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The war in Ukraine and the dynamics of PTSD and depression in Poles aged 50+

Wojna w Ukrainie a dynamika PTSD i depresji u Polaków w wieku 50+

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Abstract

Introduction and objective: Older Poles are a group particularly exposed to mental health disturbances in connection with the war in Ukraine. The aim of this research was to determine the severity and dynamics of post-traumatic stress disorder (PTSD), depression and somatic symptoms in the first year of the war in Ukraine, the relationship between PTSD and depression and sociodemographic factors, as well as to identify factors that increase the risk of PTSD and depression persisting a year after Russia's aggression against Ukraine. **Materials and methods:** People aged ≥50 years (N = 116) were included in the study. The respondents were asked to complete the questionnaires twice, i.e. taking into account 2022 (beginning of war) and 2023 (a year after the outbreak). The International Trauma Questionnaire (ITQ), Patient Health Questionnaire (PHQ-9) and 8 items from the Patient Health Questionnaire – Somatic Symptoms (PHQ-15) were used. **Results:** In 2022, nearly 40% of respondents presented with PTSD, and over 60% showed depressed mood. In 2023, the number of people meeting the criteria for PTSD and depression decreased. Women showed higher levels of PTSD and depression. Higher levels of PTSD symptoms were observed among people with higher education. A greater decrease in the severity of PTSD was found among those declaring involvement in providing help for Ukraine. Older age and a higher baseline ITQ or PHQ-9 score favoured the persistence of PTSD and depression in 2023. **Conclusions:** Factors contributing to poor mental health other than the war itself may include the negative effects of the COVID-19 pandemic, current socioeconomic changes and past traumas.

Keywords: depression, PTSD, war in Ukraine, adult Poles

Streszczenie

Wprowadzenie i cel: Grupą szczególnie narażoną na zakłócenia zdrowia psychicznego w związku z wybuchem wojny w Ukrainie są starsi Polacy. Celem badań własnych uczyniono: określenie nasilenia i zmienności zespołu stresu pourazowego (*post-traumatic stress disorder*, PTSD), depresji i objawów somatycznych w ciągu roku trwania wojny w Ukrainie, ustalenie związków PTSD i depresji z czynnikami socjodemograficznymi oraz wskazanie czynników nasilających ryzyko utrzymywania się PTSD i depresji rok po agresji Rosji na Ukrainę. **Materiał i metody:** W badaniach uczestniczyły osoby w wieku 50+ (N = 116). Respondenci byli proszeni o dwukrotne wypełnienie kwestionariuszy – z uwzględnieniem roku 2022 (początek wojny) i 2023 (rok po wybuchu wojny). Wykorzystano: Międzynarodowy Kwestionariusz Traumy (International Trauma Questionnaire, ITQ), Kwestionariusz Zdrowia Pacjenta (Patient Health Questionnaire, PHQ-9) oraz 8 itemów z Kwestionariusza Zdrowia Pacjenta – Symptomy Somatyczne (Patient Health Questionnaire – Physical Symptoms, PHQ-15). **Wyniki:** W 2022 roku blisko 40% badanych wykazywało obecność PTSD, a ponad 60% – obniżenia nastroju. W 2023 roku zmalała liczba osób spełniających kryteria PTSD i depresji. W obrazie PTSD dominowały poczucie zagrożenia i tendencja do unikania. Kobiety przejawiały wyższe nasilenie cech PTSD i depresji. Wyższe nasilenie cech PTSD stwierdzono u osób z wykształceniem wyższym. Większy spadek nasilenia cech PTSD dotyczył osób deklarujących pomoc Ukrainie. Wyższy wiek i wyższy wyjściowy wynik ITQ czy PHQ-9 sprzyjały utrzymywaniu się PTSD i depresji w 2023 roku. **Wnioski:** Czynnikami przyczyniającymi się do zakłóceń zdrowia psychicznego mogą być, oprócz wojny, negatywne skutki pandemii COVID-19, obecne przemiany społeczno-gospodarcze oraz przeszłe traumy.

Słowa kluczowe: depresja, PTSD, wojna w Ukrainie, dorośli Polacy

INTRODUCTION

Russia launched a full-scale invasion of Ukraine on February 24, 2022. Russia's annexation of Crimea in 2014 and subsequent armed conflicts in the eastern region of Ukraine, which were supported by Russia, are considered the beginning of the ongoing war. It was already pointed out in early reports that the war was becoming the most serious armed conflict in Europe since World War II. Not only soldiers, but also civilians of all ages were the victims. As of June 30, 2023, the Office of High Commissioner for Human Rights (OHCHR) confirmed a total of 9,177 civilian deaths (STATISTA, 2023; UNHCR Regional Bureau for Europe, 2023), and 15,993 wounded people, with the actual numbers possibly higher and still rising. By July 17, 2023, nearly 6 million refugees from Ukraine had been registered in Europe, and over 5 million people had been displaced internally (UNHCR Operational Data Portal, 2023). Ukraine's losses have encompassed and continue to encompass all spheres of life: employment, health care, industry, agriculture, and culture.

The humanitarian and economic crisis that has continued since 2014 and intensified since February 2022, compounded by the COVID-19 pandemic crisis, is prompting studies on the mental health of refugees, those remaining in Ukraine and other populations. The rates of post-traumatic stress disorder (PTSD) are much higher in war-affected communities than in other populations.

