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Media experiences during the Ukraine war and their relationships with distress, anxiety, and resilience

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ABSTRACT

This study investigates the relationships between perceiving media as a positive or negative influence (both news media and fictional media) during the war in Ukraine in 2022 and anxiety, distress, and resilience. Corroborating existing research, our study (N = 393, 47.3% male) showed that there was a clear relationship between the perceived negative impact of both news and fictional media during the war and increased symptoms of anxiety (b = .09, SE = 0.04, p = .024; b = 0.16, SE = 0.04, p < .001, respectively) and distress (b = 0.08, SE = 0.04, p = .047; b = 0.17, SE = 0.04, p < .001, respectively) as well as lowered psychological resilience (b = −0.10, SE = 0.05, p = .047; b = −0.15, SE = 0.06, p = .009, respectively). The study is the first to demonstrate this association for fictional media. Contrary to expectations, however, the perception of a positive impact of both news and fiction was not associated with decreased symptoms of anxiety and distress or higher resilience.

1. Introduction

Since the Russian invasion of Ukraine in February 2022, The Russo-Ukrainian War has been the subject of constant media coverage all over the world, across different languages, countries, and continents. Given that the global public has a vital interest in staying informed about conflicts involving nuclear superpowers (Ipsos, 2022), the media have an important supportive function in such times of crisis. But on the other hand, since the coverage in question typically concerns traumatic content such as mass casualties and a potential nuclear conflict, it might unintentionally affect millions of media users in an emotionally negative way (Neria and Sullivan, 2011). Based on available studies concerning responses to the media coverage of other military conflicts (Palgi et al., 2017), health crises (Garfin et al., 2020; Levaot et al., 2022; Scrivner et al., 2021), and disasters (Pfefferbaum et al., 2014; Cho et al., 2003; Ahern et al., 2002), such responses might include symptoms of anxiety, distress and lowered psychological resilience.

Research on the function of media in processing stressful events emphasizes this ambivalent role. Evidence shows that media can act as amplifiers of stressful real-life events or as supportive tools for coping (Raney et al., 2022; Wolfers and Schneider, 2021; Wolfers and Utz, 2022). Media usage is among the most often selected strategies for stress management pursued by both healthy people and patients (Nabi et al., 2017).

The type of media exposure may impact its salutary vs. negative effects on outcomes. Studies show that exposure to news media typically exacerbates negative symptoms experienced in relation to a stressful event. For example, First et al. (2021) found that news media exposure aggravated both stress and depression among those exposed to COVID-19 (cf. Thompson et al., 2022). Similarly, Kellerman et al. (2022) concluded in a longitudinal study that exposure to news boosted worry about the pandemic. Similar results were found for infectious diseases other than COVID-19 (Garfin et al., 2022) and other kinds of stressful events, such as terror acts (Ben-Zur et al., 2012).

Conversely, the usage of entertainment and fictional media (for example, television and movies) appears to have a positive effect on dealing with stressful events. It can increase the efficacy of coping with COVID-19-related stress (Nabi et al., 2022), reduce stress levels by generating positive emotions (Nabi et al., 2022; Prestin and Nabi, 2020), and serve as an "anxiety buffer" against death in situations that make mortality more salient (Rieger et al., 2015). There is also consistent evidence that one of the main motivations behind entertainment use is

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precisely stress and anxiety relief (Bartsch and Oliver, 2016; Starosta et al., 2020; Stevens and Dillman Carpentier, 2017).

However, apart from the distinction between news and entertainment, the role of media is also determined by how media are used and how people *experience* media use. Pahayahay and Khalili-Mahani (2020) found evidence in qualitative data that media were considered helpful for coping with the COVID-19 pandemic if people thought that media support them with factual and positive information rather than sensational and false news. Appraisal of one's media use turned out to be an important predictor of well-being in a study with unemployed people (Lee and Chen, 2022): For participants who used video games to escape their everyday troubles, gaming decreased well-being, but for participants who viewed gaming as a source of self-determination, it increased wellbeing. For social media, self-regulated usage can support well-being through processes of purposeful mood management and need satisfaction (Reinecke et al., 2022).

These studies suggest that it is the experience that counts and not the amount of media use itself. This conclusion is supported by a study on the COVID-19 pandemic by Levaot et al. (2022). The researchers went beyond media use and asked respondents to estimate how much positive or negative impact traditional media and social media had on their coping with the pandemic. They found that mere exposure to traditional media, internet news sites, and social media did not affect distress, anxiety, or resilience (except traditional media use, which was positively related to resilience). In contrast, experiencing media as negatively impacting coping was related to higher levels of stress and anxiety and lower levels of resilience. For social media, these relationships did not show. We suggest that to determine the role of media for mental health outcomes both the type of media (news versus fiction) as well as subjective views on its contribution to coping (positive or negative impact during a crisis) need to be considered. Thus, the goal of our study is (1) to expand the current insight on the role of media perceptions in mental health outcomes to the current Ukraine war and (2) to refine the measurement of the role of media perceptions to include the distinction between news and fiction and to consider the subjective impact rather than the mere amount of media exposure. Based on previous research, we decided to focus on three mental health outcomes: symptoms of anxiety, symptoms of distress, and psychological resilience.

Anxiety is a condition of excessive and persistent worry accompanied by a variety of mental and somatic symptoms, including restlessness and others (Newman and Erickson, 2010). Significantly for this study, a meta-analysis of available empirical research indicates that there is a relationship between media use related to public threats such as terrorism or natural disasters and elevated levels of anxiety among adult media users (Pfefferbaum et al., 2021). Recent research also shows that there is a positive correlation between symptoms of distress and exposure to news media use (Levaot et al., 2022). Some earlier research showed increased symptoms of post-traumatic stress (i.e., distress persisting for a month or more after a traumatic event) among those with higher exposure to news coverage of 9/11 and other traumatic events (Agyapong et al., 2018; Holman et al., 2008; Marshall et al., 2007; Palgi et al., 2017; Pfefferbaum et al., 2014; 2021). Another key impact of traumatic news content is on psychological resilience, understood as the capacity to mentally cope with stress and stressors (IJntema et al., 2021). Research indicates that extremely aversive or traumatic events such as disease outbreaks or terrorist attacks may decrease one's resilience rather than make one more capable of dealing with stress and stressors (Bonanno et al., 2006; Chen and Bonanno, 2020), with similar effects observed for the media coverage of, and general media use during, such events. This is shown, for instance, by the experimental data on the negative impact of pandemic news coverage on psychological resilience among Indian participants (Giri and Maurya, 2021) and cross-sectional data on the relationships between resilience and general media use during the pandemic among Israeli citizens (Levaot et al., 2022).

