Coll. Antropol. **48** (2024) 2: 87–94
Original scientific paper
doi:10.5671/ca.48.2.2

Mental Health in Persons Deprived of Liberty

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ABSTRACT

The goal of the study was to examine the mental health of prisoners and to examine whether there are differences in the occurrence of anxiety, depression and stress with regard to demographic characteristics, the length of stay of the prisoners in the penitentiary, and whether there is a mutual connection in the occurrence of these mental disorders. A cross-sectional survey was conducted among the prisoners of the prison in Požega during May and June 2020. The research included 74 prisoners (51.4% male) The age of the respondents was in the range from 18 to 78 years, the most respondents were from 31 to 40 years old, (35.1% of them). The Depression Anxiety Stress Scale (DASS21) questionnaire was used to assess the current level of anxiety, depression and stress. The results show that the majority of respondents have moderate depression (p=<0.001), severe (27%) and very severe anxiety (27%, p=0.171), while their stress level is normal (35.1%, p= 0.02). Anxiety is more common in female respondents (p=0.002). There is a moderate correlation between anxiety and the length of deprivation of liberty. The association between depression and anxiety is highly positive (p<0.001), while the association between depression and family relationships is low and positive. Respondents who are not married showed a higher frequency of depression (p=0.01). A higher level of stress was recorded in male respondents (p=0.02), married (p=0.04) and with a higher level of education (p=0.03). Mental health represents a serious public health problem within this population group and requires further attention and the need for more frequent screening and timely treatment.

Key words: *anxiety, depression, mental health, stress, prisoner*

Introduction

The term mental health is used to describe a group of mental disorders that often include depression, anxiety and somatoform disorders that are very widespread in low – and middle-income countries[1–4]. It is estimated that more than 450 million people in the world suffer from some form of mental disorder, and one in four persons who meet the criteria had a mental disorder[5]. According to the assessment of the burden of diseases for Croatia in 2016, mental disorders are in 4th place among the leading disease groups, behind cardiovascular and malignant diseases and injuries. In the group of mental disorders, the highest percentage of burden refers to depressive disorders (25.9%), followed by disorders caused by alcohol (17.1%) and anxiety disorders (14.6%)[6].

In 2021, there were more than 11 million people in prisons worldwide, while a large number of them had multiple mental disorders[7,8]. Limited freedom, autonomy and communication with their families often lead to impaired physical, psychological and social well-being of prisoners[9]. The prevalence of mental disorders is twice as high among prisoners as in the general population[10–13]. Common mental disorders that may be present before arrest can greatly worsen during detention[14]. Previous research has shown that many prisoners have at least one mental disorder during their prison sentence and almost one in seven of them have some of the mental disorders in history[15]. Epidemiological studies conducted in prisons in several countries have shown a high prevalence of psychiatric morbidi-

Received for publication February 4, 2024

ty. They show that the overall prevalence of mental illnesses among prisoners ranges from 13 to 92.5%[16–18]. In European prisons, the prevalence of psychotic disorders is around 5%, and of depressive or anxiety disorders around 25 to 40%[19]. In addition to the prison sentence, a number of other factors, such as prison environment, educational status, overcrowding, type of crime, length of sentence and isolation from social networks are predictors in the development of mental illnesses[14,20]. Criminal offenders with mental disorders who are not subjected to appropriate treatment can enter into a cycle of recidivism of both mental disorders and criminal acts[21]. Evidence suggests that the presence of mental illnesses among prisoners contributes to an increased risk of suicide, violence, morbidity and mortality[22–24]. It has been recorded that timely identification, treatment and rehabilitation are insufficient in many prisons, especially in developing countries[17]. It is important to point out that research on the mental health of prisoners is scarce both in low – and middle-income countries and in Croatia. Therefore, this study aimed to assess the prevalence of anxiety, depression and stress and related factors of these mental disorders among prisoners.

