Depression, anxiety, suicidal ideation and social determinants of mental health of Romani in Ukraine

Viktoriia Gorbunova, Vitalii Klymchuk, Olha Savychenko, Valeriia Palii, Zemfira Kondur, Viola Popenko and John Oates

Abstract

Purpose – *This paper aims to explore the prevalence of depression, anxiety symptoms and suicidal ideation among the Romani population in Ukraine and their connections with various social health determinants: age, gender, household characteristics, employment and living conditions.*

Design/methodology/approach – *For measuring mental health conditions, GAD-7 and PHQ-9 were used. Individual interviews were conducted by trained volunteers of the International Charitable Organization ''Roma Women's Foundation Chirikli''. Data were gathered from January to March 2020.*

Findings – *The overall level of depression found in the sample was 8.08, while the mean for anxiety was 7.22. In general, 32.7% of respondents scored positively for signs of depression and 29.6% for anxiety. The two-week prevalence of suicidal ideations was 26.9%. Compared to the general population, the prevalence of depression among the Romani research participants was twofold higher, and anxiety was 2.5-fold higher. Signs of depression and anxiety in women were significantly higher (36% vs 28.6% for depression and 33.9% vs 24.2% for anxiety) than in men. Signs of depression and anxiety were higher for people without education than for university students (9.32 vs 3.04 for depression and 8.26 vs 3.00 for anxiety). The lowest levels of depression, anxiety and suicidal ideation were among officially married persons (6.61, 6.36 and 0.23, respectively). Significant small positive correlations were found between all measurements and the number of household members (0.149 for depression, 0.124 for suicidal ideation and 0.175 for anxiety; p < 0.001) and the number of children (0.303 for depression, 0.224 for suicidal ideation and 0.243 for anxiety; p < 0.001). In terms of employment, the highest scores for depression, anxiety and suicidal ideation were found among those who are employed seasonally (9.06, 8.25 and 0.61) or irregularly (9.09, 8.12 and 0.57) in contrast with self-employed (4.88, 4.90 and 0.19) and full-time employees (5.86, 5.51 and 0.18). Living place (city, village or camp) showed no relation with mental health, except for suicidal ideation: those living in villages had higher levels of suicidal ideation than those living in cities (0.49 vs 0.31).*

Research limitations/implications – *The study has some limitations. Data were gathered from January to March 2020, and since then, the situation in Ukraine has drastically changed due to the full-scale Russian invasion. While this study's data and conclusions might serve as a baseline for further research, they do not represent the real-time situation. While many social factors were analysed, the effects found for them do not necessarily represent causality, given the statistical methods used. Interactions among factors were not studied; therefore, no firm conclusions can be made about the effects of those interactions on mental health.*

Originality/value – *To the best of the authors' knowledge, this paper is original in terms of its topic, as the first-ever in Ukraine quantitative study of mental health and social determinants of mental health of the Romani population.*

Keywords *Romani communities, Mental health, Social determinants of mental health, Depression, Anxiety, Suicidal ideations*

Paper type *Research paper*

Introduction

Collecting reliable quantitative data is necessary for further actions to improve the situation in any country's health and social care system. Unfortunately, we do not have any systemic

procedures for mental health and well-being screening in Ukraine. The first and only study with a large whole-country sample was conducted by the World Health Organization in 2002. The lifetime, 12-month and 1-month prevalence of nine mental health and alcohol use disorders were estimated within the World Mental Health research program (Bromet et al., 2007).

The next wave of studies was linked with the war events in the East of Ukraine, which started in 2014. Their focus was primarily on military personnel directly exposed to combat (Chaban and Bezsheiko, 2017), internally displaced people (Roberts et al., 2019; Kuznetsova et al., 2019) and the population of Donetsk and Luhansk oblasts (KIIS, 2019). However, no ethnic minority group had a specific analysis of their mental health and well-being. Besides their suffering as refugees during the events, the Romani people did not receive the necessary investigatory or medical attention. In addition, a lot of Romani from Eastern Ukraine suffer from xenophobia, biased treatment and entrenched suspicion of criminality and poverty (ADC Memorial, 2015). These problems are not unusual for Romani communities from other parts of the country, with a long history of discrimination. These issues continue today despite recent attempts to resolve the situation, mainly from Romani NGOs (Bocheva, 2019).

Data collected in the European Region show that self-reported health and well-being are extremely different between social groups with different incomes and life circumstances in the same country (WHO, 2019). On the one hand, financial insecurity, the experience of inequality and human rights violation, obstacles in obtaining proper education, etc., contribute to lower well-being and mental health (often as stress, anxiety and depression). On the other hand, social inclusion and participation in society, as well as family support and higher levels of trust, contribute to stronger individual and social resilience and higher mental and social well-being.

Ukrainian Romani communities are subject to both groups of social factors, protective and risk factors. Our previous research has explored these social determinants using a qualitative approach. We have shown that positive social constructions of mental health, family relationships and relations with the "outside" world are essential in empowering community members towards better well-being (Gorbunova et al., 2021, 2022). So, to obtain a broader picture of the mental health of local Romani communities in Ukraine, we carried out this study. The study aimed to explore the prevalence of depression and anxiety symptoms and their links with various social health determinants: age, gender, household characteristics and living environment.

Materials and methods

Methods and data collection

For measuring mental health conditions, GAD-7 and PHQ-9, validated in Ukraine for similar research in different populations, were used (Roberts et al., 2019; Kuznetsova et al., 2019).

Data were collected from January to March 2020 through individual interviews conducted by the International Charitable Organization "Roma Women's Foundation Chirikli" volunteers, who received detailed step-by-step instructions and special training.

Data analysis

Data analysis was performed using IBM SPSS Statistics, version: 28.0.0.0 (190). Data visualisation was performed with MS Excel and DataWrapper [1].

All the data were analysed by gender, age, region and place of residence, education, employment, marital status and the presence of children in the family.

Descriptive statistics (mean, standard deviation, frequency analysis) were used to describe the general results. The non-parametric Kruskal–Wallis one-way ANOVA with multiple pairwise comparisons was used to analyse multiple differences between independent samples. Non-parametric Mann–Whitney *U* tests were performed to test the significance of the differences between the two samples. Standard one-way ANOVAs were performed with the Tukey *post hoc* test for multiple pairwise comparisons (for the data with normal distribution) to test the between-subject effect. The Shapiro–Wilk test was used to analyse the normality of distributions. The Levene test was used to analyse the homogeneity of variance. A correlation analysis (Spearman's coefficient) was used to analyse correlations between different factors.

Ethics

The study protocol was developed in close collaboration with representatives of the Roma community. It described the geography of data collection, the procedures for recruiting and interviewing participants, obtaining informed consent and monitoring the quality of data collection and input. All research tools were evaluated by experts from the International Charitable Organization "Roma Women's Foundation Chirikli". The research team adhered to the Declaration of Helsinki, the National Psychological Association of Ukraine Ethical Regulation and the Ethical Code of Sociology Research adopted by the Ukrainian Sociological Association. The National Psychological Association Ethics Committee approved the ethics protocol, approval number 01–2905/2020.

Results

Sample characteristics

Sample distribution considered the regions with the major representation of the Romani population (Odesa, Kharkiv, Donetsk, Transcarpathian, Kyiv and Chernihiv oblasts) (Table 1 and Figure 1). Overall, interview data of 777 Ukrainian Romani were included in the analysis.

The study included 436 (56.1%) women and 341 (43.9%) men of ages 18–65+: 18–24 years – 119 (15.3%), 25–44 years – 362 (46.6%), 45–59 years – 231 (29.7%) and over 60 years – 65 (8.4%).

Most of the participants were living in villages (462; 59.5%), with the remainder living in cities (224; 28.8%) and in temporary settlements (91; 11.7%).

Persons with six types of educational status were represented: no education (217; 27.9%), secondary education unfinished (319; 41.1%), secondary education (135; 17.4%), secondary education specialised (52; 6.7%), higher education students (24; 3.1%) and higher education (30; 3.9%).