The above relationships involving resilience, distress, and anxiety might be expected to pertain also to media use during the war in Ukraine, yet relevant empirical data is lacking. The purpose of this study is to fill this gap. In the first step, we seek to explore predictors for perceiving the positive and negative impact of media news and fiction: How do sociodemographic variables (age, gender, and education), region, and exposure to the war relate to perceiving positive and negative impact of news media and fictional media (RQ1)? The next step is concerned with predicting stress, anxiety, and resilience. Direct experiences with the war and closeness to war activities should be a primary source for a person's emotional state vis-à-vis the war. It is personal experience that competes with media experience in defining the interpretation of the war. Thus, our first assumption is: People who live in a region sharing a border with Ukraine will exhibit increased symptoms of stress (H1a) and anxiety (H1b) and lower levels of resilience (H1c). Related to this, our second assumption is: Having direct contact with war events or people affected by the war will be associated with increased symptoms of stress (H2a) and anxiety (H2b), and lower resilience (H2c).

Media can complement and replace these direct experiences. We hypothesize that perceiving the impact of news media and fictional media during the Ukraine war as negative has a positive relationship with stress (H3a) and anxiety (H3b) and a negative relationship with psychological resilience (H3c). Conversely, we assume that positive perceptions of news media and fictional media experiences are negatively related to stress (H4a) and anxiety (H4b), and positively related to psychological resilience (H4c).

Finally, we assume that the relationship between media experiences and stress, anxiety, and resilience is moderated by region and exposure to war events. The direction of the relationship is however unclear: Media experience may match or contradict one's own experience, reinforcing or attenuating the media experience. Thus, we set up a research question on this issue: How does sharing a border with Ukraine and being exposed to war events change the association between media experience and stress, anxiety, and resilience (RQ2)?

2. Methods

2.1. Sample

A cross-sectional sample (N = 393) was drawn from the adult population in Poland in the second month of the war (April 2022), when Russian advances into Ukrainian territory were sufficiently alarming for 84% of Poles to be worried that the war in Ukraine might spill over into their country (Mazurkiewicz, 2022). The marketing company Syno International was hired to draw the sample from a blend of online access panels to represent equal proportions of gender, education, and region in Poland. Participants were recruited to the panels in a variety of ways, including through banners and ads on websites and social media, loyalty programs, and targeted recruitment. Region was used as a disproportionate quota, with half of the participants coming from two regions sharing a border with Ukraine (Lubelskie and Podkarpackie) and the other half coming from other regions (age M = 37.67, SD = 12.09, 47.3% male, education: basic and medium education 52.9%, higher education 47.1%; 48.3% come from a region sharing a border with Ukraine). Informed consent was obtained from all participants, who were compensated with loyalty points they could later exchange for gift cards. The study design was approved by the Research Ethics Committee at the University of Wrocław.

2.2. Measures

2.2.1. Independent variables

Exposure to war-related events. We measured exposure to war-related events with five items to be answered with "yes" (1) or "no" (2): "(1) My family member, friend, acquaintance, colleague is a veteran of the war in Ukraine or a refugee. (2) I have met/communicated directly with

someone who is a combatant or refugee. (3) I witnessed military operations (I saw troop transports, clashes, I heard the sounds of weapons, etc.). (4) I take part in activities supporting Ukraine and Ukrainians, such as hosting immigrants at home, financial or material support (clothes, food, medicines, etc.), volunteering, demonstrations of support. (5) I regularly express my support for Ukraine on social media." A scale was created with 0 representing no exposure to war-related events at all, and 1 representing exposure to all five war-related events (M = 0.34, SD = 0.27, see Table 1).

Perceived impact of media use. We measured the perception of whether different kinds of media use have positive or negative impacts on coping with the war by asking the participants to "Please rate for each media type what kind of impact it has on you for how you cope with the war in Ukraine. First please indicate the negative impact. A negative impact means: Using the medium agitates me, brings my mind back to the war, increases stress, discourages me, gives me despair, weakens me." For positive impact the question was: "Now please rate the positive impact. A positive impact means: Using the medium comforts me, distracts me from the war, relieves stress, reassures me, gives me hope, strengthens me."

For positive and negative impact, the types of media, and the items concerning those types, were: "1) News on traditional media (TV, radio, newspaper, magazines), 2) News on the Internet (news portals, social media), 3) Movies and series and 4) Novels (any format: paper, e-book, audiobook)." The participants' ratings of positive and negative impact of these media were scored on a 7-point Likert scale from "I definitely disagree" to "I definitely agree." The types mentioned in (3) and (4) have not been thus far considered in studies on media use and anxiety, distress, or resilience (Pfefferbaum et al., 2014, p. 5), but we decided to do so as such fictional media might negatively affect mental health analogously to news media coverage as long as their impact is perceived in the same way.

Upon inspection of the data, we saw that the individual items for positive and negative impact correlated highly (negative impact traditional media and internet: r = 0.74***; negative impact novels and movies: r = 0.78***; positive impact traditional media and internet: r = 0.73***; positive impact novels and movies: r = 0.74***). For this reason, we combined the perception of impact into four scales: negative impact of news (traditional media and internet, M = 4.36, SD = 1.73), negative impact of fiction (novels and movies, M = 2.87, SD = 1.64), positive impact of news (traditional media and internet, M = 3.72, SD = 1.55), positive impact of fiction (novels and movies, M = 4.66, SD = 1.65, see Table 1).