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), PTSD criteria include exposure to trauma and the resulting intrusions (disturbing, intrusive memories and nightmares), avoidance (of distressing places or memories), hypervigilance (increased alert for threats or preoccupation with potential danger), as well as problems with emotions and cognition (among others poor concentration, negative thoughts). These symptoms negatively affect work and interpersonal relationships (American Psychiatric Association, 2013).

Studies in Ukrainians of all age groups confirmed significant mental health disturbances in the form of PTSD, depression, anxiety, sleep disorders and somatic symptoms (Anjum et al., 2023; Długosz, 2023; Ho et al., 2023; Kokun, 2023; Zasiekina et al., 2023). Attention has been paid to the relationship between PTSD and socioeconomic, individual, psychological and situational factors, such as experiences associated with refugee status, bombardment, death or disappearance of loved ones, witnessing death or torture (Karatzias et al., 2023). However, Kurapov et al. (2023) showed low levels of anxiety and depression, and average levels of PTSD among Ukrainians 6 months after the Russian invasion. According to the authors, the results may have been related to the lack of awareness of symptoms of mental health problems reported by respondents using self-report questionnaires. Many studies have shown that women, including those in war zones, show higher levels of PTSD and other mental symptoms than men (Anjum et al., 2023; Charlson et al., 2019; Chudzicka-Czupała et al., 2023; Ho et al., 2023; Kurapov et al., 2023; Zasiekina et al., 2023). Higher education was associated with lower severity (Zasiekina et al., 2023), while the presence of chronic conditions was associated with higher severity of PTSD (Chudzicka-Czupała et al., 2023). Relationships have also been found between mental health and engagement in providing help, but these were complex. On the one hand, higher levels of depression and PTSD and poorer well-being were reported in volunteers providing direct assistance to refugees, while on the other hand, the fear and anxiety caused by the war triggered activity that proved beneficial for the helpers, including post-traumatic growth (Roszik-Volovik et al., 2023). Also, one's own traumatic experiences and the positive effects of the help once obtained can promote activity (Frazier et al., 2013). As shown by Kyliushyk and Jastrzebowska (2023), Polish women and people characterised by high psychological resources (hope, good relationships with relatives) were predominantly involved in providing help in the initial period of the war. However, the motivation and nature of the assistance provided by Poles varied in form and intensity (e.g. financial, in-kind, educational or scientific), making analyses of the relationship between mental health and engaging in volunteer activity difficult.

Mental health disorders are observed in residents of many European countries, including those not neighbouring Ukraine (e.g. Czech Republic – see Riad et al., 2022; Italy – see Mottola et al., 2023). According to Dückers et al. (2016), the high incidence of PTSD in low-vulnerability countries, including those far from hostilities, should be explained by the negative impact of war on the pursuit of higher GDP and better economic status. In contrast, high-vulnerability countries have managed to develop strategies to minimise the disjunctions between expectations and achievements, and hence, paradoxically, they may show lower PTSD rates. Due to its geographic location, Poland has directly experienced the effects of the war in Ukraine. The two countries also share a common historical experience. The psychological crisis in Poles after Russia's invasion of Ukraine was a result of an overlap of many factors (the COVID-19 pandemic, internal political changes and the deterioration of the economic situation, the fear of Russian aggression against Poland) (Centrum Badania Opinii Społecznej, 2023; Hisato et al., 2022; Kacprzak, 2023; Laboratorium Badań Medioznawczych UW, 2022). Comparative analyses of populations from Ukraine, Taiwan and Poland (March 2022) indicated that more than 80% of Poles were concerned about the situation in Ukraine as described in the media, 52.8% followed current news reports for more than an hour a day, and 57.2% presented with clinical manifestations of PTSD. Gender (female) and nationality (Ukrainian or Polish) were determinants of higher PTSD, anxiety and depression (Chudzicka-Czupała et al., 2023). Up to 70% of Poles (n = 1,609, ages 18 to ≥65 years), especially women, were concerned about their own future in relation to the war, and

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about 31% of respondents reported fatigue with the topic of war in the media (Laboratorium Badań Medioznawczych UW, 2022). Similar data and a decline in optimism about the imminent end of the war were reported by the Public Opinion Research Center in March 2023.

Elderly Poles whose childhood fell during World War II and the post-war Stalin era represent a group particularly vulnerable to mental health problems due to the war in Ukraine and migration of refugees, initially mainly to Poland (Lis-Turlejska et al., 2018; Nowak and Łucka, 2014). More than 30% of people born before 1945 (aged 70–96 years at the time of the study), who experienced the loss of loved ones, torture, concentration camps, ghettos or Soviet camps have been shown to present PTSD symptoms (Lis-Turlejska et al., 2016) and multimorbidity (Horáčková et al., 2020). Psychopathological symptoms also occur in subsequent generations (transgenerational trauma), i.e. in those who were not directly exposed to the tragedy of war, but were secondarily traumatised by the history of their relatives (Lis-Turlejska et al., 2016), Holocaust survivors in particular.