Table 1 Sample's geographical distribution		
Oblast	N	%
Donetsk	86	11.0
Zakarpattia	95	12.2
Kyiv	95	12.2
Odesa	309	39.8
Kharkiv	98	12.6
Chernihiv	94	12.1
Total	777	100.0
Source: Table by the authors		

Figure 1	Sample distribution on the map of Ukraine

Source: Figure by the authors
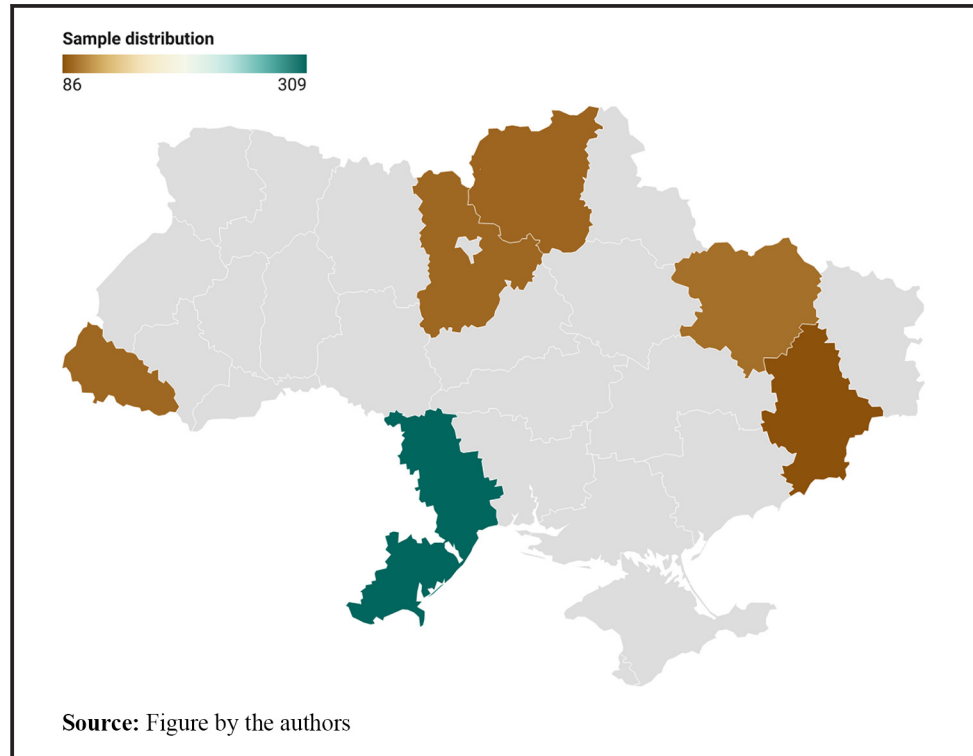
The sample included a variety of marital statuses and consisted of officially married persons (312; 40.2%), unofficially married (260; 33.5%), single (114; 14.7%), widowed (58; 7.5%), divorced persons (31; 4.0%) and missing data (2; 0.3%).

Data on the number of people in the household and the number of children are shown in Table 2. In total, 70.7% of respondents had five or more people in the household; 90.5% had children, with 53.1% of them having three and more.

Less the one-third of respondents were unemployed (229; 29.5%), and one-fourth of them had unregular employment (202; 26.0%) and seasonal work (182; 23.4%). Full-time (112; 14.4%) or self-employment (52; 6.7%) were the case for only one-fifth of the respondents (21.1%).

Depression, anxiety and suicidal ideations

Descriptive statistics for the general pooled data are shown in Table 3. Means for depression 8.08 (SD 5.254) and anxiety 7.22 (SD 4.488) are within the mild level.

All distributions do not comply with the normal distribution criteria (Supplementary Table 3).

Using the cut-off score of 10 for both measures, depression and anxiety (Manea et al., 2012; Spitzer et al., 2006), we found that 32.7% of respondents met the depression criteria (scores 10 and more). Among them, 3.6% had severe conditions, 8.4% had moderately severe and 20.7% had moderate levels of depression (Table 4 and Supplementary Tables 1 and 2).

In total, 29.6% of respondents indicated having at least one of the common anxiety disorders. Among them, 6.8% were characterised as having severe conditions, and 22.8% as having moderate anxiety levels.

Table 2	Number of people in the household and children				
No. of people in the household	N	%	*No. of children*	N	%
1	4	0.5	0	74	9.5
2	26	3.3	1	88	11.3
3	82	10.6	2	203	26.1
4	116	14.9	3	182	23.4
5	168	21.6	4	92	11.8
6	118	15.2	5	69	8.9
7	81	10.4	6	34	4.4
8	96	12.4	7	15	1.9
9	42	5.4	8	14	1.8
10	20	2.6	9	1	0.1
11	11	1.4	10	5	0.6
12	4	0.5			
13	3	0.4			
14	5	0.6			
15	1	0.1			
Mean	5.82		2.87		
Std. deviation	2.268		1.884		

Source: Table by the authors

Table 3	Depression and anxiety (descriptive statistics)				
	N	*Minimum*	*Maximum*	*Mean*	*SD*
PHQ-9 (total)	777	0	27	8.05	5.254
GAD-7 (total)	777	0	21	7.22	4.488
Valid *N* (listwise)	777				

Source: Table by the authors

Table 4	PHQ-9 (general data on depression) and GAD-7 (general data on anxiety)		
Levels	N	%	%
PHQ-9 (levels)			
Minimal (0–4)	204	26.3	26.3
Mild (5–9)	319	41.1	41.1
Moderate (10–14)	161	20.7	32.7
Moderately severe (15–19)	65	8.4	
Severe (20–27)	28	3.6	
GAD-7 (level)			
Minimal (0–4)	240	30.9	30.9
Mild (5–9)	307	39.5	39.5
Moderate (10–14)	177	22.8	29.6
Severe (15–21)	53	6.8	

Source: Table by the authors

According to the data, the two-week prevalence of suicidal ideation among the respondents was high: 16.0% had suicidal ideation during several days, 6.9% for more than half of the days and 4.0% nearly every day (Table 5).

Interregional comparison

Depression, anxiety and suicidal ideations means are presented in Table 6 (complete descriptive statistics available in Supplementary Table 4).

Table 5 Suicidal ideation (general population)

"Thoughts that you would be better off dead or of hurting yourself somehow"	N	%
None (0)	568	73.1
Several days (1)	124	16.0
More than half the days (2)	54	6.9
Nearly every day (3)	31	4.0

Source: Table by the authors

Table 6 Depression, anxiety and suicidal ideation: interregional comparison

	PHQ-9		GAD-7		Suicidal ideation	
	Mean	Std. deviation	Mean	SD	Mean	SD
Donetsk	8.53	4.460	8.82	4.246	0.19	0.523
Zakarpattia	7.26	4.032	6.34	3.191	0.15	0.356
Kyiv	7.88	4.368	7.77	4.676	0.11	0.309
Odesa	8.77	5.625	7.49	4.344	0.72	0.945
Kharkiv	6.33	6.458	5.13	5.469	0.45	0.921
Chernihiv	7.90	4.716	7.31	4.098	0.20	0.560

Source: Table by the authors

There is a difference in the means for depression, anxiety and suicidal ideations between regions (oblasts). The highest level of depression was in the Odesa (8.77) and Donetsk oblasts (8.53), and the lowest was in the Kharkiv oblast (6.33). Anxiety levels were highest in the Donetsk oblast (8.82) and lowest in the Kharkiv oblast (5.13). For suicidal ideation, the highest means were in Odesa (0.72) and Kharkiv oblasts (0.45), and the lowest were in the four other oblasts (Chernihiv, 0.2; Donetsk, 0.19; Zakarpattia, 0.15; and Kyiv 0.11).

To test for between-subjects effects, non-parametric Kruskal–Wallis one-way ANOVAs with multiple pairwise comparisons were performed for each of the dependent variables (depression, anxiety and suicidal ideations), with the region as an independent variable (results available in Supplementary Tables 7-9). A non-parametric test was chosen because of the deviations of the data from the normal distribution (Shapiro–Wilk's test) and non-homogeneity of variance (Levene's test) (Supplementary Tables 5 and 6).

The Kharkiv oblast was significantly different from all others for both conditions, depression and anxiety ($p < 0.05$, adjusted significance, the *lowest* level of depression and anxiety). Regarding suicidal ideation, only Odesa oblast (*highest* rate of suicidal ideations) was significantly different from others ($p < 0.05$, adjusted significance) (Figure 2).

Comparison by living place

Complete descriptive statistics regarding living place and mental health are available in Supplementary Table 10. Basic statistics are in Table 7.