Material and Methods

The respondents were inmates of the prison in Požega. The total number of respondents was 74, of which 38 were male and 36 female prisoners. A cross-sectional survey was conducted among the prisoners of the prison in Požega. The research was conducted in May and June 2020, with the psychometrically analyzed and validated Croatian version of The Depression Anxiety Stress Scale questionnaire (DASS21)[25] which aims to assess the current level of anxiety, depression and stress[26], including nine questions aimed at collecting sociodemographic data. In this research, descriptive statistical methods were used to describe the frequency distribution of the investigated variables. Mean values are expressed as arithmetic mean, minimum and maximum values and standard deviation. Pearson's, Spearman's and Point biserial correlations were used to calculate the correlation between variables; The results of two independent groups of subjects were examined with the t test, ANOVA; one-way analysis of variance was used to check the difference in the results of several groups of respondents, and the Kolmogorov Smirnov test was used to test the normality of the distribution. The value of $p<0.05$ was taken as the level of statistical significance. The statistical package IBM SPSS 25 produced in Chicago, USA, in 2017 and SPSS (IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.) were used for processing the results.

Before the research, the respondents were informed orally and in writing about the aim of the research and its purpose. The research was voluntary and conducted anonymously with the signed consent of the respondents. Consent to conduct the research was obtained from the Directorate for the Prison System and Probation at the Ministry of Justice and Administration.

Results

Table 1 shows that out of 74 patients, 30 have moderate depression (40.5%) 20 of them have strong or very strong anxiety (27%,) and 26 have normal level of stress (35.1%).

Table 2 shows the results where a high positive correlation between depression and anxiety ($p<0.001$) and a low positive correlation between depression and family relationships ($p=0.04$), a moderate positive correlation between anxiety and gender ($p=0.002$) and anxiety and employment are evident. ($p=0.03$), low negative correlation between stress and gender ($p=0.02$) and stress and family relationships ($p=0.04$).

Table 3 shows a significant moderate association between depression and length of deprivation of liberty ($p<0.001$), a moderate negative association between depression and treatment by a psychiatrist ($p<0.001$), a significant moderate association between anxiety and length of deprivation of liberty ($p<0.001$), a moderate negative association anxiety and treatment by psychiatrist ($p<0.001$) and a moderate negative association between anxiety and the use of therapy ($p=0.006$).

Table 4 shows a significant difference in the result of the anxiety subscale according to the gender of the respondents ($p=0.002$), according to which female respondents are significantly more anxious than male respondents.

Table 5 shows the difference between the results of the depression subscale and the marital status of the respondents ($p=0.01$), post hoc comparisons (Tukey) revealed that there is a significant difference between married and

TABLE 1

FREQUENCIES OF RESPONSES TO THE DASS21 QUESTIONNAIRE BY SUBSCALES

		N (%)
Depression	Normal	9 (12.2)
	Mild	7 (9.5)
	Moderate	30 (40.5)
	Strong	15 (20.3)
	Very Strong	13 (17.6)
Anxiety	Normal	13 (17.6)
	Mild	11 (14.9)
	Moderate	10 (13.5)
	Strong	20 (27)
	Very Strong	20 (27)
Stress	Normal	26 (35.1)
	Mild	13 (17.6)
	Moderate	13 (17.6)
	Strong	12 (16.2)
	Very Strong	10 (13.5)

DASS21- The Depression Anxiety Stress Scale; N - number of respondents

TABLE 2

RELATIONSHIP OF DASS21 QUESTIONNAIRE SUBSCALES WITH DEMOGRAPHIC VARIABLES

		Anxiety	Stress	Sex	Age	Education	Employment	Relationships in the family
1. Depression	R	0.585	–0.032	–0.086	–0.001	–0.030	0.215	0.239
	P*	<0.001	0.78	0.46	0.99	0.79	0.06	0.04
2. Anxiety	R		–0.061	0.361	0.039	0.015	0.242	0.218
	P*		0.60	0.002	0.74	0.90	0.03	0.06
3. Stress	R			–0.254	–0.164	0.293	–0.120	–0.242
	P*			0.02	0.16	0.01	0.30	0.04
4. Sex	R				0.253	0.058	0.119	0.248
	P†				0.03	0.62	0.31	0.03
5. Age	R					–0.054	0.245	0.239
	P‡					0.64	0.03	0.04
6. Education	R						–0.079	0.071
	P‡						0.50	0.55
7. Employment	R							0.185
	P‡							0.11
8. Relationships in the family	R							–
	P‡							–