2.2.2. Dependent variables

Anxiety was measured with the GAD-7 questionnaire by Spitzer et al. (2006). We used the Polish translation provided by PHQ Screeners (*Patient Health Questionnaire (PHQ) Screeners*, n.d.). The questionnaire comprised seven items describing various symptoms of anxiety (e.g., "Feeling nervous, anxious or on edge"; "Being so restless that it is hard to sit still"), to which the participants responded by indicating how often they had been bothered by a given symptom or set of symptoms over the previous two weeks on a 4-point Likert scale: 0 – "not at all", 1 – "several days", 2 – "more than half the days", and 3 – "nearly every day". The seven items were combined into a mean index (M = 2.02, SD = 0.77, Cronbach's alpha = .92)

Distress was measured with a validated Polish version (Rybojad and Aftyka, 2018) of an instrument by Brunet et al. (2001). It consisted of 13 items, each describing a symptom of distress (e.g., "I felt helpless"). The participants were asked to rate whether they had experienced a given symptom in the previous two weeks on a 5-point scale ranging from 0 (not at all true) to 4 (extremely true)." The 13 items were combined into a mean index (M = 2.40, SD = 0.78, Cronbach's alpha = .90).

Finally, a measure for *resilience* was adopted from Scrivner et al. (2021), consisting of 11 items such as "Since the war in Ukraine began, I have been more depressed than usual" (reversed), "I have been able to find things to enjoy during the war," "I have found some aspects of the war to be interesting," "I believe in my ability to get through these difficult times," "Life has felt meaningful during the Ukrainian war," scored on a 7-point Likert scale from "I definitely disagree" to "I definitely agree." The negative items were reversed, and the items were combined into a mean index (M = 4.64, SD = 1.04, Cronbach's alpha = .81).

2.2.3. Data analytic strategy

To investigate RQ1, we conducted four ordinary least squares regressions, using age, gender, education, region (sharing a border with Ukraine or not), and exposure to war events as predictors, and negative impact of news, negative impact of fiction, positive impact of news, and positive impact of fiction as dependent variables.

To investigate H1 to H4 and RQ2, we conducted three sets of ordinary least squares regressions, one set for each of the dependent variables: stress, anxiety, and resilience. Age, gender, education, region, and exposure to war events were entered as predictors in the first step; then, in a second step, perceived media experience was entered as well as two interaction terms of perceived media experience with (1) region and (2) exposure to war events. Each of the four media experiences (negative news, negative fiction, positive news, positive fiction) was tested in

Table 1
Descriptive statistics and zero-order correlations (n = 393).

		M/%	SD	Min./Max. Scale	1	2	3	4	5	6	7	8	9	10	11
1.	Age	37.67	12.09	18–65	–										
2.	Sex	47.3	–	–	.17***	–									
3.	Education	47.1	–	–	.01	−.02	–								
4.	Region of Poland	48.3	–	–	−.31***	−.01	−.16**	–							
5.	War events	.34	.27	0–5	−.04	.09	−.01	.06	–						
6.	Negative impact news	4.36	1.73	1–7	−.15**	−.19***	.01	.12*	.10*	–					
7.	Negative impact fiction	2.87	1.64	1–7	−.08	−.12*	−.07	.03	.03	.37***	–				
8.	Positive impact news	3.72	1.55	1–7	.02	.05	−.07	−.08	.11*	−.17***	.25***	–			
9.	Positive impact fiction	4.66	1.65	1–7	−.08	−.13**	.05	−.03	.07	.22***	−.03	.26***	–		
10.	Anxiety	2.02	.77	1–4	.01	−.14**	.02	.09	.15**	.32***	.34***	.06	.05	–	
11.	Distress	2.40	.78	1–5	−.12*	−.23***	−.02	.09	.14**	.33***	.36***	.09	.10*	.71***	–
12.	Resilience	4.64	1.04	1–7	−.02	.20***	−.01	.01	−.08	−.21***	−.20***	.15**	.01	−.45***	−.46***

***p < .001. **p < .01. *p < .05. n = 393. Sex (1 = male, 0 = female). Education (1 = higher, 0 = lower). Region (1 = sharing a border with Ukraine). Negative and positive impact of news or fiction are self-reported perceptions.

separate regression models to avoid too many interaction terms in one equation. Significant interactions were probed by computing conditional effects for levels of the moderators using the PROCESS macro for SPSS (Hayes, 2022).

3. Results

The descriptives and zero-order correlations of all variables are shown in Table 1.

RQ1 asked for predictors of perceiving positive and negative impact of media. Results show that women perceive news media and fiction to have a more negative impact ($\beta = -0.18$, $p < .001$; $\beta = -0.11$, $p = .031$, respectively), but at the same time perceive fiction to have a more positive impact too ($\beta = -0.13$, $p = .012$) (see Table 2). Age and education do not relate to perception of media use systematically. Region is also not related to any perception of media influence, neither positive nor negative. However, exposure to war events is related to increased perception that news media have a negative impact ($\beta = 0.11$, $p = .029$) as well as increased perception that they have a positive impact ($\beta = 0.11$, $p = .035$).

H1 stated that living close to the Ukrainian border would be related to higher levels of stress (H1a) and anxiety (H1b) and lower levels of resilience (H1c). Our results demonstrate that region is not related to stress and resilience (see Tables 3 and 5), but is associated with symptoms of anxiety, which are increased for people living close to the Ukrainian border ($b = 0.16$, $SE = 0.08$, $p = .044$, see Table 4), confirming only H1b, but not H1a and H1c.

H2 assumed that having direct exposure to war events or people affected by the war would be related to increased symptoms of stress (H2a) and anxiety (H2b), and to lower resilience (H2c). All three parts of H2 could be confirmed: people who are exposed to war events exhibit increased symptoms of stress ($b = 0.09$, $SE = 0.03$, $p < .001$, Table 3) and anxiety ($b = 0.09$, $SE = 0.03$, $p = .001$, Table 4), and less resilience ($b = -0.08$, $SE = 0.04$, $p = .046$, Table 5).