Some reports emphasise greater resilience and lower incidence of PTSD after the trauma of war in older individuals (Eshel et al., 2023; Fox et al., 2022; Glück et al., 2012; Summers et al., 2019), as well as different manifestation of PTSD in young adults and those in late adulthood/elderly (Pless Kaiser et al., 2019). It has been shown that World War II veterans were characterised by a lower incidence of PTSD than younger veterans exposed to other types of trauma. Presumably, veterans develop adaptive strategies over the course of their lives, hence certain symptoms (e.g. avoidance and intrusions) may be less pronounced as long as they remain professionally active, and become significantly more severe later (e.g. after retirement) (Fox et al., 2022). Other studies and a meta-analysis in older residents of eight countries involved in World War II found high rates of anxiety and depressive disorders (Frounfelker et al., 2018); similar data have been reported by the World Health Organization (WHO) (Charlson et al., 2019; Glück et al., 2012). The time elapsed since the war trauma is a key factor for the manifestation of mental disorders: the symptoms of anxiety disorders, but not depression, increase with age (Charlson et al., 2019). The severity of PTSD may also increase with age due to loss of efficiency, loneliness and a reduction in perceived quality of life (Pless Kaiser et al., 2019). A tendency to report somatic rather than psychological symptoms is another feature of elderly people with suspected PTSD. This makes the diagnosis challenging as somatic problems may be considered typical for age rather than a manifestation of trauma; furthermore, trauma can lead to cognitive deficits and general health problems later in life (Cook et al., 2017). In view of the diagnostic difficulties, the term "late-onset stress symptomatology" (LOSS) has been proposed. LOSS is observed in individuals who have not previously have symptoms (diagnosis) of trauma, but developed these symptoms in connection with an event (e.g. war in a neighbouring country) (see Pless Kaiser et al., 2019). Davison et al. (2016) proposed the term "later-adulthood trauma reengagement" (LATR), which reflects not only the severity of symptoms, but also the attempt to confront and work through the war in order to find meaning in life. This process may bring some benefits (positive life balance, life wisdom), but also increase distress, exacerbate depression, PTSD or addiction.

The cited data suggest that older generations, especially in the Polish population, may be vulnerable to mental health problems due to the ongoing war in Ukraine. In this context, it is noteworthy that the keyword *Ukraine 2022+PTSD+senior citizen+Poland* appears in only 1,510 scientific papers (scholar.google.com, retrieved on July 22, 2023), while the mental health of Polish seniors during the COVID-19 pandemic was addressed in 11,100 articles (*COVID+2022+PTSD+senior citizen+Poland* – scholar.google.com, retrieved on July 22, 2023).

STUDY AIMS

Due to the importance and timeliness of the problem, the study aimed to (a) determine the severity and dynamics of PTSD, depression and somatic symptoms during the year of the war in Ukraine, (b) determine the relationships between PTSD and depression and sociodemographic factors, and (c) identify factors that increase the risk of PTSD and depression persisting one year after Russia's aggression against Ukraine.

MATERIALS AND METHODS

Characteristics of the study population

Efforts to collect data were made in July 2022, but were unsuccessful due to frequent refusals, which resulted from, among other things, involvement in voluntary activities or reluctance to talk about the war. It was only in February 2023 that the original research plan was readdressed. People aged ≥50 years were invited to participate. The research was conducted in direct contact with respondents, using the paper-and-pencil interviewing method. Due to significant gaps in the data obtained, the analysis included fully completed questionnaires from 116 people. The respondents were aged 50–88 years (M = 66.8; standard deviation, SD = 8.77; Me = 67) (Tab. 1). Most of them came from the eastern and central voivodeships of Poland (77%): Lublin, Podlaskie, Podkarpackie, Masovian, and Świętokrzyskie. Women predominated. The majority of respondents declared master's degree and secondary education, average economic status, no obligations to look after relatives or repay loans, and a retirement or disability pension status. Most participants reported that they involved in helping Ukraine and Ukrainians (collecting money, in-kind donations, organizing accommodation, etc.) at the beginning of the conflict. The interest in the situation decreased

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Variables	*n* (%)	
Gender: • females • males	 83 (71.6) 33 (28.4)	
Education • lower (vocational, secondary) • higher (university, doctoral)	 48 (41.4) 68 (58.6)	
Occupational status: • professionally active • disability pension/retirement	 35 (30.1) 81 (69.9)	
Health status: • good • periodic or continuous monitoring needed	 54 (46.6) 62 (53.4)	
Financial status: • poor • average • very good	 5 (4.3) 101 (67.1) 10 (5.6)	
Commitments (loan, taking care of relatives): • yes • no	 30 (25.9) 86 (74.1)	
Involvement (different forms of help for Ukrainians): • yes • no	 81 (69.8) 35 (30.2)	
Following war news: • all the time • very often • not very often • occasionally • hardly ever	2022 39 (33.6) 52 (44.9) 20 (17.2) 5 (4.3) 0	2023 18 (15.5) 31 (26.7) 54 (46.6) 12 (10.3) 1 (0.9)

*Tab. 1. Characteristics of the study group (*N = *116)*

significantly in 2023 compared to the beginning of the war ($\chi^2 = 86.39$, $p = 0.001$), with a significant drop in the number of people constantly or frequently following war news, and an increase in the number of people moderately or sporadically following the news.