P – probability value; r – Pearson correlation value; rho – Spearman correlation value: * Pearson correlation, † Point biserial correlation, ‡ Spearman correlation, DASS21 – The Depression Anxiety Stress Scale

TABLE 3

RELATIONSHIP OF DASS21 QUESTIONNAIRE SUBSCALE WITH QUESTIONS RELATED TO DEPRIVATION OF LIBERTY AND TREATMENT

		Length of deprivation of liberty	Treatment by a psychiatrist	Treatment by a psychologist	Use of therapy
1. Depression	R	0.424	–0.422	–0.215	–0.223
	P*	<0.001	<0.001	0.06	0.05
2. Anxiety	R	0.418	–0.468	–0.122	–0.318
	P*	<0.001	<0.001	0.30	0.006
3. Stress	R	–0.151	–0.007	–0.134	0.022
	P*	0.20	0.95	0.25	0.85
4. Length of deprivation of liberty	R		0.318	–0.103	–0.252
	P†		0.007	0.39	0.03
5. Treatment by a psychiatrist	R			0.359	0.741
	P‡			0.002	<0.001
6. Treatment by a psychologist	R				0.279
	P‡				0.01
7. Use of therapy	R				–
	P‡				–

P – probability value; r – pearson correlation value; rho – Spearman correlation value * Pearson correlation, † Spearman correlation, ‡ Point biserial correlation, DASS21– The Depression Anxiety Stress Scale

divorced respondents (p=0.01) because, in the latter, a significantly higher degree of depression is present.

Table 6 shows a significant difference in the results of the stress subscale according to the sex of the respondents (p=0.02); male respondents show a higher degree of stress than female respondents. A significant difference in the results of the stress subscale is also present in the marital status of the respondents (p=0.04); post hoc comparisons (Tukey) revealed that there is a significant difference between respondents who are married and those who are not (p=0.04). A significantly higher level of stress is present in married respondents. The result of the stress subscale shows that the level of education of the respondents also makes a difference between the respondents (p=0.03); by

TABLE 4

RESULTS OF THE ANXIETY SUBSCALE OF THE DASS21 QUESTIONNAIRE ACCORDING TO DEMOGRAPHIC VARIABLES

		M (min – max)	SD	T	P*
Sex	Male	5.973 (1 – 11)	2.908	–3.287	0.002
	Female	8.277 (1 – 12)	3.122		
		M (min – max)	SD	F	P†
Age	Under 30 years old	6.789 (1 – 11)	3.172	0.080	0.971
	From 31 to 40 years old	7.192 (1 – 12)	3.334		
	From 41 to 50 years	7.263 (1 – 12)	3.177		
	51 years and older	7.100 (1 – 11)	3.478		
Marital status	Married	6.000 (1 – 11)	3.362	1.635	0.189
	Divorced	7.071 (1 – 12)	3.812		
	Single	7.655 (1 – 11)	2.729		
	Widower/widow	8.500 (5 – 12)	2.880		
Education	No elementary school	5.555 (1 – 11)	4.096	1.718	0.156
	Elementary school	7.368 (1 – 12)	3.286		
	Highschool	7.684 (1 – 12)	2.771		
	Community college	4,500 (2 – 9)	3.109		
	College	5.666 (1 – 10)	4.509		
Employment	Employed	5.777 (1 – 11)	3.040	2.286	0.109
	Unemployed	7.431 (1 – 12)	3.287		
	Retired	8.400 (7 – 11)	1.516		
Relationships in the family	Very good	5.913 (1 – 11)	3.301	1.895	0.121
	Good	7.103 (1 – 11)	3.074		
	Mediocre	8.333 (1 – 12)	2.994		
	Bad	9.500 (7 – 12)	2.380		
	Very bad	6.800 (2 – 10)	3.271		

M – Mean; SD – standard deviation; T – t test statistic; F – One Way Anova statistic; P – probability value; * T test, † One-way analysis of variance, DASS21– The Depression Anxiety Stress Scale

post hoc comparisons (Tukey) it was determined that there is a big difference between respondents who have not completed elementary school and those who have completed higher professional education (p=0.03); on the stress subscale, respondents without completed elementary school are significantly less susceptible to stress than respondents with a higher professional education.