H3 predicted that negative perceptions of media experiences during the Ukraine war were positively related to stress (H3a) and anxiety (H3b), and negatively related to psychological resilience (H3c). Confirming all parts of H3 we found that perceiving the negative impact of both news and fictional media is related to increased symptoms of stress ($b = 0.08$, $SE = 0.04$, $p = .047$; $b = 0.17$, $SE = 0.04$, $p < .001$, respectively, see Table 3) and increased symptoms of anxiety ($b = 0.09$, $SE = 0.04$, $p = .021$; $b = 0.16$, $SE = 0.04$, $p < .001$, respectively, see Table 4), and decreased resilience ($b = -0.10$, $SE = 0.05$, $p = .047$; $b = -0.15$, $SE = 0.06$, $p = .009$, respectively, see Table 5). Negative impact of news on resilience, however, has significant interactions with both region and war, thus the main effect needs to be interpreted with caution (see below on RQ2).

H4 assumed that positive perceptions of media experiences were negatively related to stress (H4a) and anxiety (H4b), and positively related to psychological resilience (H4c). However, none of these relationships could be confirmed in our data, refuting H4 altogether.

RQ2 asked about a possible moderation effect of the relationship between media experience and stress, anxiety, and resilience by region and exposure to war events. However, none of the relationships were moderated by region nor by exposure to war events – with one exception: the relationship between the perception of negative impact of news and resilience showed a significant moderation effect of both region ($b = .13$, $SE = 0.06$, $p = .027$) and exposure to war events ($b = -0.04$, $SE = 0.02$, $p = .048$). Probing the interactions with conditional effects in the SPSS macro PROCESS (Model 1, Hayes, 2022) reveals that perception of negative impact of news media is negatively related to resilience only for people who do *not* live in regions sharing a border with Ukraine ($b = -0.17$, SE 0.04, $p < .001$) compared to people who do live in such regions ($b = -0.04$, SE 0.04, $p = .304$). Conversely, the perception of negative impact of news media is unrelated to resilience for people who do not have any exposure to war events ($b = -0.05$, SE 0.05, $p = .318$), while for those with moderate or high levels of exposure to war events perception of negative impact of news media leads to less resilience (moderate exposure: $b = -0.12$, SE 0.03, $p = .001$; high exposure: $b = -0.16$, SE 0.04, $p = .002$).

4. Discussion

To our best knowledge, this is the first study to investigate the relationships between resilience and symptoms of anxiety and distress and media perceptions during the war in Ukraine, and likewise, the first study exploring the relationship between these three psychological outcomes and perceptions of both news and fictional media. The study is also unique in exploring the relationships between mental health symptoms and the experience of general news media rather than event-specific media. Corroborating existing research (Levaot et al., 2022; Palgi et al., 2017), our study showed that there was a clear relationship between negative media experiences during the war and increased symptoms of anxiety and distress and lowered psychological resilience, but that there was no relationship between positive media experiences and resilience, as well as symptoms of anxiety and distress. A similar disparity between positive and negative media experiences was observed in a previous study by Palgi et al. (2017). However, the study by Palgi et al. (2017) failed to explain the meaning of positive and negative experiences, leaving a wide range for interpretation for the respondents. In our study, we did include a clear explanation, and we are now able to conclude that the disparity observed is valid. While it is too early to speculate about its causes – it might be due to simple negativity bias, which makes negative information more impactful in attitudinal, cognitive, and emotional terms (Ito et al., 1998; Norris, 2021) – it suggests that people may be exaggerating the positive influence that both fictional and news media have on them as regards resilience and symptoms of anxiety and distress. This implication is important, first, given the widespread claims made by scholars, journalists, and content creators about the therapeutic effects of fiction on the one hand (Aubry,

Table 2
Ordinary least squares regression of age, sex, education, region, exposure to war-related events predicting perceived negative and positive impacts of media use (n = 393).

	Negative impact						Positive impact					
	news			fiction			news			fiction		
	β	t	p	β	t	p	β	t	p	β	t	p
Age	−.09	−1.75	.08	−.07	−1.21	.227	−.02	−.36	.72	−.07	−1.36	.176
Sex	−.18	−3.65	<.001	−.11	−2.16	.031	.04	.84	.402	−.13	−2.51	.012
Education	.02	.44	.663	−.07	−1.36	.173	−.08	−1.62	.105	.04	.74	.46
Region of Poland	.08	1.58	.115	−.01	−.17	.866	−.10	−1.90	.058	−.05	−.92	.36
Exp. to war events	.11	2.19	.029	.03	.66	.509	.11	2.12	.035	.08	1.65	.101
R^2	$R^2_{corr} = .06$, $F(5, 387) = 5.80$***			$R^2_{corr} = .01$, $F(5, 387) = 1.89$			$R^2_{corr} = .01$, $F(5, 387) = 2.13$			$R^2_{corr} = .02$, $F(5, 387) = 2.57$*		

***p < .001. **p < .01. *p < .05. n = 393. Sex (1 = male). Education (1 = higher). Region (1 = sharing a border with Ukraine). Negative and positive impact of news or fiction are self-reported perceptions.

Table 3
Ordinary least squares regression of age, sex, education, exposure to war-related events, negative impact of news, negative impact of fiction, positive impact of news and positive impact of fiction predicting distress (n = 393).