Table 7 Depression, anxiety and suicidal ideations: comparison by living place

	PHQ-9		GAD-7		Suicidal ideation	
	Mean	SD	Mean	SD	Mean	SD
Camp	8.51	4.879	7.41	3.765	0.34	0.619
City	7.64	5.666	7.02	5.142	0.31	0.714
Village	8.15	5.115	7.28	4.281	0.49	0.845

Source: Table by the authors

PHQ-9 (Depression)   GAD-7 (Anxiety)   Suicidal ideations

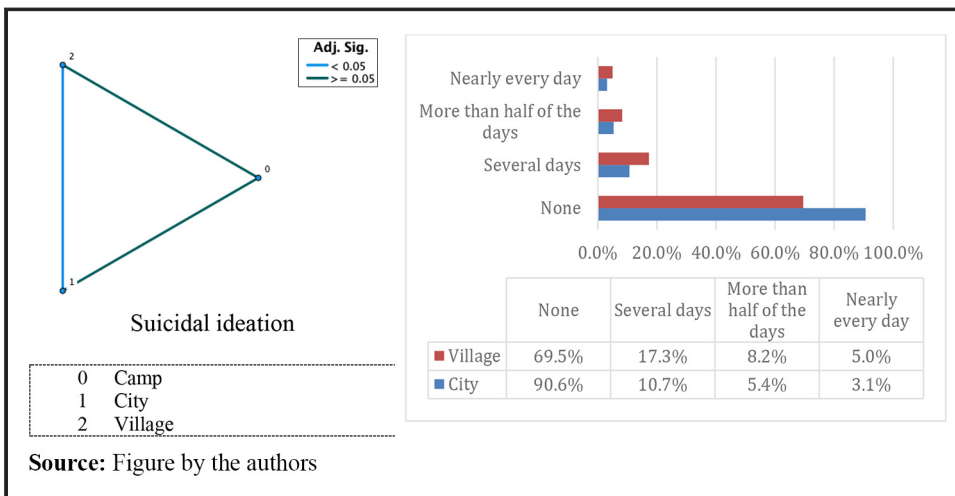| 1 | Donetsk | 3 | Kyiv | 5 | Kharkiv |
| 2 | Zakarpattia | 4 | Odesa | 6 | Chernihiv |

Source: Figure by the authors
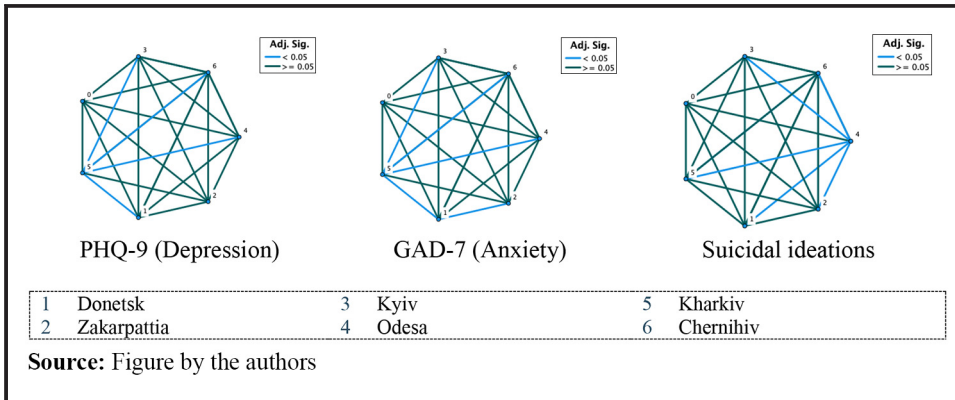
The highest level of depression (8.51) and anxiety (7.41) was among participated in research Romani living in the camps and the lowest (7.45 and 7.02, respectively) among city inhabitants (Table 12). As for suicidal ideation, the highest mean was found for villagers (0.49) and the lowest for city inhabitants (0.31).

To test for between-subjects effects, non-parametric Kruskal–Wallis one-way ANOVAs with multiple pairwise comparisons were performed for two of the dependent variables (anxiety and suicidal ideations), with the living place as an independent variable (results available in Supplementary Tables 13 and 14). A non-parametric test was chosen because of the deviations of the data from the normal distribution (for GAD-7 and suicidal ideation, Shapiro–Wilk's test) and non-homogeneity of variance (for GAD-7 and suicidal ideation, Levene's test) (Supplementary Tables 11 and 12).

No significant impact of the living place factor on anxiety was found ($p < 0.445$).

The significant impact of the living place factor was shown for suicidal ideation ($p < 0.008$). The pairwise comparison allowed us to identify the source of this effect: living in the city or the village ($p < 0.006$). Those living in villages had higher levels of suicidal ideation (0.49 vs 0.31, Figure 3, left). In the percentage, as presented in Figure 3 (right), the two-week

Figure 3 Pairwise comparison by living place (*left*) and city–village difference (*right*) (suicidal ideation)

Suicidal ideation

0	Camp
1	City
2	Village

	None	Several days	More than half of the days	Nearly every day
■ Village	69.5%	17.3%	8.2%	5.0%
■ City	90.6%	10.7%	5.4%	3.1%

Source: Figure by the authors

prevalence of several-days suicidal ideation among villagers was 17.3%, and among city inhabitants, it was 10.7%; for more-than-half-days, it was 8.2% versus 5.4%; for nearly-every-days, it was 5.0% versus 3.1%.

As for depression, to test the between-subjects effects, a standard one-way ANOVA was performed with the Tukey *post hoc* test for multiple pairwise comparisons and living place as an independent variable (results are available in Supplementary Tables 15 and 16). A parametric test was chosen because of the data's normal distribution and variance homogeneity (Supplementary Tables 11 and 12). No significant differences were found in the depression levels of people living in different places (cities, villages or camps).

Comparison by sex

Complete descriptive statistics regarding sex and mental health are available in Supplementary Table 17. Basic statistics are given in Table 8.

In general, the levels of depression and anxiety were marginally higher among women (depression 8.58 vs 7.48, anxiety 7.75 vs 6.55), and the level of suicidal ideation was also marginally higher among men (0.45 vs 0.40).

A non-parametric Mann–Whitney U test was performed to test the significance of the differences. A non-parametric test was chosen because of the deviations in the data's deviation from the normal and the non-homogeneity of the variances (Supplementary Tables 18 and 19). The differences in suicidal ideation were not significant ($p < 0.492$), but for depression and anxiety, the differences were significant ($p < 0.01$) (Supplementary Table 20). Table 9 shows the percentages of the frequency distributions.

The prevalence of moderate-level depression (10–14) was higher among women than among men (24.1% vs 16.5%), while the prevalence of moderately severe level was higher among men (9.0% vs 7.9%). Overall over-threshold prevalence for males was 28.6%, and for women, it was 36.0%.

In the case of anxiety, both moderate and severe levels were more prevalent among women (25.3% vs 19.7% for moderate level, 8.6% vs 4.5% for severe level). Overall over-threshold prevalence for males was 24.2%, and for females, it was 33.9%.

Table 8 Depression, anxiety and suicidal ideation: comparison by sex

| | PHQ-9 | | GAD-7 | | Suicidal ideation | |
	Mean	SD	Mean	SD	Mean	SD
Males	7.48	5.412	6.55	4.331	0.45	0.816
Females	8.48	5.091	7.75	4.543	0.40	0.768

Source: Table by the authors

Table 9 Percentage of the males and females versus depression and anxiety levels

PHQ-9 (levels)	Males %		Females %		GAD-7 (level) %	Males %		Females %	
Minimal (0–4)	32.7		21.1		Minimal (0–4)	37.6		25.5	
Mild (5–9)	38.7		42.9		Mild (5–9)	38.2		40.6	
Moderate (10–14)	16.5	28.6	24.1	36.0	Moderate (10–14)	19.7	24.2	25.3	33.9
Moderately severe (15–19)	9.0		7.9		Severe (15–21)	4.5		8.6	
Severe (20–27)	3.1		4.0						

Source: Table by the authors

Comparison by age

Four intervals were used for the age-related data analyses: 18–24, 25–44, 45–59 and 60+. Full descriptive age and mental health statistics are available in Supplementary Table 21. Basic statistics are in Table 10.

There are trends of increasing severity of mental health problems over time with age (Table 10 and Figure 4). The level of depression increased from the age band of 18–24 (5.86), reaching the maximum at 60+ (11.15). The same tendency can be seen regarding anxiety: the lowest level in the 18–24 band (5.08) and the highest in the 60+ band (8.05). Suicidal ideations were most frequent in the 60+ band (0.51) and the lowest in the 18–24 band (0.21).

To test for between-subjects effects, non-parametric Kruskal–Wallis one-way ANOVAs with multiple pairwise comparisons were performed for three of the dependent variables (depression, anxiety and suicidal ideations), with age as the independent variable (results available in Supplementary Tables 24 and 25). A non-parametric test was chosen because of the deviations of most of the data from a normal distribution (Shapiro–Wilk test), despite the homogeneity of variance for GAD-7 and PHQ-9, Levene's test) (Supplementary Tables 22 and 23).