Methods

The respondents were asked to complete questionnaires twice to describe their well-being at the beginning of the war in Ukraine (February 24, 2022) and a year later (February 24, 2023). Several tools, the instructions of which specified that the questions relate to the war in Ukraine, were used:

a. International Trauma Questionnaire, ITQ (Cloitre et al., 2018; Hyland et al., 2017), available in many language versions (https://www.traumameasuresglobal.com/itq). According to the WHO guidelines for diagnosing disorders specifically associated with stress (World Health Organization, 2019), the ITQ contains 18 items relating to the key symptoms of PTSD: avoidance (Av), re-experiencing (Re) and sense of threat (Th), as well as to the symptoms of complex PTSD (CPTSD): emotional dysregulation, negative self-concept, and disturbances in relationships. This study used 9 PTSD items: 6 re-experiencing, avoidance and anxiety items and 3 items relating to disrupted functioning in various situations (P7, P8, P9). The respondent's task was to indicate (scale from 0 "definitely not" to 4 "definitely yes") the extent to which they experienced symptoms typical of PTSD (e.g. depressing dreams related to the war in Ukraine, avoiding memories of the war, being on alert, being cautious). To be diagnosed with PTSD, a score of 2 must be obtained in at least one of the Re questions (P1, P2) and in at least one of the Av (P3, P4) and Th (P5, P6) questions. If a score of ≥2 is obtained in at least one of the questions: P7, P8, P9, the criteria for PTSD functional impairment (PTSDFI) are met. Ultimately, the PTSD criteria are considered met if the criteria for the Re, Av, and Th subscales and functional impairment are fulfilled. It is also possible to calculate the sum of ITQ scores (0–24). In the present research, Cronbach's α reliability for ITQ (P1–P6) was 0.853 (2022) and 0.858 (2023), as well as 0.850 (2022) and 0.882 (2023) for items relating to the impact of symptoms on everyday functioning.
b. Patient Health Questionnaire, PHQ-9 (Kroenke and Spitzer, 2002), including 9 items relating to depressive symptoms (including problems with sleep, inability to feel pleasure, sadness). The respondent rates the answer depending on their well-being (from 0 – "not at all" to 3 – "nearly every day"). The maximum score is 27 (the highest possible severity of depression), where normal <5, mild depression 5–9, moderate depression 10–14, moderately severe depression 15–19, and severe depression 20–27. The suggested cut-off point for Poles aged 18–60 years is 12 (Kokoszka et al., 2016). Cronbach's α was 0.899 (2022) and 0.894 (2023).
c. Eight items from the Patient Health Questionnaire – Physical Symptoms (PHQ-15) (Kroenke et al., 2002) relating to somatic symptoms. Since respondents refused to answer several questions or certain issues were included in PHQ-9, 7 of the 15 items were excluded from the analyses (regarding menstruation, dizziness, fainting, sexual problems, nausea, sleep disorders and lack of energy). The Likert scale was also modified: the original version used a 0–2 scale, while a scale from 0 – "not at all" to 3 – "nearly every day" was used here. A score of 0–24 could be obtained in the version used. The instructions, like in other questionnaires, indicate that the questions relate to symptoms associated with the outbreak of war (2022) and the situation a year later. Cronbach's α was 0.893 (2022) and 0.911 (2023).

RESULTS

Calculations were performed using IBM SPSS Statistics – version 29.0.

The outbreak of war in Ukraine (2022) was associated with a marked increase in avoidance and sense of threat (Tab. 2). Based on the diagnostic criteria (a score of ≥2 in at least one item in each subscale + confirmation of dysfunctions in P7, P8 or P9 ≥2), PTSD was diagnosed in 45 people (38.8%). Although the average severity of depressive symptoms suggested a mildly depressed mood (PHQ-9), consideration of the interpretation of the PHQ-9 score suggested