Discussion and Conclusion

The results of the conducted research show that the majority of respondents have moderate depression (40.5%, p=<0.001), strong (27%) and very strong anxiety (27%, p=0.171), while their stress level is normal (35.1%). An extremely high proportion of these psychiatric morbidities in prisoners was recorded in Nigeria, where as many as 72.6% of respondents showed symptoms of depression, while 77.8% showed symptoms of anxiety[27].

There are also studies that have shown a statistically significant correlation between depression and anxiety[28].

A possible reason for such a high prevalence of anxiety is that most prisoners are middle-aged, at the age when they are most productive and when they are expected to reach the peak of their career, however, being in prison does not stimulate them mentally and affects their productivity[29]. Also, the high prevalence of anxiety in prisoners may be the result of the increased presence of factors such as limited social interaction, deprivation of liberty, increased stressful situations, rigorous rules, separation from family as well as changes in the environment and lifestyle[19]. It is important to point out that the obtained results should be interpreted with caution, due to a number of circumstances that may influence them. For instance, there are studies where high-quality studies used clinically based diagnoses and the prevalence of anxiety in prisoners was significantly lower – it was between 7 and 10%[30]. This heterogeneity of results can be explained by different research methodologies and cultural aspects of the population, as well as a possible reflection of the approach to mental disorders by the courts and the police and their attitude towards prisoners, the types of offenses committed and the provision of health care in prisons. The prevalence of depression in our study is high, and 37.9% of respondents had severe or very severe depression. The results are similar to the results of a meta-analysis conducted in 2020. in Ethiopia, where the total prevalence of depression among prisoners was 36.9%, with evident dif-

TABLE 5

RESULTS OF THE DEPRESSION SUBSCALE OF THE DASS21 QUESTIONNAIRE ACCORDING TO DEMOGRAPHIC VARIABLES

		M (min – max)	SD	T	P*
Sex	Male	9.789 (1 – 16)	4.034	0.736	0.46
	Female	9.111 (1 – 16)	3.882		
		M (min – max)	SD	F	P†
Age	Under 30 years old	9.578 (1 – 16)	4.400	0.149	0.93
	From 31 to 40 years old	9.500 (1 – 15)	4.245		
	From 41 to 50 years	9.000 (3 – 16)	3.636		
	51 years and older	10.000 (5 – 15)	3.231		
Marital status	Married	7.750 (1 – 15)	3.914	3.591	0.01
	Divorced	8.571 (3 – 15)	4.089		
	Single	10.965 (4 – 16)	3.364		
	Widower/widow	10.166 (5 – 15)	3.763		
Education	No elementary school	9.777 (3 – 15)	4.146	0.601	0.66
	Elementary school	9.578 (1 – 16)	3.775		
	Highschool	9.605 (1 – 16)	4.214		
	Community college	6.750 (5 – 8)	1.258		
	College	11.000 (7 – 13)	3.464		
Employment	Employed	8500 (1 – 15)	4.435	2.183	0.120
	Unemployed	9.490 (1 – 16)	3.732		
	Retired	12.600 (8 – 16)	3.209		
Relationships in the family	Very good	8.478(1 – 15)	3.906	1.216	0.312
	Good	8.965 (1 – 15)	3.968		
	Mediocre	10.833 (3 – 15)	3.214		
	Bad	10.750 (8 – 15)	3.403		
	Very bad	11.200 (5 – 16)	4.919		