	Distress																			
	Model 1				Model 2				Model 3				Model 4				Model 5			
	b	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*	
Constant	2,49	0,16			2,10	0,22			1,90	0,20			2,24	0,23			2,26	0,27		
Age	0,00	0,00	−0,05		0,00	0,00	−0,02		0,00	0,00	−0,03		0,00	0,00	−0,05		0,00	0,00	−0,05	
Sex	−0,36	0,08	−0,23	***	−0,28	0,08	−0,18	***	−0,31	0,07	−0,20	***	−0,36	0,08	−0,23	***	−0,36	0,08	−0,23	***
Education	−0,01	0,08	−0,01		−0,02	0,07	−0,01		0,02	0,07	0,02		0,01	0,08	0,00		−0,02	0,08	−0,01	
Region of Poland	0,10	0,08	0,06		0,04	0,20	0,03		0,10	0,15	0,07		−0,06	0,20	−0,04		0,01	0,23	0,01	
Exposure to war-related events	0,09	0,03	0,16	***	−0,05	0,07	−0,08		0,12	0,05	0,20	*	0,19	0,07	0,32	*	0,17	0,08	0,30	*
Negative impact news					0,08	0,04	0,17	*												
Negative impact news x region					0,00	0,04	0,02													
Negative impact news x war					0,03	0,02	0,26													
Negative impact fiction									0,17	0,04	0,37	***								
Negative impact fiction x region									0,00	0,04	0,00									
Negative impact fiction x war									−0,01	0,02	−0,07									
Positive impact news													0,07	0,04	0,14					
Positive impact news x region													0,05	0,05	0,13					
Positive impact news x war													−0,03	0,02	−0,21					
Positive impact fiction																	0,05	0,05	0,11	
Positive impact news x region																	0,02	0,05	0,07	
Positive impact news x war																	−0,02	0,02	−0,17	
Adjusted *R2*	0,08				0,15				0,18				0.09				0,08			
F	7,53***				9,52***				11,74***				5,60***				5,06***			
F for change in *R2* compared to model 1					11,80***				17,19***				2,26				0,97			

Note. ***p < .001. **p < .01. *p < .05. n = 393.
Unstandardized regression coefficients, standard errors, standardized coefficients. Sex (1 = male). Education (1 = higher). Region (1 = sharing a border with Ukraine). War (1 = Exposure to war-related events). Negative and positive impact of news or fiction are self-reported perceptions.

Table 4
Ordinary least squares regression of age, sex, education, exposure to war-related events, negative impact of news, negative impact of fiction, positive impact of news and positive impact of fiction predicting anxiety (n = 393).

	Anxiety																			
	Model 1				Model 2				Model 3				Model 4				Model 5			
	b	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*		*b*	*SE*	*b*	
Constant	1,69	0,16			1,24	0,23			1,12	0,20			1,62	0,23			1,79	0,27		
Age	0,01	0,00	0,08		0,01	0,00	0,11	*	0,01	0,00	0,11	*	0,01	0,00	0,08		0,01	0,00	0,08	
Sex	−0,26	0,08	−0,17	***	−0,18	0,08	−0,12	*	−0,20	0,07	−0,13	**	−0,26	0,08	−0,17	***	−0,26	0,08	−0,17	***
Education	0,05	0,08	0,03		0,04	0,07	0,03		0,09	0,07	0,06		0,06	0,08	0,04		0,04	0,08	0,02	
Region of Poland	0,16	0,08	0,11	*	−0,01	0,20	0,00		0,07	0,15	0,05		−0,16	0,20	−0,10		−0,15	0,24	−0,10	
Exposure to war-related events	0,09	0,03	0,16	**	0,01	0,07	0,02		0,13	0,05	0,22	*	0,17	0,07	0,29	*	0,10	0,08	0,18	
Negative impact news					0,09	0,04	0,20	*												
Negative impact news x region					0,03	0,04	0,10													
Negative impact news x war					0,02	0,02	0,14													
Negative impact fiction									0,16	0,04	0,34	***								
Negative impact fiction x region									0,03	0,04	0,08									
Negative impact fiction x war									−0,01	0,02	−0,09									
Positive impact news													0,02	0,05	0,04					
Positive impact news x region													0,09	0,05	0,24					
Positive impact news x war													−0,02	0,02	−0,17					
Positive impact fiction																	−0,02	0,05	−0,04	
Positive impact news x region																	0,07	0,05	0,23	
Positive impact news x war																	0,00	0,02	−0,02	
Adjusted *R2*	0,05				0,12				0,15				0,05				0,05			
F	4,90***				7,77***				9,77***				3,79***				3,36***			
F for change in *R2* compared to model 1					11,88***				16,89***				1,90				0,80			

Note. ***p < .001. **p < .01. *p < .05. n = 393.
Unstandardized regression coefficients, standard errors, standardized coefficients. Sex (1 = male). Education (1 = higher). Region (1 = sharing a border with Ukraine). War (1 = Exposure to war-related events). Negative and positive impact of news or fiction are self-reported perceptions.

Table 5
Ordinary least squares regression of age, sex, education, exposure to war-related events, negative impact of news, negative impact of fiction, positive impact of news and positive impact of fiction predicting resilience (n = 393).

	Resilience																			
	Model 1				Model 2				Model 3				Model 4				Model 5			
	b	*SE*	*β*		*b*	*SE*	*β*		*b*	*SE*	*β*		*b*	*SE*	*β*		*b*	*SE*	*β*	
Constant	4,79	0,22			5,30	0,31			5,26	0,28			4,40	0,31			4,32	0,37		
Age	−0,01	0,01	−0,07		−0,01	0,00	−0,08		−0,01	0,00	−0,07		−0,01	0,00	−0,06		−0,01	0,01	−0,06	
Sex	0,45	0,11	0,22	***	0,36	0,10	0,17	***	0,41	0,10	0,20	***	0,43	0,10	0,21	***	0,48	0,11	0,23	***
Education	−0,03	0,10	−0,01		−0,04	0,10	−0,02		−0,05	0,10	−0,02		−0,01	0,10	0,00		0,00	0,11	0,00	
Region of Poland	−0,01	0,11	−0,01		−0,55	0,28	−0,27		−0,28	0,21	−0,13		0,46	0,27	0,22		0,45	0,32	0,22	
Exposure to war-related events	−0,08	0,04	−0,10	*	0,12	0,10	0,15		−0,06	0,08	−0,07		−0,23	0,10	−0,30	*	−0,04	0,11	−0,05	
Negative impact news					−0,10	0,05	−0,17	*												
Negative impact news x region					0,13	0,06	0,33	*												
Negative impact news x war					−0,04	0,02	−0,29	*												
Negative impact fiction									−0,15	0,06	−0,24	**								
Negative impact fiction x region									0,09	0,06	0,16									
Negative impact fiction x war									−0,01	0,02	−0,03									
Positive impact news													0,09	0,06	0,14					
Positive impact news x region													−0,12	0,07	−0,24					
Positive impact news x war													0,04	0,02	0,23					
Positive impact fiction																	0,09	0,06	0,15	
Positive impact news x region																	−0,10	0,06	−0,24	
Positive impact news x war																	−0,01	0,02	−0,06	
Adjusted *R2*	0,04				0,08				0,07				0,07				0,04			
F	4,26***				5,39***				4,81***				4,59***				3,06**			
F for change in *R2* compared to model 1					6,96***				5,49***				4,83**				1,06			

Note. ***p < .001. **p < .01. *p < .05. n = 393.
Unstandardized regression coefficients, standard errors, standardized coefficients. Sex (1 = male). Education (1 = higher). Region (1 = sharing a border with Ukraine). War (1 = Exposure to war-related events). Negative and positive impact of news or fiction are self-reported perceptions.