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Variables	2022 Score ≥2 (%)	2022 *M* (*SD*) Total group	2023 Score ≥2 (%)	2023 *M* (*SD*) Total group	*T*-Student (*p*) or χ^2	Cohen's *d*
ITQ reexperiencing:		3.12 (2.16)		2.44 (1.82)	**4.15 (0.001)**	1.74
• P1	43.1 (*n* = 50)	1.51 (1.20)	31.0 (*n* = 36)	1.16 (1.04)	**3.85 (0.001)**	0.98
• P2	49.1 (*n* = 57)	1.61 (1.16)	36.2 (*n* = 42)	1.29 (0.98)	**3.86 (0.001)**	0.89
ITQ avoidance:		3.46 (2.04)		3.27 (2.11)	1.51 (0.067)	1.42
• P3	56.9 (*n* = 66)	1.81 (1.10)	50.9 (*n* = 59)	1.72 (1.15)	1.15 (0.13)	–
• P4	48.3 (*n* = 56)	1.66 (1.16)	42.2 (*n* = 49)	1.54 (1.17)	**1.62 (0.05)**	0.74
ITQ sense of threat:		3.68 (2.15)		2.91 (1.99)	**4.74 (0.001)**	1.74
• P5	61.2 (*n* = 71)	1.91 (1.17)	46.6 (*n* = 54)	1.55 (1.17)	**3.63 (0.001)**	1.05
• P6	52.6 (*n* = 61)	1.78 (1.18)	37.1 (*n* = 43)	1.36 (1.02)	**4.93 (0.001)**	0.90
ITQ total	-	10.27 (5.31)	-	8.63 (5.01)	**4.38 (0.001)**	4.027
ITQ impact on life:		3.21 (2.78)		2.57 (2.58)	**2.73 (0.004)**	2.55
• P7	31.9 (*n* = 37)	1.25 (1.1)	19.0 (*n* = 22)	1.03 (0.99)	**2.20 (0.011)**	1.05
• P8	19.8 (*n* = 23)	0.91 (1.05)	11.2 (*n* = 13)	0.75 (0.95)	**1.86 (0.03)**	0.95
• P9	23.3 (*n* = 27)	1.05 (1.01)	12.1 (*n* = 14)	0.79 (0.93)	**2.98 (0.002)**	0.93
PTSD total score:						
• PTSD	38.8 (*n* = 45)		19.8 (*n* = 23)		**Pearson's χ^2 =**	
• no PTSD	61.2 (*n* = 71)		80.8 (*n* = 93)		**10.07 (0.001)**	
PHQ-9	-	7.69 (6.48)	-	4.43 (5.38)	**8.02 (0.001)**	4.39
PHQ-9 (mood disorders of varying severity, score ≥5):						
• yes	61.2 (*n* = 71)		34.5 (*n* = 40)		**Pearson's χ^2 =**	
• no	38.8 (*n* = 45)		65.5 (*n* = 76)		**36.24 (0.001)**	
PHQ-15 (8 symptoms)	-	3.04 (4.36)	-	2.07 (3.84)	**4.81 (0.001)**	2.18

*Tab. 2. Results (*N = *116)*

by Kokoszka et al. (2016) indicated the presence of mood disorders of varying severity (a score of ≥5) in 61.2% of participants. Somatic symptoms attributed to the outbreak of war (PHQ-15 2022) by respondents were of low severity. The *SD* indicates variation in the results in each of the methods used, suggesting the varying mental condition of the respondents. This is confirmed by the respondents' handwritten notes: from sentences like "I'm re-experiencing it, I'm reminded of images and stories from the World War II, which is horrible" to "I couldn't care less about it".

Significantly lower severity of *reexperiencing here and now*, *the sense of threat*, and the impact of the above-mentioned symptoms on the lives of respondents was recorded one year after Russia's aggression against Ukraine (2023). There was no change in the severity of avoidance, particularly the tendency to *avoid internal experiences that may remind of war (e.g. thoughts, feelings or physical sensations)* (P3). Based on the diagnostic criteria (score of ≥2 for at least one item in each subscale + confirmed functional impairment in P7, P8 or P9 ≥2), PTSD was found in 19.8% of participants. Compared to the 2022 data, nearly twice as many respondents had a PHQ-9 score suggesting varying degrees of depressed mood. Pearson's χ^2 test indicated a relationship between the time of assessment (2022, 2023) and the number of individuals with and without PTSD traits, as well as with and without mood disturbances: the number of respondents not meeting the criteria for PTSD and depression increased in 2023. There was also a significant decrease in the severity of somatic symptoms associated with the war in Ukraine.

A series of analyses of variance were performed for repeated measurements in a mixed design to assess what factors were correlated with the severity of symptoms reported in the ITQ and PHQ-9 in 2022 and 2023. In subsequent analyses, gender, education, health status, commitments, and the nature of helping activities were the intergroup factors, while ITQ (2022, 2023) and PHQ-9 (2022, 2023) scores were inter-object factors. Interactions between variables were also taken into account. An F-test was used to verify the null hypothesis, and Bonferroni confidence interval correction was used for multiple comparisons.

There was an effect of gender on ITQ scores (F = 10.15, p = 0.002, $\eta^2_{partial}$ = 0.08, power = 0.88) and there was an effect of ITQ measurement (F = 13.22, p = 0.001, $\eta^2_{partial}$ = 0.10, power = 0.95), but no effect of ITQ measurement × gender interaction (F = 0.51, p = 0.47). Women scored significantly higher (M = 10.30) than men in both ITQ measurements (M = 7.30, p = 0.002). Regardless of gender, all respondents scored significantly lower in 2023 (Tab. 2). Although there was no ITQ × gender interaction effect, it is worth noting that women scored lower compared to 2022 ($M_{F\,2022}$ = 11.20, $M_{F\,2023}$ = 9.39, p = 0.001), while men's results did not differ between 2022 and 2023 ($M_{M\,2022}$ = 7.90, $M_{M\,2023}$ = 6.69, p = 0.08). A gender effect was also demonstrated for depression severity: women had a higher total score (M = 6.81) in both PHQ-9 measures than men (M = 4.18; F = 5.54, p = 0.02, $\eta^2_{partial}$ = 0.05, power = 0.65); a measurement effect was revealed, i.e. a lower score in 2023 regardless of gender (F = 43.51, p = 0.001, $\eta^2_{partial}$ = 0.28, power = 1.0), but there was no gender × measurement interaction effect (F = 2.55, p = 0.11). ITQ scores did not differ depending on education (higher, lower) (F = 2.301, p = 0.132), and there was no education × measurement interaction (F = 0.04, p = 0.84). Regardless of education, the ITQ score for 2023 was lower compared to 2022 (F = 18.77, p = 0.001, $\eta^2_{partial}$ = 0.14,