M – Mean; SD – standard deviation; T – t test statistic; F – One Way Anova statistic; P – probability value; * T test, † One-way analysis of variance, DASS21– The Depression Anxiety Stress Scale

ferences depending on the level of development of the country, and a significantly higher proportion of depression in developing countries (39.2%) compared to developed countries (33.1%). It should be noted that studies with a larger sample recorded a lower prevalence of depression[31]. It is important to understand the issue of mental health in this environment in order to design effective interventions aimed at minimizing the factors that can trigger or worsen mental disorders. An important question that often arises in this area is the direction of causality for the high prevalence of mental disorders, specifically whether the high prevalence of mental disorders is caused by prison or whether prisoners arrived with disorders. There is evidence for the hypothesis of bringing mental disorders into prison because severe mental illness is often associated with crime[32,33]. In order for the conclusions to be credible, more large longitudinal studies should be conducted. The obtained results, show a high positive correlation between depression and anxiety (r=0,585, (p<0.001). Coexistence of anxiety and depression is common in clinical experience as documented by the results of several studies[34–36]. In general, greater social disconnection and subsequent perceived isolation increase symptoms of depression and anxiety, but the effects can be bidirectional[37]. Thus, integration into social networks and thus participation of prisoners in community activities, along with greater physical activity in prisons, appear to be a possible protective factor against the development of affective disorders.

Our results showed a higher presence of anxiety in prisoners who have been in prison for more than eight years compared to prisoners with a shorter time spent in prison, what the results show (F=3.567, p=0.01); was determined by post hoc comparisons (Tukey) significant difference between respondents who have been deprived of liberty for less than two years and those who have deprived of liberty for more than eight years (p=0.03) because the latter are significantly more anxious. The ob-

TABLE 6

RESULTS OF THE STRESS SUBSCALE OF THE DASS21 QUESTIONNAIRE ACCORDING TO DEMOGRAPHIC VARIABLES

		M (min – max)	SD	T	P*
Sex	Male	11.315 (2 – 19)	4.736	2.226	0.02
	Female	8.972 (3 – 20)	4.292		
		M (min – max)	SD	F	P†
Age	Under 30 years old	11.526 (2 – 20)	4.857	0.782	0.508
	From 31 to 40 years old	10.000 (3 – 19)	4.841		
	From 41 to 50 years	9.526 (3 – 19)	4.903		
	51 years and older	9.300 (4 – 14)	3.020		
Marital status	Married	12.083 (2 – 19)	4.763	2.914	0.04
	Divorced	8.785 (4 – 20)	4.135		
	Single	8.965 (3 – 18)	4.057		
	Widower/widow	12.000 (6 – 20)	6.164		
Education	No elementary school	7.888 (2 – 18)	5.182	2.768	0.03
	Elementary school	9.894 (5 – 20)	4.280		
	Highschool	9.894 (3 – 18)	3.825		
	Community college	15.750 (8 – 19)	5.188		
	College	14.000 (3 – 20)	9.539		
Employment	Employed	12.322 (5 – 20)	4.620	2.697	0.07
	Unemployed	9.352 (2 – 20)	4.568		
	Retired	12.200 (9 – 18)	3.834		
Relationships in the family	Very good	11.652 (2 – 20)	5.122	1.271	0.29
	Good	9.862 (4 – 20)	4.577		
	Mediocre	9.500 (5 – 15)	2.907		
	Bad	9.750 (7 – 13)	3.201		
	Very bad	7.000 (3 – 18)	6.284		

M – Mean; SD – standard deviation; T – t test statistic; F – One Way Anova statistic; P – probability value; * T test, † One-way analysis of variance, DASS21- The Depression Anxiety Stress Scale

tained results are not unexpected. Literary data confirm that over time, life in prison affects the social identity of individuals, their structural characteristics and their biographical continuity[38,39]. Thus, diffuse anxiety enables the emergence of a new and identified fear that integrates and synthesizes anxiety[40]. However, there are studies that show that time spent in prison, history of alcoholism, history of smoking, frequency of criminal acts are not statistically related to depression, while history of drug abuse and previous episodes of depression are related to the prevalence of depression in prison.[41–43].