The age-related differences for all measures, depression, anxiety and suicidal ideations appeared to be significant ($p < 0.001$ for PHQ-9 and GAD-7, $p < 0.05$ for suicidal ideation) (Supplementary Table 24).

Pairwise comparison detected a tendency towards a two-step increase of the depression severity across ages: the first increase occurring between 18–24 and 25–44 years (+2

	PHQ-9		GAD-7		Suicidal ideation	
Age	Mean	SD	Mean	SD	Mean	SD
18–24	5.86	4.784	5.08	3.698	0.26	0.697
25–44	8.05	5.123	7.39	4.512	0.46	0.791
45–49	8.28	5.107	7.84	4.520	0.41	0.752
60+	11.15	5.688	8.05	4.460	0.51	1.017

Table 10 Depression, anxiety and suicidal ideations: comparison by age

Source: Table by the authors

Figure 4 Age-related trends of the PHQ-9 and GAD-7 (*left*) and suicidal ideations (*right*)

Source: Figure by authors
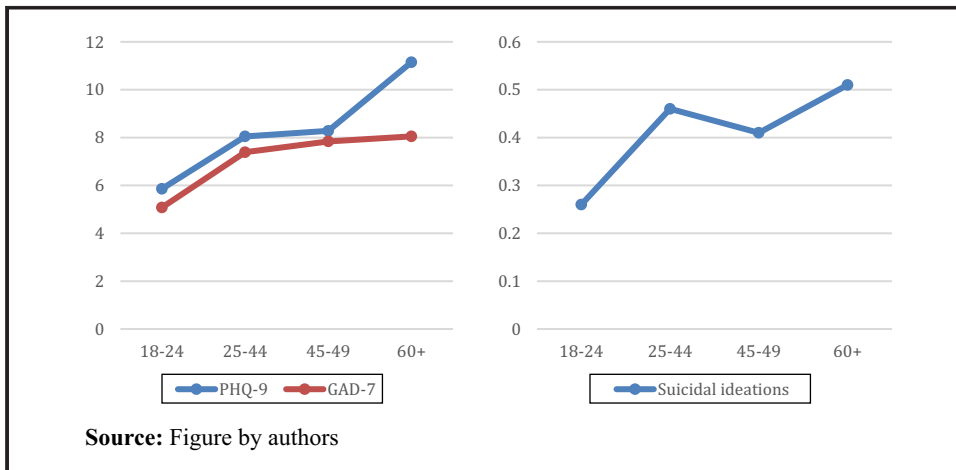
PHQ-9 points) and the second step during the transition from 45–59 to 60+ years (+3 PHQ-9 points). There is a plateau between 25 and 59 years of life (Figure 4, left).

Regarding anxiety, there is only one age-related increase (+2 GAD-7 points) between ages 18–24 and 25–44 years ($p < 0.01$). Afterwards, there is a minor increase in anxiety levels until 60+.

The levels of suicidal ideation change similarly to changes in anxiety levels: the same significant expansion after 18–24 years ($p < 0.01$), with no other differences (Figure 4, right).

Comparison by education

Four types of education were considered in the analysis: absence of education, secondary education (includes full secondary, unfinished and specialised), higher education (student) and higher education. Mental health data is available in Table 11 (complete descriptive statistics – Supplementary Table 26).

There is a visible trend of increasing mental health with education level. People without education had lower scores for depression and anxiety (PHQ-9 – 9.32; GAD-7 – 8.26) than those with secondary (PHQ-9 – 7.89; GAD-7 – 7.14) and higher education (PHQ-9 – 5.27; GAD-7 – 4.40). Students had the lowest levels of depression and anxiety (PHQ-9 – 3.04; GAD-7 – 3.00). The same trend was found for suicidal ideation, with students having a zero level of them.

To test for between-subjects effects, non-parametric Kruskal–Wallis one-way ANOVAs with multiple pairwise comparisons were performed for three of the dependent variables (depression, anxiety and suicidal ideations), with education as the independent variable (results available in Supplementary Tables 29 and 30). A non-parametric test was chosen because of the deviations of most of the data from a normal distribution (Shapiro–Wilk's test), despite the homogeneity of variance for GAD-7 and PHQ-9, Levene's test) (Supplementary Tables 27 and 28).

ANOVA results (Supplementary Table 29) confirm that for all the factors (depression, anxiety and suicidal ideation), there is an effect of education ($p < 0.01$). Visualisation of the results of multiple pairwise comparisons is shown in Figure 5 (data in Supplementary Table 30).

Comparison by marital status

For the analysis, we considered five types of marital status: widow (widower), single, married officially, married unofficially and divorced (Table 17 and Supplementary Table 31). Basic statistics are in Table 12.

The data show a similar trend for depression and anxiety, with the lowest levels among single and officially married. Suicidal ideation was least present among officially married people.

Table 11	Depression, anxiety and suicidal ideations: comparison by education					
	PHQ-9		GAD-7		Suicidal ideation	
Education	Mean	SD	Mean	SD	Mean	SD
Absent	9.35	5.018	8.26	4.114	0.52	0.866
Secondary education	7.89	5.218	7.14	4.495	0.41	0.773
Higher education (student)	3.04	3.983	3.00	3.539	0.00	0.000
Higher education	5.27	4.741	4.40	4.477	0.20	0.610
Source: Table by the authors						

Figure 5 Pairwise comparison by education

PHQ-9 (Depression)   GAD-7 (Anxiety)   Suicidal ideation

| 0 | Higher | 2 | Higher education (student) |
| 1 | Absent | 3 | Secondary |

Source: Figure by the authors
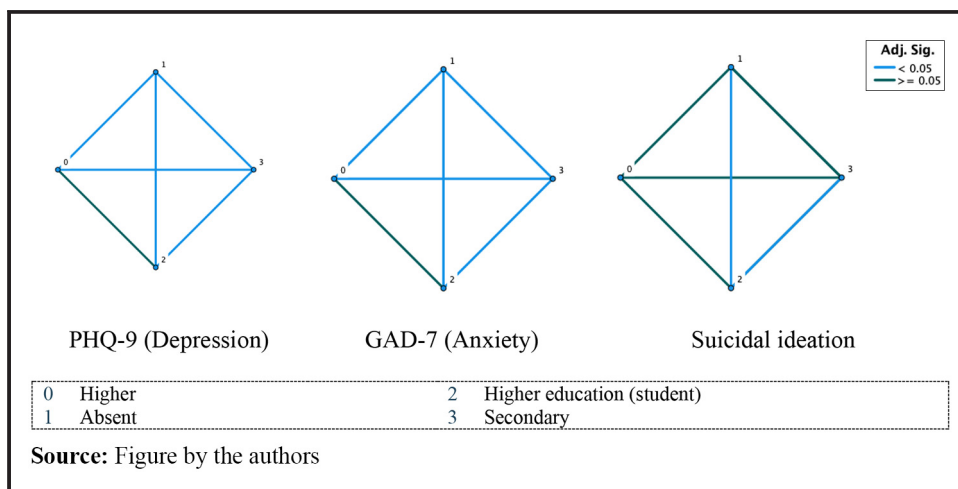
Table 12 Depression, anxiety and suicidal ideation: comparison by marital status

| | PHQ-9 | | GAD-7 | | Suicidal ideation | |
Education	Mean	SD	Mean	SD	Mean	SD
Widow (widower)	9.28	4.553	7.45	3.752	0.47	0.777
Single	7.97	5.566	6.94	4.914	0.39	0.793
Married officially	6.61	4.652	6.36	4.312	0.23	0.621
Married unofficially	9.37	5.515	8.20	4.380	0.64	0.921
Divorced	9.52	5.341	8.55	5.059	0.45	0.675

Source: Table by the authors

To test for between-subjects effects, non-parametric Kruskal–Wallis one-way ANOVAs with multiple pairwise comparisons were performed for three of the dependent variables (depression, anxiety and suicidal ideations), with marital status as the independent variable (results available in Supplementary Tables 34 and 35). A non-parametric test was chosen because of the deviations of most of the data from a normal distribution (Shapiro–Wilk test) (Supplementary Tables 32 and 33).

A significant effect was found ($p < 0.001$) for a marital status effect on all parameters, depression, anxiety and suicidal ideation (Supplementary Tables 34 and 35). Visualisation of the results of multiple pairwise comparisons is shown in Figure 6 (data in Supplementary Table 35).