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Risk factors	*B*	Wald	*p*	EXP (B)	Confidence intervals	
					LLCI	ULCI
ITQ 2023						
Step 1						
ITQ 2022	0.194	20.27	**0.001**	1.214	1.116	1.321
Constant	−4.47	31.33	0.001	0.011		
Step 2						
ITQ 2022	0.214	19.67	**0.001**	1.239	1.127	1.362
Age	0.09	6.96	**0.008**	1.102	1.025	1.185
Constant	−11.57	14.79	0.001	0.00		
PHQ-9 2023						
Step 1						
PHQ-9 2022	0.276	21.16	**0.001**	1.318	1.172	1.482
Constant	−5.04	31.54	0.001	0.006		
Step 2						
PHQ-9 2022	0.272	20.124	**0.001**	1.313	1.166	1.478
Age	0.101	3.884	**0.04**	1.106	1.001	1.223
Constant	−12.13	9.431	0.002	0.000		

LLCI – lower level of the 95% confidence interval; **ULCI** – upper level of the 95% confidence interval.

Tab. 3. Risk factors for PTSD and depression a year after the outbreak of the war in Ukraine

power = 0.99). It is worth noting the non-significantly higher ITQ scores among respondents with higher education. No effect of education ($F = 2.12$, $p = 0.15$) or interaction ($F = 0.91$, $p = 0.34$) was found for depression severity; however, those with higher education reported higher severity of depressed mood in 2023 ($M = 5.22$) than those with lower education ($M = 3.31$, $p = 0.06$). There was no difference between ITQ ($F = 1.75$, $p = 0.19$) and PHQ-9 ($F = 0.54$, $p = 0.46$) scores depending on the health status (requiring control, good), and there was no health status × ITQ measure ($F = 0.15$, $p = 0.69$) or health status × PHQ-9 interaction ($F = 0.20$, $p = 0.66$). It is worth noting that both participants declaring good health and those requiring treatment reported less severe symptoms in ITQ and PHQ-9 in 2023. Commitments (yes, no) did not differentiate ITQ scores ($F = 0.36$, $p = 0.55$), and there was no interaction between commitments and ITQ measurement ($F = 0.81$, $p = 0.37$). Commitments also did not differentiate PHQ-9 scores ($F = 0.02$, $p = 0.87$), there was no interaction of commitment × measurement ($F = 1.13$, $p = 0.29$), while the effect of measurement was again demonstrated ($F = 42.41$, $p = 0.001$, $\eta^2_{partial} = 0.27$, power = 1.0). The severity of depression was higher in 2022 than in 2023 (see Tab. 2), and decreased in both the committed and non-committed groups. After taking into account declarations of involvement (or lack of involvement) in helping Ukraine, no help × ITQ interaction ($F = 0.22$, $p = 0.64$) or effect of the variable (involvement, no involvement) was revealed ($F = 0.67$, $p = 0.41$); however, a measurement effect was again noted ($F = 14.61$, $p = 0.001$, $\eta^2_{partial} = 0.11$, power = 0.97), i.e. a decrease in the score for 2023 ($M = 8.82$) compared to 2022 ($M = 10.38$, $p = 0.001$) in all respondents. Despite the lack of an effect of help × ITQ interaction, it is interesting to note that the reduction in ITQ score was more pronounced in the group declaring help ($p = 0.001$) than in the group without such declarations ($p = 0.05$). Regardless of involvement in providing help or its lack, there was a significant reduction in the severity of depressive symptoms in 2023 PHQ-9 ($F = 46.72$, $p = 0.001$, $\eta^2_{partial} = 0.29$, power = 1.0), but no effect of the "help" variable ($F = 0.03$, $p = 0.86$) or interaction of variables ($F = 1.97$, $p = 0.16$).

Two logistic regression analyses were conducted using progressive selection with a reliability quotient, taking into account gender (F, M), health status (good, requiring treatment), commitments (yes, no), education level (higher, lower) and quantitative variables such as age and severity of PTSD in 2022 (2022 PHQ-9 in the subsequent analysis) in order to verify which variables might be risk factors for the severity of PTSD (ITQ 2023) and depression (PHQ-9 2023) one year after the outbreak of war. For the purpose of regression including 2023 ITQ, the variable was coded as follows: PTSD (1), no PTSD (0). PHQ-9 2023 scores were coded as follows: depressed mood (1 = score of ≥5), no depressed mood (0 = score of 5). The data are shown in Tab. 3. Two steps for the 2023 PTSD risk factors (ITQ) were obtained. Both were well fitted to the data (step 1: $\chi^2 = 27.81$, $p = 0.001$, $-2_{\text{logarithm of reliability}} = 87.72$, $R^2_{\text{Cox \& Snell}} = 0.21$, $R^2_{\text{Nagelkerke}} = 0.34$, $\chi^2_{\text{Hosmer \& Lemeshow}}$ $p = 0.07$, % of correct classification was 79.3; step 2: $\chi^2 = 7.94$, $p = 0.001$, $-2_{\text{logarithm of reliability}} = 79.784$, $R^2_{\text{Cox \& Snell}} = 0.26$, $R^2_{\text{Nagelkerke}} = 0.42$, $\chi^2_{\text{Hosmer \& Lemeshow}}$ $p = 0.78$, % of correct classification was 81). For steps 1 and 2, gender ($p = 0.26$), health status ($p = 0.96$), commitments ($p = 0.12$), and education level ($p = 0.93$) variables were not included in the model. Higher PTSD severity at the beginning of the war (2022), and more advanced age were risk factors for persistence/development of PTSD in 2023. Analyses assessing risk factors for higher severity of depressed mood one year after the outbreak (2023