The results showed a higher prevalence of anxiety in female prisoners (r=0.361 p=0.002), which is in accordance with the results of previously published studies[44,45]. Such results can be explained by the greater exposure of women to domestic and sexual abuse, the social role of women, but also hormonal influences. The proportion of women in prisons worldwide has increased by more than 50% over the past two decades, and recent data suggest that the number of women in prison is still increasing at a faster rate than men worldwide. Despite the high prevalence of mental disorders among female prisoners, there is a lack of programs specifically designed for women[46]. The results of the conducted research show a considerable difference in the result of the depression subscale with regard to the marital status of the respondents, so the respondents who are single show a significantly higher degree of depression (F=3,591, p=0.01). The obtained results are consistent with the results of other studies, according to which people who are not in a relationship show a greater tendency to suffer from depression[47], and bad relationships are strongly associated with suffering from depression and anxiety disorders[48]. In addition to the physical and social conditions in prison, psychological factors certainly represent important stressors that affect the health and well-being of prisoners. Stress as a psycholog-

ical construct is a global phenomenon, but it is more pronounced among prisoners[11]. A higher level of stress (M=11.315, SD=4.736) was recorded in male respondents than in female respondents, and the difference in the results of the stress subscale is also noticeable in relation to the marital status of the respondents. Namely, married respondents show a higher level of stress (M=12.083, SD=4.763).

The results of the stress subscale showed that the level of education of the respondents was significant (F=2,768, p=0,03). Post hoc comparisons (Tukey) showed that respondents without a primary school education are less susceptible to stress than those with a higher vocational education (p=0.03). The reason for this most likely stems from the fact that people with a higher level of education are more inclined to think about their life, judging it as stressful, and are better able to evaluate their own exposure to stress and recognize it than people with a lower level of education[49]. According to some authors, it is not appropriate to measure different types of stress and depression at the same time due to the possible lower representation of one of the constructs, i.e. obtaining insignificant results for the level of stress[11,50]. Although the study produced interesting results for discussion, it has its limitations. The cross-sectional nature of the study limited the ability to show causal direction between mental disorders and the identified factors. Another limitation relates to the tendency of prisoners to exaggerate symptoms which could overestimate the result. However, the high prevalence of anxiety and depression among prisoners requires further attention to improving mental health and the need for regular screening of mental disorders for early diagnosis and treatment.

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MENTALNO ZDRAVLJE U OSOBA LIŠENIH SLOBODE

S A Ž E T A K

Cilj rada je bio ispitati mentalno zdravlje zatvorenika te ispitati postoje li razlike u pojavnosti anksioznosti, depresije i stresa s obzirom na demografska obilježja, duljinu boravka zatvorenika u kaznionici, te postoji li međusobna povezanost u pojavnosti ovih mentalnih poremećaja. Provedeno je presječno istraživanje među zatvorenicima Kaznionice u Požegi tijekom svibnja i lipnja 2020. godine. U istraživanju su sudjelovala 74 ispitanika (51,4% muških). Starosna dob ispitanika je bila u rasponu od 18 do 78 godina, najviše ispitanika bilo je od 31 do 40 godina, odnosno njih (35,1%). Za trenutnu procjenu razine anksioznosti, depresije i stresa je korišten upitnik The Depression Anxiety Stress Scale (DASS21). Rezultati pokazuju kako je najveći dio ispitanika s umjerenom depresijom (p=<0,001), jakom (27%) te vrlo jakom anksioznošću (27%, p=0,171) dok im je razina stresa normalna (35,1%, p= 0,02). Anksioznost je učestalija u ispitanica (p=0,002). Umjerena je povezanost anksioznosti i dužine lišavanja od slobode. Povezanost depresije i anksioznosti je visoka pozitivna (p<0,001), dok je povezanost depresije i odnosa u obitelji niska pozitivna. Ispitanici koji nisu u braku pokazali su veću učestalost depresije (p=0,01) Zabilježena je veća razina stresa u muških ispitanika (p=0,02), oženjenih (P=0,04) i s višom razinom obrazovanja (p=0,03). **:** Mentalno zdravlje predstavlja ozbiljan javno zdravstveni problem unutar ove populacijske skupine te zahtjeva daljnju pozornost i potrebu za učestalijim probirom te pravovremenim liječenjem.