most studies describe prevalence of psychiatric morbidity and comorbid medical conditions compared to the general population. This study analyzed hospitalized psychiatric patients, so results cannot be interpreted as the incidence in general population.For the purposes of this research, available medical documentation at the Department of Psychiatry was used (disease histories with all contents). Given that the health information system was introduced relatively recently and that this information on somatic diseases of patients is obtained mainly by self-reporting with the submission of earlier medical documentation, there is a possibility of insufficient precision of recollection by the patient their accompaniment. Apart from that, we do not rule out the role of the health worker, the doctor, when taking data and a potentially insufficient focus on somatic diseases. When it comes to patients who have no previous history of treatment due to somatic diseases (for various psychosocial reasons), the skill of mental health experts in assessing physical problems is important so that they can be referred promptly to relevant consultative examinations that would define physical medical conditions, which may have been missed in this research.

CONCLUSION

The leading disorders in more than half of hospitalized elderly patients were of mood disorders or organic disorders, with accompanying comorbid diseases, of which organic disorders and alcohol-related disorders stand out. We can say that organic disorders appear among the leading or comorbid psychiatric diagnoses. Cardiac and endocrine diseases stand out among comorbid somatic diseases, which is in accordance with previous epidemiological and clinical studies. Bosnia and Herzegovina's mental health care system still does not offer complementary services in the community. It is not likely that patients after retirement will receive comprehensive care except, possibly, drug treatment. Our results indicate social vulnerability of elderly patients. According to demographic trends, this is not surprising. It supports expectations that, in the near future, will increase frequency of gerontopsiatric admissions in psychiatric institutions. In order to have a significantly more favorable treatment outcome, mental health professionals should develop skills of treatment comorbid somatic health problems, which requires a special way of thinking, complex therapeutica approach and detailed monitoring.

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