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PHQ-9) also yielded two steps; both were well fitted to the data (step 1: $\chi^2 = 35.54$, $p = 0.001$, $-2_{\text{logarithm of reliability}} = 53.79$, $R^2_{\text{Cox \& Snell}} = 0.26$, $R^2_{\text{Nagelkerke}} = 0.49$, $\chi^2_{\text{Hosmer \& Lemeshow}}$ $p = 0.81$; step 2: $\chi^2 = 4.40$, $p = 0.036$, $-2_{\text{logarithm of reliability}} = 49.39$, $R^2_{\text{Cox \& Snell}} = 0.29$, $R^2_{\text{Nagelkerke}} = 0.54$, $\chi^2_{\text{Hosmer \& Lemeshow}}$ $p = 0.28$), % of correct classification was 88.8 for step 1, and 89.7 for step 2. Considering step 2, gender ($p = 0.538$), health status ($p = 0.33$), education level ($p = 0.88$) and commitments ($p = 0.08$) were found to be non-significant risk factors for depression in 2023. More advanced age and higher severity of depression at the start of the war were independent risk factors for the persistence of depression in 2023.

DISCUSSION

In 2022, nearly 40% of Polish respondents aged ≥50 years met the criteria for PTSD, and 61.2% met the criteria for mood disorders; one year after Russia's aggression against Ukraine, the number of people meeting the diagnostic criteria for PTSD and mood disorders decreased by half. Of the PTSD symptoms measured across the group, the sense of threat and a tendency to avoid experiences (memories) or external situations relating to war were found to be the most severe; the intensity of avoidance did not differ significantly between the two measurements. Somatic problems that may have been related to the outbreak of war and the situation one year later were not of significant intensity. Although women manifested higher severity of PTSD and depressive symptoms than men, only this group of respondents showed significantly decreased ITQ scores one year after the outbreak of war. Health status and commitments had no significant impact on either scores themselves or score variability. However, there was a tendency to report greater severity of PTSD and depressed mood in those with higher education, and a more pronounced decrease in this severity in those declaring involvement in support activities. One year after the outbreak of war, all respondents showed lower severity of PTSD symptoms, depression, somatic symptoms and less interest in the war in Ukraine. However, more advanced age and higher baseline (2022) ITQ or PHQ-9 scores promoted the persistence/development of PTSD and depressed mood in 2023.

Compared to other studies, this research indicates that the percentage of Poles meeting the criteria for PTSD in 2022 was lower than the one reported by Ho et al. (2023) in their study conducted among Ukrainian adults in 2022. The severity of avoidance in the Polish group described here was higher, while the sense of threat was lower than in the Ukrainian group. Compared to Czech students (Riad et al., 2022), the respondents in the present study (people aged ≥50 years) were characterised by lower levels of depressed mood (PHQ-9). On the other hand, studies conducted in the Polish population at the beginning of the war in Ukraine showed a high prevalence of PTSD (Chudzicka-Czupała et al., 2023) and anxiety (Laboratorium Badań Medioznawczych UW, 2022). An increase in sadness and depression was reported by 52.7% of Polish adults (Brągiel and Gambin, 2023). The anxiety was about the future and was mainly found in people aged ≥65 years. According to the authors of the report (Laboratorium Badań Medioznawczych UW, 2022), the anxiety experienced by the elderly could also be due to their (usually poor) economic situation, which could worsen due to the war in Ukraine. A meta-analysis covering 47 countries/regions where wars were fought between 1989 and 2015 (including Ukraine) found PTSD or depression in 354 million adults, with both these conditions coexisting in 117 million adults (Hoppen and Morina, 2019). These estimates were made for the period before the full-scale armed conflict in Ukraine.

More advanced age was found to be a risk factor for PTSD and depression in Poles one year after the outbreak of full-scale war in Ukraine. Although older age may correlate with greater resilience, numerous reports indicate that vulnerability to war trauma increases with age (Summers et al., 2019), which is associated with LATR or LOSS. Vulnerability to trauma is due to the fact that older generations were direct witnesses of either World War II or local conflicts, while slightly younger generations are traumatised by the wartime tragedies of loved ones. Furthermore, the lives of older generations are marked by many losses, also those experienced during the subsequent socioeconomic transition. Even if there are no ongoing armed conflicts in a given country, the devastating nature of wars is inscribed in the memory of many generations (Matanov et al., 2013). Vulnerability to war trauma in the elderly is also due to multimorbidity, disability, limited social support, and other limitations (cognitive, financial) that would prevent changes in the event of an imminent threat (Summers et al., 2019). All these characteristics account for the role of age as a risk factor for PTSD and depression.