Results show that officially married people had significantly lower levels of depression in comparison with widows (widowers), married unofficially and divorced participants ($p < 0.05$). As for anxiety levels, there was a significant difference between married officially (lower level) and married unofficially (higher level) ($p < 0.05$). Suicidal ideations were significantly different in three categories: married officially (lower level), single (middle level) and married unofficially (highest level) ($p < 0.05$).

Comparison by number of household members

The number of people in one household varies from 1 to 15, with a mean of 5.82 (SD 2.268) (6 ± 2 persons) (Table 6). Descriptive statistics regarding mental health data are given in Supplementary Table 36. Means of PHQ-9, GAD-7 and suicidal ideation are visualised in Figure 7.

A correlation analysis was performed to analyse the significance of the tendency for increasing mental health problems with increasing numbers of household members (the
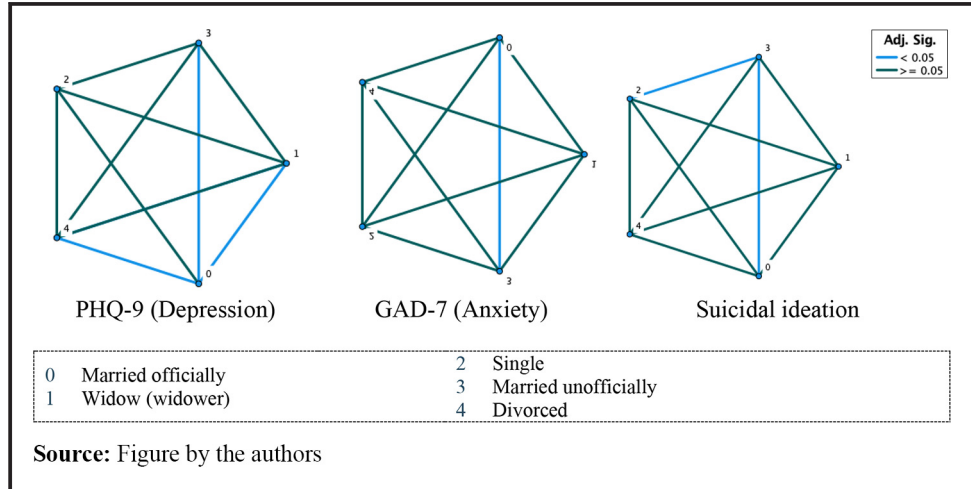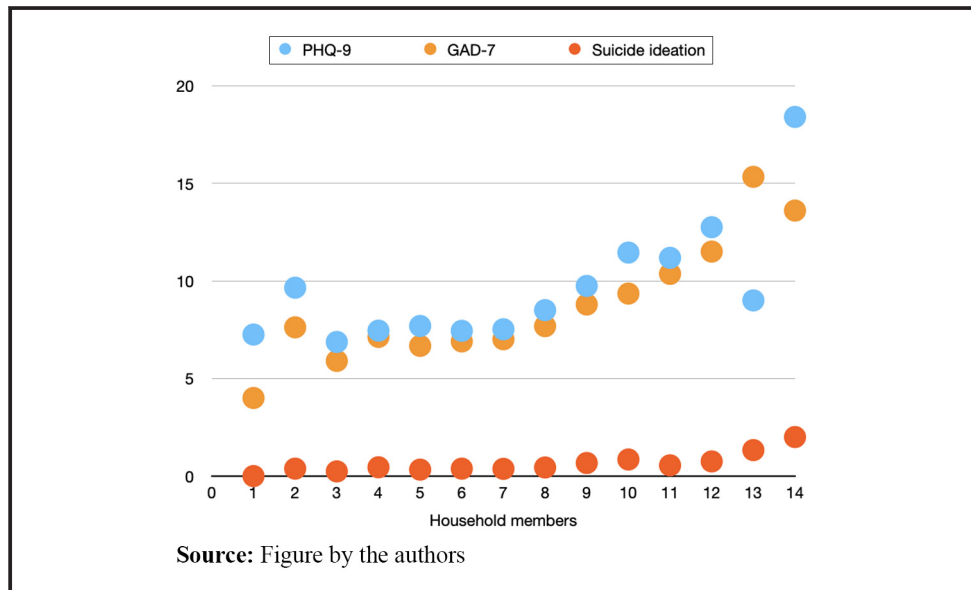
Figure 6 Pairwise comparison by marital status

PHQ-9 (Depression)   GAD-7 (Anxiety)   Suicidal ideation

0	Married officially	2	Single
1	Widow (widower)	3	Married unofficially
		4	Divorced

Source: Figure by the authors

Figure 7 Distribution of depression, anxiety and suicidal ideation means alongside the number of households members

Source: Figure by the authors

Spearmen coefficient was selected due to the deviation of the data from a normal distribution, Supplementary Table 3). The results of the analysis are shown in Table 13.

There is a significant but small correlation between all mental health parameters (depression, anxiety and suicidal ideation), $p < 0.001$ – the larger the household, the higher the mental health problems.

Comparison by number of children in a family

The number of children in families varies from 0 to 10, with a mean of 2.87 (SD 1.884) (3 ± 2 children) (Table 6, *right*). Descriptive statistics are available in Supplementary Tables 37 and 40. Extract of the means and SDs is given in Table 14.

Table 13 Depression, anxiety and suicidal ideations: correlations with the number of household members

	Spearman's ρ	Significance (two-tailed)	95% Confidence intervals (two-tailed)[a,b] Lower	Upper
N of household members – PHQ-9	0.149	<0.001	0.077	0.219
N of household members – suicidal ideation	0.124	<0.001	0.052	0.194
N of household members – GAD-7	0.175	<0.001	0.104	0.245

Notes: [a]Estimation is based on Fisher's r-to-z transformation; [b]estimation of standard error is based on the formula proposed by Fieller, Hartley and Pearson
Source: Table by the authors

Table 14 Depression, anxiety and suicidal ideations: comparison by absence/presence of the children

	PHQ-9		GAD-7		Suicidal ideation	
Children	Mean	SD	Mean	SD	Mean	SD
Yes	8.36	5.210	7.54	4.466	0.44	0.798
No	5.13	4.777	4.23	3.501	0.23	0.669

Source: Table by the authors

The non-parametric Mann–Whitney U test was performed to test the significance of the differences among participants with and without children because of the deviations in the data's distribution from the normal (Supplementary Table 38). According to the results, all differences in PHQ-9 and GAD-7 were significant at $p < 0.001$ and for suicidal ideations, $p < 0.004$ (Supplementary Table 39).

Means of PHQ-9, GAD-7 and suicidal ideations are visualised in Figure 8.

Correlation analysis was performed to analyse the significance of the tendency for mental health problems to increase with the number of children (the Spearmen coefficient was

Figure 8 Distribution of depression, anxiety and suicidal ideation means alongside the number of children in a family

Source: Figure by the authors
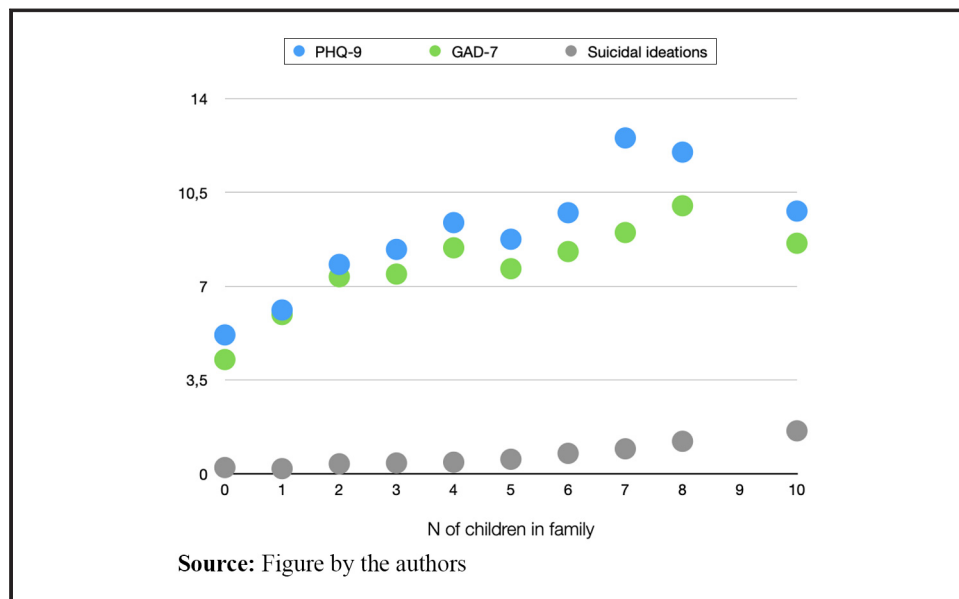
selected due to the deviation of the data from the normal distribution, Supplementary Table 41). The results of the analysis are available in Table 15.