2006; Wassmann, 2016), and the surprisingly scarce empirical data to support such claims on the other (Montgomery and Maunders, 2015). The implication is also important given that many people turn to both news media and fictional media to cope with their distress and anxiety in difficult times (Bartsch and Oliver, 2016; Hoffner et al., 2009; Jin et al., 2016; Starosta et al., 2020). Moreover this result suggests that people may also be exaggerating the positive impact of various other factors on their mental health during such times, be that contact with nature, exercise, meditation, and others (Courneya and Hellsten, 1998; Park et al., 2016; Yeung and Yu, 2022). That, however, would need to be tested in further studies.

Further attention is merited also by our results concerning region and exposure to war events. Our data generally seem to suggest that it is exposure to the war rather than living in a region geographically closer to it that has an impact on media experiences and mental health symptoms. The disparity can be explained by, first, how exposure to the war was conceptualized in the study, involving not only witnessing military operations, but also knowing personally somebody directly affected by the war or supporting Ukraine, and, second, by the fact that the mere fact of living in regions neighboring Ukraine does not necessarily mean that one is more exposed to the war in this sense. Our data show that those more directly exposed to the war are more vulnerable to the negative impact of media experiences on resilience, that they report more negative and positive experiences with media, are less resilient, and show more symptoms of anxiety and distress than those less exposed to the war.

Furthermore, our data show that negative media experiences have a negative impact on resilience for those living in regions without a border with Ukraine and not for those living in the two regions sharing such a border. While counterintuitive, this result may be because the personal experiences of participants from those regions were contradicted to an extent by their media experiences during the war, attenuating the effects of media experience on resilience. This is consistent with the result showing that while living in a region bordering Ukraine is associated with increased symptoms of anxiety, it does not lower resilience.

Finally our data showed that men appeared to be less sensitive to fictional media's psychological impact than women, whether positive or negative. While rather than reflecting their actual tendencies this result may be due to impression management effects – e.g., men worrying that it would make them seem unmanly to admit they are moved by books or movies (Warhol, 2003) – further research is needed to investigate the phenomenon.

Due to the cross-sectional nature of this study, further research is also needed before any firm conclusions can be drawn about the causal impact of media experiences on resilience and symptoms of anxiety and distress during the war in Ukraine. Furthermore, we studied the *perception* of influence rather than media use itself; to get insight into the actual effects of media coverage, experimental designs are needed using exposure to media rather than the self-reports of viewers or readers about their perception of media influence. Finally, our study employed self-reports instead of professional diagnosis to measure resilience and symptoms of anxiety and distress and a demographically specific sample consisting of Polish citizens.

Despite these limitations, our study provided the first data on the role of media experiences during the current war in Ukraine. The next step should be to look more deeply into the content and format that generates positive or negative media experiences. Moreover, from a practical perspective, finding groups among the audience that are more vulnerable to negative media experiences would be useful. Related to this, it would be valuable to gain insight into the threshold above which media experience becomes dysfunctional for an individual resulting in symptoms of anxiety and distress and lowered resilience Since news media reporting fulfills a necessary democratic function during military conflicts, it cannot be limited in anticipation of negative effects. However, to prevent negative impacts on mental health, this and future research may deliver advice for audience members to be properly attentive to their media experiences.

Author statement

W.P. Malecki: Conceptualization, Methodology, Writing – Original Draft, Writing - Review & Editing, Project administration; **Helena Bilandzic**: Conceptualization, Methodology, Writing – Original Draft, Writing - Review & Editing, Data Curation, Formal analysis; **Marta Kowal**: Investigation, Writing - Review & Editing; **Piotr Sorokowski**: Conceptualization, Investigation, Writing - Review & Editing, Funding acquisition.

Declaration of competing interest

The authors have no competing interests to declare.

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References

Agyapong, V.I.O., Hrabok, M., Juhas, M., Omeje, J., Denga, E., Nwaka, B., Akinjise, I., Corbett, S.E., Moosavi, S., Brown, M., Chue, P., Greenshaw, A.J., Li, X.-M., 2018. Prevalence rates and predictors of generalized anxiety disorder symptoms in residents of fort McMurray six months after a wildfire. Front. Psychiatr. 9, 345. https://doi.org/10.3389/fpsyt.2018.00345.

Ahern, J., Galea, S., Resnick, H., Kilpatrick, D., Bucuvalas, M., Gold, J., Vlahov, D., 2002. Television images and psychological symptoms after the September 11 terrorist attacks. Psychiatry 65, 289–300. https://doi.org/10.1521/psyc.65.4.289.20240.

Aubry, T., 2006. Reading as Therapy: what Contemporary Fiction Does for Middle-Class Americans. University of Iowa Press.

Bartsch, A., Oliver, M.B., 2016. Appreciation of Meaningful Entertainment Experiences and Eudaimonic Well-Being. The Routledge Handbook of Media Use and Well-Being. International Perspectives on Theory and Research on Positive Media Effects, pp. 80–92.

Ben-Zur, H., Gil, S., Shamshins, Y., 2012. The relationship between exposure to terror through the media, coping strategies and resources, and distress and secondary traumatization. Int. J. Stress Manag. 19, 132–150. https://doi.org/10.1037/a0027864.

Bonanno, G.A., Galea, S., Bucciarelli, A., Vlahov, D., 2006. Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. Psychol. Sci. 17 (3), 181–186. https://doi.org/10.1111/j.1467-9280.2006.01682.x.