A sense of threat and avoidance are important elements of the picture of PTSD in Poles aged ≥50 years. The avoidance-oriented strategy appears to be characteristic of many older respondents and promotes the persistence of trauma (Chudzicka-Czupała et al., 2023). However, as research with civilian survivors of the Kosovo war has shown, this strategy may play a positive role in the short-term alleviation of distress in response to threats (Kashdan et al., 2009). Considering the above data, the low severity of somatic symptoms associated by respondents with the outbreak of war and the situation a year later may be surprising; nevertheless, it may be the result of different types of symptoms existing before the start of the war or the aforementioned avoidance strategy.

Also, the severity of PTSD and depression in 2022, just after the outbreak of full-scale war in Ukraine, was a risk factor for these disorders in 2023. Other reports have shown that higher severity of PTSD at the onset of the war in Ukraine (2014) was positively correlated with the severity PTSD in 2022 (Ho et al., 2023).

However, the 2022 data obtained in the present research do not necessarily reflect mental health conditions solely

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due to the outbreak of war in Ukraine. Mental health problems may be associated with the COVID-19 pandemic, the unfavourable political and economic situation and fatigue from several years of crises (trauma/crisis fatigue) (Hisato et al., 2022), but also with past exposure to other types of trauma (Rzeszutek et al., 2023). A German study (Weierstall-Pust et al., 2022) showed that although the war in Ukraine and the climate crisis were rated as highly stressful, the COVID-19 pandemic had a significantly more negative impact on psychological well-being. A comparative analysis of stress triggers showed that negative emotions are caused by war (44.6% of Poles), political situation (39.2%), and the pandemic (27.2%) (Brągiel and Gambin, 2023).

As in other reports, female gender was found to be correlated with higher severity of PTSD and depression in 2022 (see Ho et al., 2023; Riad et al., 2022), which is explained by biological and psychosocial factors (see Olff, 2017), but also by women's more frequent involvement in aid activities at the beginning of the war and higher exposure to traumatic information/images (Kyliushyk and Jastrzebowska, 2023). Women, including those in war zones, are also characterised by higher levels of other mental health disorders than men (Anjum et al., 2023; Charlson et al., 2019; Chudzicka-Czupala et al., 2023; Ho et al., 2023; Zasiekina et al., 2023). No effect of health status or commitments on the severity and variability of PTSD and depressive symptoms has been demonstrated, although many studies have emphasised the link between chronic diseases and higher severity of PTSD (Chudzicka-Czupała et al., 2023). The link between higher education and lower severity of PTSD has also been emphasized (Zasiekina et al., 2023); however, a reverse trend, i.e. higher severity of PTSD in those with higher education, was shown in the present research at the beginning of the war. Although higher education generally has a supportive effect on mental health (e.g. by enhancing the sense of control or resilience) (Niemeyer et al., 2019), it more than triples the sense of threat of war through various cognitive and behavioural mechanisms (e.g. the need to follow current news) (Bodas et al., 2015). The decreasing trend in the severity of PTSD in 2023, more pronounced among those who reported involvement in providing help, requires expanded analysis, but it may already indicate that such activities reduce the severity of PTSD.

The decrease in the number of people meeting the PTSD and depression criteria in 2023 should be viewed as the result of an interplay between many factors: avoidance/denial of mental problems, unawareness of mental difficulties reported in the self-report questionnaires used (see Kurapov et al., 2023), fatigue with war, exhaustion of ways to help adequate to the needs (Kyliushyk and Jastrzebowska, 2023), the dynamics of socioeconomic problems in Poland or the provision of aid to Ukraine by other countries. However, older generations of Poles have experienced different types of trauma in the past, which explains the higher prevalence of PTSD in our population compared to estimates from other countries (Rzeszutek et al., 2023).

LIMITATIONS AND CONCLUSIONS

Limitations of the study may be primarily related to the small sample size. Reluctance to participate in the survey may be an indicator of fatigue with overlapping stressors, namely the COVID-19 pandemic and socioeconomic changes, not only in Poland. Factors potentially responsible for the severity of PTSD and depression or playing the role of resilience resources (personality variables and individual life histories) were not controlled. Respondents' place of residence was not taken into account, although it is reasonable to believe that residents of eastern provinces may have shown greater severity of mental health problems. The predominance of respondents with higher education may have prevented showing the full impact of education on mental health. Involvement in providing help was not controlled in detail, but was only based on respondents' reports. Since the assessment of mental health was retrospective in nature (with reference to the onset of the war), the parameters for PTSD or depression may in fact have been significantly higher.

In conclusion, it should be emphasised that factors contributing to mental health problems in older Poles other than the war itself may include the negative effects of the COVID-19 pandemic, socioeconomic changes and past traumas; therefore, mental health of older people living in non-war zones is often overlooked. Tracking the dynamics of mental health problems would allow for designing appropriate forms of psychological support for senior citizens.

Conflict of interest

The author reports no financial or personal relationships with other individuals or organizations that could adversely affect the content of the publication and claim ownership of this publication.

Author contributions

Original concept of study; collection, recording and/or compilation of data; analysis and interpretation of data; writing of manuscript; critical review of manuscript; final approval of manuscript: EMS.

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