There is a significant small correlation between all mental health parameters (depression, anxiety and suicidal ideations), $p < 0.001$ – the larger the number of children, the higher the level of the mentioned problems.

Comparison by employment

To test the hypothesis of the connection between employment and mental health, a two-step approach was implemented. In the first step, the significance of the differences in mental health was tested, comparing the mental health of the unemployed and those with at least one type of employment (full-time, self-employment, seasonal and unregular). Complete descriptive statistics are available in Supplementary Table 42. Means and SDs are presented in Table 16.

To test the significance of the differences, a non-parametric Mann–Whitney U test was performed because of the deviations in the data's distribution from the normal (Supplementary Table 43). According to the results, no significant differences regarding employment were found in depression and anxiety ($p > 0.05$) (Supplementary Table 44). However, the level of suicidal ideation among the employed participants was significantly higher than among the unemployed ($p < 0.05$) (Supplementary Table 44). Due to this result, the employment structure and its connection to mental health were explored in the second step of the analysis.

Descriptive statistics regarding mental health data are given in Supplementary Table 45. Means of PHQ-9, GAD-7 and suicidal ideations are presented in Table 17.

The lowest levels of mental health (highest scores of depression, anxiety and suicidal ideation) were among those employed seasonally or irregularly.

To test the between-subject effect, a non-parametric Kruskal–Wallis one-way ANOVA with multiple pairwise comparisons was performed for three dependent variables (depression, anxiety and suicidal ideations), with employment as an independent variable (results available in Supplementary Tables 47 and 48). A non-parametric test was chosen because

Table 15 Depression, anxiety and suicidal ideations: correlations with the *n* of children

| | | | Confidence intervals of Spearman's ρ | |
| | | | 95% Confidence intervals (two-tailed)[a,b] | |
	Spearman's ρ	Significance (two-tailed)	Lower	Upper
PHQ-9 – *n* of children	0.303	<0.001	0.236	0.368
Suicidal ideation – *n* of children	0.224	<0.001	0.154	0.291
GAD-7 – *n* of children	0.253	<0.001	0.184	0.319

Notes: [a]Estimation is based on Fisher's *r*-to-*z* transformation; [b]estimation of standard error is based on the formula proposed by Fieller, Hartley and Pearson
Source: Table by the authors

Table 16 Depression, anxiety and suicidal ideations: comparison by employment (yes/no)

| | PHQ-9 | | GAD-7 | | Suicidal ideation | |
Employment	Mean	SD	Mean	SD	Mean	SD
Unemployed	8.10	4.879	6.96	4.255	0.30	0.635
Employed (any type)	8.02	5.407	7.33	4.582	0.47	0.841

Source: Table by the authors

Table 17	Depression, anxiety and suicidal ideations: comparison by employment (types)						
	PHQ-9		*GAD-7*		*Suicidal ideation*	
Employment	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Unemployed	8.10	4.879	6.96	4.255	0.30	0.635
Full-time employment	5.86	4.091	5.51	3.957	0.18	0.469
Self-employment	4.88	4.776	4.90	4.916	0.19	0.561
Seasonal employment	9.06	5.722	8.25	4.646	0.61	0.932
Unregular employment	9.09	5.271	8.12	4.259	0.57	0.918
Source: Table by the authors						

of the deviations of the data from a normal distribution (Shapiro–Wilk test) (Supplementary Table 46).
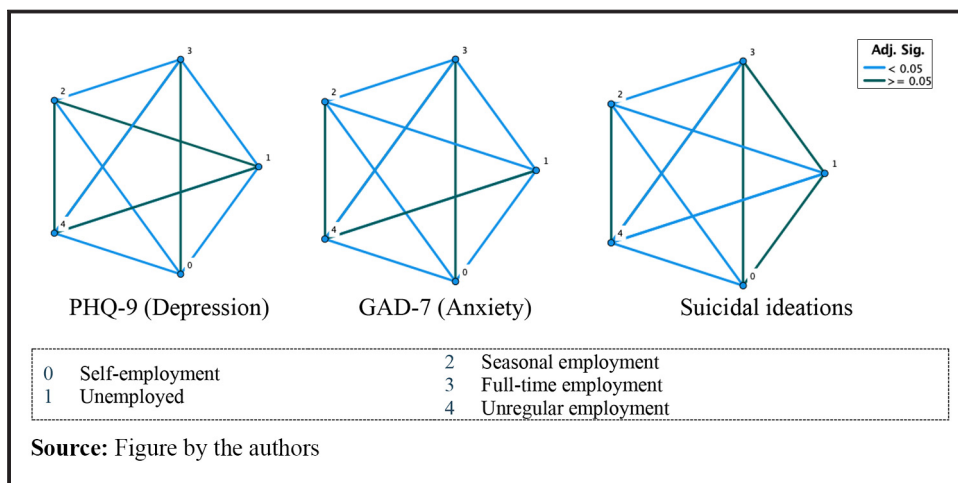
A significant effect was found ($p < 0.001$) for the effect of employment on all parameters, depression, anxiety and suicidal ideation (Supplementary Table 47). Visualisation of the results of multiple pairwise comparisons is shown in Figure 9 (data in Supplementary Table 48).

Results show that self-employed and full-time employees had significantly lower levels of depression and anxiety than unemployed, seasonally and irregularly employed ($p < 0.001$ for both variables). At the same time, the anxiety among seasonally employed and irregularly employed was higher than in those unemployed (for the latter $p < 0.062$, not achieving a statistically significant level).

Regarding suicidal ideation, full-time employed, self-employed and unemployed had the lowest levels, and seasonally employed and irregularly employed had the highest ($p < 0.05$).

Discussion

The results of our study showed that the overall rate of signs of depression (PHQ-9) in the sample was 8.08 (SD 5.254), and the mean for anxiety was 7.22 (SD 4.488), which corresponds to mild levels of conditions. Overall, 32.7% of respondents scored positively for signs of depression (3.6% severe, 8.4% moderately severe and 20.7% moderate levels). Regarding anxiety, 29.6% scored positively for anxiety disorders (6.8% severe and 22.8%

Figure 9	Pairwise comparison by employment

PHQ-9 (Depression)   GAD-7 (Anxiety)   Suicidal ideations

Adj. Sig.
< 0.05
> = 0.05

0	Self-employment	2	Seasonal employment
1	Unemployed	3	Full-time employment
		4	Unregular employment

Source: Figure by the authors

moderate levels). The two-week prevalence of suicidal ideation was high – 26.9% scored positively.

A comparison of the data obtained in this and other studies focused on mental health in Ukraine (Table 18) reveals that the prevalence of depression among the Romani population is twofold higher, and anxiety is 2.5-fold higher than in the general population. Even compared to persons internally displaced due to the first Russian invasion, those who participated in research Romani have 10%–15% higher levels of depression and 9%–13% higher levels of anxiety.

Higher physical and mental health problems prevalence and severity among Romani respondents were also found in different countries (Yin-Har Lau and Ridge, 2011; Cook et al., 2013). For example, in Slovakia, Romani coronary patients show significantly higher levels of anxiety and depression signs (mean scores 34.0 to 22.2) compared to non-Romani patients (Skodova et al., 2010). Romani women in Spain are more likely to suffer from depression and migraine (OR 1.91) and have higher alcohol consumption (OR 3.77) than non-Romani women (Carrasco-Garrido et al., 2011). Romani children and adolescents in Romania and Bulgaria experience more significant mental health problems than children of other ethnic communities living in these countries; they are two to six times more likely to develop disorders compared to non-Romani peers – phobias (28.5% vs 7.78%), generalised anxiety disorder and other anxiety disorders (16.2% vs 5.6%) and depression (16.9% vs 4.9%) (Lee et al., 2014).

The most disturbing in such a comparison is the data about the prevalence of suicidal ideation. The finding of 26.9% of the two-week prevalence of suicidal ideation among the Romani who participated in the study is a critical call for immediate action. As for the worldwide epidemiology of suicidal ideation and behaviour among Romani, Gypsies and Travellers across the word, data indicate rates some two to six times higher than in the general population (Zonda and Lester, 1990; Tóth et al., 2018; Tanner and Doherty, 2022).