Brunet, A., Weiss, D.S., Metzler, T.J., Best, S.R., Neylan, T.C., Rogers, C., Fagan, J., Marmar, C.R., 2001. The peritraumatic distress inventory: A proposed measure of PTSD criterion A2. J. Am. Acad. Psychiatr. 158 (9), 1480–1485. https://doi.org/10.1176/appi.ajp.158.9.1480.

Chen, S., Bonanno, G.A., 2020. Psychological adjustment during the global outbreak of COVID-19: a resilience perspective. Psychological Trauma: Theory, Research, Practice, and Policy 12, S51–S54. https://doi.org/10.1037/tra0000685.

Cho, J., Boyle, M.P., Keum, H., Shevy, M.D., McLeod, D.M., Shah, D.V., Pan, Z., 2003. Media, terrorism, and emotionality: emotional differences in media content and public reactions to the September 11th terrorist attacks. J. Broadcast. Electron. Media 47, 309–327. https://doi.org/10.1207/s15506878jobem4703_1.

Courneya, K.S., Hellsten, L.-A.M., 1998. Personality correlates of exercise behavior, motives, barriers and preferences: an application of the five-factor model. Pers. Indiv. Differ. 24 (5), 625–633. https://doi.org/10.1016/S0191-8869(97)00231-6.

First, J.M., Shin, H., Ranjit, Y.S., Houston, J.B., 2021. COVID-19 stress and depression: examining social media, traditional media, and interpersonal communication. J. Loss Trauma 26, 101–115. https://doi.org/10.1080/15325024.2020.1835386.

Garfin, D.R., Holman, E.A., Fischhoff, B., Wong-Parodi, G., Silver, R.C., 2022. Media exposure, risk perceptions, and fear: Americans? Behavioral responses to the Ebola public health crisis. Int. J. Disaster Risk Reduc. 77 https://doi.org/10.1016/j.ijdrr.2022.103059.

Garfin, D.R., Silver, R.C., Holman, E.A., 2020. The novel coronavirus (COVID-2019) outbreak: amplification of public health consequences by media exposure. Health Psychol. 39, 355–357. https://doi.org/10.1037/hea0000875.

Giri, S.P., Maurya, A.K., 2021. A neglected reality of mass media during COVID-19: effect of pandemic news on individual's positive and negative emotion and psychological resilience. Pers. Indiv. Differ. 180, 110962 https://doi.org/10.1016/j.paid.2021.110962.

Hayes, A.F., 2022. Introduction to Mediation, Moderation, and Conditional Process Analysis. A Regression-Based Approach, 3 ed. Guilford Press.

Holman, E.A., Silver, R.C., Poulin, M., Andersen, J., Gil-Rivas, V., McIntosh, D.N., 2008. Terrorism, acute stress, and cardiovascular health: a 3-year national study following the september 11th attacks. Arch. Gen. Psychiatr. 65 (1), 73–80. https://doi.org/10.1001/archgenpsychiatry.2007.6.