It is hard to speculate about reasons for suicidal ideation among Romani and whether they differ from those in the general population. For instance, in the UK, the main risk factors of suicide by Romani and members of other travelling communities are imprisonment, travel and unemployment, mental disorders, feelings of hopelessness and suicide attempts in family history (Millan and Smith, 2019). From another study of Hungarian hospital toxicology patients admitted because of suicide attempts, no significant difference was found between Romani and non-Romani patients in the causes of self-poisoning. There were also no significant differences found in the levels of depression (21.1 vs 22.6), hopelessness (8.1 vs 8.9) or lack of social support (20.7 vs 21.8) of patients (Tóth et al., 2018).

Several social determinants of mental health were explored in our study. We considered living places, sex, age, education, employment and household characteristics.

Table 18	Data on depression and anxiety among different populations (two-week prevalence)			
Mental health conditions	Romani population (%)	Internally displaced people Roberts et al. (2019) (%)		General population Kuznetsova et al. (2019) (%)
PHQ-9, Depression	32.7	22	25	14
GAD-7, Anxiety	29.6	17	20.2	12.2
Suicidal ideations	26.9			8.2 (lifetime prevalence) 1.8 (12-month prevalence) (Bromet et al., 2007)

Source: Table by the authors

Despite some differences, living places (city, village or camp) appeared not to significantly impact levels of depression and anxiety, which were almost the same in each case. However, living in a village or a city significantly affected suicidal ideation levels. These were much higher among villagers (30.5%), where one in three persons had suicidal ideation on at least several days in a two-week period. In cities, the general prevalence was 9.4%, which is also high compared with the general population of Ukraine. One in ten Romani, who participated in the study, had suicidal ideation during the two previous weeks from the time of the research interview. There is extensive data on higher suicide mortality in rural areas versus urban in different populations (Casant and Helbich, 2022). Often this relates to poorer living conditions, which was not in our research focus but can be an explanation. For example, living conditions are found as factors affecting the mental health of Greek Romani and Romani and representatives of other nomadic communities in some parts of the UK (Pappa *et al*., 2015; Greenfields and Brindley, 2016). They often experience stress and anxiety, partly triggered by living conditions. Those who have unstable residences or do not have basic living conditions such as electricity, water and sewerage also have worse mental health and often experience stress and anxiety (Pappa *et al*., 2015). The prevalence of depression and anxiety among Romani women in the Pappa *et al*.'s study was significantly higher than among men (36% vs 28.6% for depression, 33.9% vs 24.2% for anxiety). Such data align with general world statistics and research results focused on the Roma population in different countries (WHO, 2000; Robinson *et al*., 2022; CoE, 2022). For example, one Slovenian study shows that 31.9% of Romani respondents reported mental health problems, and 66.7% were women (Zelko *et al*., 2015). As for age differences, there is a trend towards increasing signs of depression and suicidal ideation from 18–24 to 25–44 and after 45–49 years. Anxiety rises only once from 18–24 years to 25–44 years; then, there is a plateau. In general, there is a tendency for lower levels of mental health with ageing, which agrees with general mental health data (Riedel-Heller *et al*., 2006).

This study also confirms findings highlighted in other studies that education and employment are significant determinants of mental health (Pappa *et al*., 2015; Zelko *et al*., 2015; Arora *et al*., 2016). In our study, signs of depression and anxiety are higher for people without education than university students (9.32 vs 3.04 for depression and 8.26 vs 3.00 for anxiety). In terms of employment, the highest scores for depression, anxiety and suicidal ideations have those who are employed seasonally (9.06; 8.25; 0.61) or irregularly (9.09; 8.12; 0.57) in contrast with self-employed (4.88; 4.90; 0.19) and full-time employees (5.86; 5.51; 0.18).

To compare with other findings, education levels are associated with differences in the mental health of Greek Romani: the worst mental health indicators are among those with no education (43.30, and those with a primary 50.38 and secondary 63.14 education) (Pappa *et al*., 2015). Among those Romany in Slovenia who reported mental health problems, 52.5% are unemployed (Zelko *et al*., 2015). Similar data came from a UK study where among the main risk factors of suicide are imprisonment and unemployment (Millan and Smith, 2019). In a large-scale comparative study in Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Montenegro, Moldova, Serbia and Slovakia, data showed that Romani families more often have difficulties with employment. Unemployment provokes financial problems, which, in turn, limits access to health care and psychological and social support. In addition, employers often take care of employees by providing them with a social package, which may include health insurance. Lack of work means the absence of such packages. Equally important is the care and support of colleagues, of which unemployed people are deprived. Lack of permanent employment forces Romani families to migrate, which is often an additional stress. They take on seasonal work, often hard work with inadequate conditions that are physically and psychologically exhausting (Arora *et al*., 2016). In addition, mental health parameters

are connected with marital status and the number of children and household members. Our study found that depression, anxiety and suicidal ideations levels were the lowest among officially married (6.61, 6.36 and 0.23, respectively) but more significant among those who have more children (for those with children, 8.36, 7.54 and 0.44; for those without children, 5.13, 7.54 and 0.23, respectively) and more household members (correlation between depression, anxiety and suicidal ideation scores and the number of household members is equal to 0.124–0.175; $p < 0.001$). From other studies, we can see that the worst mental health indicators have not just Romani but representatives of other nationalities (Robles *et al.*, 2014; Pappa *et al.*, 2015).

Conclusions

Social determinants affect the mental health of the Romani population in Ukraine. A high prevalence of depression and anxiety, 3–2.5-fold higher than in the general population, is caused by problems with the accessibility of services and education, housing problems and low access to the employment market.

We have shown that higher education levels and stable employment are the most significant protective factors for the mental health of the Romani who participated in the study. Increasing the accessibility to those opportunities is needed to ensure the mental health of all in Ukraine.

The profoundly worrying prevalence of suicidal ideation, potentially 10-fold higher than in the general population, must serve as a call to immediate action in developing a suicide prevention strategy that will include the Romani population.

The most important implication from the data is that due to the effects of the full-scale Russian invasion in February 2022, those figures will not improve but will worsen over time without appropriate actions.

Limitations of the study

The study has some limitations. Data were gathered from January to March 2020, and since then, the situation in Ukraine has drastically changed due to the full-scale Russian invasion. Therefore, while our data and conclusions might serve as a baseline for further research, they do not represent the real-time situation. While many social factors were analysed, the effects found for them do not necessarily represent causality, given the statistical methods used. Interactions among factors were not studied; therefore, no firm conclusions can be made about the effects of those interactions on mental health.

Note

1. www.datawrapper.de/

References

ADC Memorial (2015), "Anti-Discrimination Centre Memorial. Roma and War in Eastern Ukraine – refugees, displaced persons, victims of violence", available at: www.adcmemorial.org/wp-content/uploads/RomaENGwww.pdf

Arora, V.S., Kühlbrandt, C. and McKee, M. (2016), "An examination of unmet health needs as perceived by Roma in Central and Eastern Europe", *The European Journal of Public Health*, Vol. 26 No. 5, pp. 737-742.

Bocheva, H. (2019), *Roma in Ukraine – A Time for Action: Priorities and Pathways for an Effective Integration Policy*, Minority Rights Group Europe (MRGE).

Bromet, E.J., Havenaar, J.M., Tintle, N., Kostyuchenko, S., Kotov, R. and Gluzman, S. (2007), "Suicide ideation, plans and attempts in Ukraine: findings from the Ukraine World Mental Health Survey", *Psychological Medicine*, Vol. 37 No. 6, pp. 807-819.

Carrasco-Garrido, P., López de, A.A., Hernández Barrera, V., Jiménez-Trujillo, I. and Jiménez-García, R. (2011), "Health status of Roma women in Spain", *The European Journal of Public Health*, Vol. 21 No. 6, pp. 793-8, doi: 10.1093/eurpub/ckq153. Epub 2010 Oct 13. PMID: 20943990.

Casant, J. and Helbich, M. (2022), "Inequalities of suicide mortality across urban and rural areas: a literature review", *International Journal of Environmental Research and Public Health*, Vol. 19 No. 5, p. 2669, doi: 10.3390/ijerph19052669. PMID: 35270369; PMCID: PMC8909802.

Chaban, O. and Bezsheiko, V. (2017), "Symptomy posttravmatychnoho stresu, tryvohy ta depresii sered uchasnykiv boiovykh dii v zoni antyterorystychnoi operatsii [PTSD, anxiety and depression in Ukrainian military, exposed to 'war zone' stress]", *Ukrayinskiy Visnyk Psykhonevrologiyi*, Vol. 2 No. 91, pp. 80-84.

CoE (2022), "Council of Europe. Roma women research", Report on Spain, available at: www.rm.coe.int/16806cb07c

Cook, B., Wayne, G.F., Valentine, A., *et al.* (2013), "Revisiting the evidence on health and health care disparities among the Roma: a systematic review 2003–2012", *International Journal of Public Health*, Vol. 58 No. 6, pp. 885-911, doi: 10.1007/s00038-013-0518-6.

Gorbunova, V., Gusak, N., Klymchuk, V., Kondur, Z., Valeriia, P., Popenko, V. and Oates, J. (2021), "Social constructions of mental health among Romani in Ukraine", *Mental Health and Social Inclusion*, Vol. 25 No. 2, pp. 123-133.

Gorbunova, V., Gusak, N., Klymchuk, V., Palii, V., Ustenko, V., Kondur, Z., Oates, J. (2022), "Social determinants of mental well-being: senses of powerlessness and empowerment among Romani in Ukraine", *Mental Health and Social Inclusion*, Vol. 26 No. 2, pp. 156-166.

Greenfields, M. and Brindley, M. (2016), "Impact of insecure accommodation and the living environment on gypsies' and travellers' health".

KIIS (2019), "Kyiv international institute of sociology. Mental health in Donetsk and Luhansk oblasts", available at: www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/2018_mhpss_report_en.pdf

Kuznetsova, I., Catling, J., Mikheieva, O., Round, J. and Babenko, S. (2019), "The mental health of internally displaced people and the general population in Ukraine. The results of a research project ('Ukraine's hidden tragedy: understanding the outcomes of population displacement from the country's war torn regions') of interdisciplinary team from the University of Birmingham, University of Oxford and Ukrainian Catholic University (AHRC PCCSR award)", available at: www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/mental_health_of_idps_and_general_population_in_ukraine.pdf?fbclid=IwAR0q5GoGyTXKCje-tmS3uxVGrhX7CuJl7vCgQIk1F9oF_qlpoaBRoI54azQ

Lee, E.J., Keyes, K., Bitfoi, A., Mihova, Z., Pez, O., Yoon, E. and Masfety, V.K. (2014), "Mental health disparities between Roma and non-Roma children in Romania and Bulgaria", *BMC Psychiatry*, Vol. 14 No. 1, p. 297.

Manea, L., Gilbody, S. and McMillan, D. (2012), "Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis", *Canadian Medical Association Journal*, Vol. 184 No. 3, pp. E191-E196.

Millan, M. and Smith, D. (2019), "A comparative sociology of gypsy traveller health in the UK", *International Journal of Environmental Research and Public Health*, Vol. 16 No. 3, p. 379.

Pappa, E., Chatzikonstantinidou, S., Chalkiopoulos, G., Papadopoulos, A. and Niakas, D. (2015), "Health-related quality of life of the Roma in Greece: the role of socio-economic characteristics and housing conditions", *International Journal of Environmental Research and Public Health*, Vol. 12 No. 6, pp. 6669-6681.

Riedel-Heller, S.G., Busse, A. and Angermeyer, M.C. (2006), "The state of mental health in old-age across the 'old' European Union – a systematic review", *Acta Psychiatrica Scandinavica*, Vol. 113 No. 5, pp. 388-401.

Roberts, B., Makhashvili, N., Javakhishvili, J., Karachevskyy, A., Kharchenko, N., Shpiker, M. and Richardson, E. (2019), "Mental health care utilisation among internally displaced persons in

Ukraine: results from a nation-wide survey", *Epidemiology and Psychiatric Sciences*, Vol. 28 No. 1, pp. 100-111.

Robinson, T., Oluboyede, Y., Vale, L. and Olariu, E. (2022), "Differences in health-related quality of life between the Roma community and the general population in Romania", *Journal of Patient-Reported Outcomes*, Vol. 6 No. 1, p. 127, doi: 10.1186/s41687-022-00530-2.

Robles, T.F., Slatcher, R.B., Trombello, J.M. and McGinn, M.M. (2014), "Marital quality and health: a meta-analytic review", *Psychological Bulletin*, Vol. 140 No. 1, pp. 140-187, doi: 10.1037/a0031859. Epub 2013 Mar 25. PMID: 23527470; PMCID: PMC3872512.

Skodova, Z., van Dijk, J.P., Nagyova, I., Rosenberger, J., Ondusova, D., Studencan, M. and Reijneveld, S.A. (2010), "Psychosocial factors of coronary heart disease and quality of life among Roma coronary patients: a study matched by socioeconomic position", *International Journal of Public Health*, Vol. 55 No. 5, pp. 373-380, doi: 10.1007/s00038-010-0153-4.

Spitzer, R.L., Kroenke, K., Williams, J.B. and Löwe, B. (2006), "A brief measure for assessing generalised anxiety disorder: the GAD-7", *Archives of Internal Medicine*, Vol. 166 No. 10, pp. 1092-1097.

Tanner, B. and Doherty, A.M. (2022), "Suicidal ideation and behaviors among Irish travellers presenting for emergency care: ethnicity as a risk factor", *Crisis*, Vol. 43 No. 2, pp. 149-156, doi: 10.1027/0227-5910/a000769.

Tóth, M.D., Ádám, S., Zonda, T., Birkás, E. and Purebl, G. (2018), "Risk factors for multiple suicide attempts among Roma in Hungary", *Transcultural Psychiatry*, Vol. 55 No. 1, pp. 55-72, doi: 10.1177/1363461517731703.

World Health Organization (WHO) (2000), "Mental health determinants and populations team", Women's mental health: an evidence-based review. World Health Organization, available at: www.apps.who.int/iris/handle/10665/66539

World Health Organization (WHO) (2014), "Social determinants of mental health".

World Health Organization (WHO) (2019), "Healthy, prosperous lives for all: the European health equity status report".

Yin-Har Lau, A. and Ridge, M. (2011), "Addressing the impact of social exclusion on mental health in gypsy, Roma, and traveller communities", *Mental Health and Social Inclusion*, Vol. 15 No. 3, pp. 129-137.

Zelko, E., Švab, I. And Pavlič, D.R. (2015), "Quality of life and patient satisfaction with family practice care in a Roma population with chronic conditions in northeast Slovenia/Kakovost Življenja V Povezavi S Kroničnimi Boleznimi in Z Zadovoljstvom Z Oskrbo Zdravnika Družinske Medicine Med Romskim Prebivalstvom V Sv Sloveniji", *Slovenian Journal of Public Health*, Vol. 54 No. 1, pp. 18-26.

Zonda, T. and Lester, D. (1990), "Suicide among Hungarian gypsies", *Acta Psychiatrica Scandinavica*, Vol. 82 No. 5, pp. 381-382.

Further reading

American Psychiatric Association (APA) (2013), "Diagnostic and statistical manual of mental disorders (DSM-5®)".

Janevic, T., Osypuk, T., Stojanovski, K., Jankovic, J., Gundersen, D. and Rogers, M. (2017), "Associations between racial discrimination, smoking during pregnancy and low birthweight among Roma", *The European Journal of Public Health*, Vol. 27 No. 3, pp. 410-415.

Rogers, C. (2014), *Beyond Bereavement: exploring Resilience in Gypsy and Traveller Families following Bereavement*, From Person to Society, p. 1291.

UNHCR (2019), "United Nations. Human rights council. Right of everyone to the enjoyment of the highest attainable standard of physical and mental health: report of the special rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health".

Supplementary material

Supplementary material for this article can be found online.

Author affiliations

Viktoriia Gorbunova is based at the Department of Social Psychology, Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine

Vitalii Klymchuk is based at the Department of Social Psychology of Personality, Institute of Social and Political Psychology of the National Academy of Educational Sciences of Ukraine, Kyiv, Ukraine and National Psychological Association of Ukraine, Kyiv, Ukraine

Olha Savychenko is based at the Department of Social and Applied Psychology, Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine

Valeriia Palii is based at the National Psychological Association of Ukraine, Kyiv, Ukraine

Zemfira Kondur is Senior Project Officer at the National Minorities and Roma, Council of Europe Office in Ukraine, Kyiv, Ukraine

Viola Popenko is based at Central European University, Vienna, Austria

John Oates is based at the School of Wellbeing, Education and Language Studies, The Open University, Milton Keynes, UK

Corresponding author

Vitalii Klymchuk can be contacted at: vitaly.klymchuk@gmail.com