Ijntema, R.C., Schaufeli, W.B., Burger, Y.D., 2021. Resilience mechanisms at work: the psychological immunity-psychological elasticity (PI-PE) model of psychological resilience. Curr. Psychol. https://doi.org/10.1007/s12144-021-01813-5.
Ipsos, 2022. 61% globally think the war in Ukraine poses a significant risk to their country. https://www.ipsos.com/en/war-in-ukraine-april-2022.
Ito, T.A., Larsen, J.T., Smith, N.K., Cacioppo, J.T., 1998. Negative information weighs more heavily on the brain: the negativity bias in evaluative categorizations. J. Pers. Soc. Psychol. 75, 887–900. https://doi.org/10.1037/0022-3514.75.4.887.
Jin, Y., Fraustino, J.D., Liu, B.F., 2016. The scared, the outraged, and the anxious: how crisis emotions, involvement, and demographics predict publics' conative coping. Int. J. Strat. Commun. 10 (4), 289–308. https://doi.org/10.1080/1553118X.2016.1160401.
Kellerman, J.K., Hamilton, J.L., Selby, E.A., Kleiman, E.M., 2022. The mental health impact of daily news exposure during the COVID-19 pandemic: ecological momentary assessment study. Jmir Mental Health 9, e36966. https://doi.org/10.2196/36966. Article.
Lee, Y.H., Chen, M., 2022. Seeking a sense of control or escapism? The role of video games in coping with unemployment. Game. Cult. https://doi.org/10.1177/15554120221097413.
Levaot, Y., Greene, T., Palgi, Y., 2022. The associations between media use, peritraumatic distress, anxiety and resilience during the COVID-19 pandemic. J. Psychiatr. Res. 145, 334–338. https://doi.org/10.1016/j.jpsychires.2020.11.018.
Marshall, R.D., Bryant, R.A., Amsel, L., Suh, E.J., Cook, J.M., Neria, Y., 2007. The psychology of ongoing threat: relative risk appraisal, the September 11 attacks, and terrorism-related fears. Am. Psychol. 62, 304–316. https://doi.org/10.1037/0003–066X.62.4.304.
Mazurkiewicz, P., 2022. Polacy Boją Się Wojny W Ukrainie I Jej Konsekwencji [Poles Fear the War in Ukraine and its Consequences]. Rzeczpospolita. https://www.rp.pl/gospodarka/art36041861-polacy-boja-sie-wojny-w-ukrainie-i-jej-konsekwencji.
Montgomery, P., Maunders, K., 2015. The effectiveness of creative bibliotherapy for internalizing, externalizing, and prosocial behaviors in children: a systematic review. Child. Youth Serv. Rev. 55, 37–47. https://doi.org/10.1016/j.childyouth.2015.05.010.
Nabi, R.L., Demetriades, S., Walter, N., Qi, L., 2022a. Can a video a day keep stress away? A test of media prescriptions. Health Commun. https://doi.org/10.1080/10410236.2022.2134700.
Nabi, R.L., Torres, D.P., Prestin, A., 2017. Guilty pleasure no more the relative importance of media use for coping with stress. J. Media Psychol.Theor.Method. Appl. 29, 126–136. https://doi.org/10.1027/1864-1105/a000223.
Nabi, R.L., Wolfers, L.N., Walter, N., Qi, L., 2022b. Coping with COVID-19 stress: the role of media consumption in emotion- and problem-focused coping. Psychol. Popular Media 11, 292–298. https://doi.org/10.1037/ppm0000374.
Neria, Y., Sullivan, G.M., 2011. Understanding the mental health effects of indirect exposure to mass trauma through the media. JAMA 306, 1374–1375. https://doi.org/10.1001/jama.2011.1358.
Newman, M.G., Erickson, T.M., 2010. Generalized anxiety disorder. In: Beck, J.G. (Ed.), Interpersonal Processes in the Anxiety Disorders: Implications for Understanding Psychopathology and Treatment. American Psychological Association, pp. 235–260. https://doi.org/10.1037/12084-009.
Norris, C.J., 2021. The negativity bias, revisited: evidence from neuroscience measures and an individual differences approach. Soc. Neurosci. 16, 68–82. https://doi.org/10.1080/17470919.2019.1696225.
Pahayahay, A., Khalili-Mahani, N., 2020. What media helps, what media hurts: a mixed methods survey study of coping with COVID-19 using the media repertoire framework and the appraisal theory of stress. J. Med. Internet Res. 22, e20186 https://doi.org/10.2196/20186. Article.
Palgi, Y., Shrira, A., Hoffman, Y., 2017. Negative and positive perceptions of media sources and PTSD symptoms among older adults exposed to missile attacks. Pers. Indiv. Differ. 119, 185–188. https://doi.org/10.1016/j.paid.2017.07.025.
Park, C.L., Riley, K.E., Bedesin, E., Stewart, V.M., 2016. Why practice yoga? Practitioners' motivations for adopting and maintaining yoga practice. J. Health Psychol. 21 (6), 887–896.
Patient health questionnaire (PHQ) Screeners (n.d.). Retrieved August 22, 2022, from. https://www.phqscreeners.com/select-screener/.
Pfefferbaum, B., Newman, E., Nelson, S.D., Nitiéma, P., Pfefferbaum, R.L., Rahman, A., 2014. Disaster media coverage and psychological outcomes: descriptive findings in the extant research. Curr. Psychiatr. Rep. 16, 464. https://doi.org/10.1007/s11920-014-0464-x.
Pfefferbaum, B., Nitiéma, P., Newman, E., 2021. The association of mass trauma media contact with depression and anxiety: a meta-analytic review. J. Affect.Disorders Rep. 3, 100063 https://doi.org/10.1016/j.jadr.2020.100063.
Prestin, A., Nabi, R., 2020. Media prescriptions: exploring the therapeutic effects of entertainment media on stress relief, illness symptoms, and goal attainment. J. Commun. 70, 145–170. https://doi.org/10.1093/joc/jqaa001.
Raney, A.A., Ai, A.L., Oliver, M.B., 2022. Exploring the impact of media use on wellbeing following a natural disaster. Front. Commun. 7 https://doi.org/10.3389/fcomm.2022.967383.
Reinecke, L., Gilbert, A., Eden, A., 2022. Self-regulation as a key boundary condition in the relationship between social media use and well-being. Curr. Opin. Psychol. 45 https://doi.org/10.1016/j.copsyc.2021.12.008.
Rieger, D., Frischlich, L., Hogden, F., Kauf, R., Schramm, K., Tappe, E., 2015. Appreciation in the face of death: meaningful films buffer against death-related anxiety. J. Commun. 65, 351–372. https://doi.org/10.1111/jcom.12152.
Rybojad, B., Aftyka, A., 2018. Validity, reliability and factor analysis of the polish version of the peritraumatic distress inventory. Psychiatr. Pol. 52, 887–901. https://doi.org/10.12740/PP/OnlineFirst/75122.
Scrivner, C., Johnson, J.A., Kjeldgaard-Christiansen, J., Clasen, M., 2021. Pandemic practice: horror fans and morbidly curious individuals are more psychologically resilient during the COVID-19 pandemic. Pers. Indiv. Differ. 168, 110397 https://doi.org/10.1016/j.paid.2020.110397.
Spitzer, R.L., Kroenke, K., Williams, J.B.W., Löwe, B., 2006. A brief measure for assessing generalized anxiety disorder: The GAD-7. Arch. Intern. Med. 166 (10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092.
Starosta, J., Izydorczyk, B., Dobrowolska, M., 2020. Personality traits and motivation as factors associated with symptoms of problematic binge-watching. Sustainability 12 (14), 14. https://doi.org/10.3390/su12145810. Article.
Stevens, E.M., Dillman Carpentier, F.R., 2017. Facing our feelings: how natural coping tendencies explain when hedonic motivation predicts media use. Commun. Res. 44 (1), 3–28.
Thompson, R.R., Jones, N.M., Freeman, A.M., Holman, E.A., Garfin, D.R., Silver, R.C., 2022. Psychological responses to U.S. statewide restrictions and COVID-19 exposures: a longitudinal study. Health Psychol.: Off. J.Div. Health Psychol. Am. Psychol.Associat. 41 (11), 817–825. https://doi.org/10.1037/hea000123.
Warhol, R.R., 2003. Having a Good Cry: Effeminate Feelings and Pop-Culture Forms. Ohio State University Press.
Wassmann, C. (Ed.), 2016. Therapy and Emotions in Film and Television: the Pulse of Our Times. Palgrave Macmillan.
Wolfers, L.N.N., Utz, S., 2022. Social media use, stress, and coping. Curr. Opin. Psychol. 45 https://doi.org/10.1016/j.copsyc.2022.101305.
Wolfers, L.N., Schneider, F.M., 2021. Using media for coping: a scoping review. Commun. Res. 48 (8), 1210–1234. https://doi.org/10.1177/0093650220939778.
Yeung, Y.-Y., Yu, C.-P., 2022. Motivating young adults to connect with nature for stress relief: a study in Taiwan during the COVID-19 pandemic. Front. Psychiatr. 13.