Development and Multinational Validation of the War-related Media Exposure Scale (WarMES)

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Original Research

Abstract

Objectives: Millions of people witnessing early, repeated media coverage of wars are at heightened risk of developing mental health conditions. However, most literature available on the field is based on measures with unverified psychometric qualities. This study aimed to design and validate a new self-report scale to measure the extent of exposure to media content related to war, the War-related Media Exposure Scale (WarMES).
Methods: A cross-sectional study based on 2635 community adults (73.1% females, mean age of 23.98 ± 7.55 years) from 5 countries (Tunisia, Kuwait, Egypt, Jordan, Oman). To verify the factor structure, we carried out an Exploratory Factor Analysis in a first subsample ($N = 859$) then a Confirmatory Factor Analysis on the remaining subsample ($N = 1777$) using SPSS AMOS.
Results: Based on an initial pool of 18 items, results showed that a 9-item one-factor model fits the data well. Support for internal consistency was provided by a Cronbach's $\alpha = 0.96$. The factor structure was equivalent across sex and country groups. Evidence for concurrent validity was provided by demonstrating that WarMES scores positively correlated with stress and depression.
Conclusions: Findings suggest that the WarMES is valid, reliable and allows to accurately measure the amount of time spent viewing war-content on media.

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On October 7, 2023, the Palestinian militant group Hamas launched a surprise attack on southern Israel, killing civilians and taking hostages, which formed a major escalation of the Israeli-Palestinian conflict. In response, the Israeli army has killed thousands of civilian Palestinians in Gaza, mostly children and women, over a few days. Thousands of children have been reported injured, missing, trapped, or dead under the rubble. The secretary-general of the United Nations (UN) has warned that Gaza was becoming a "graveyard for children" under continuous Israeli bombardment.[1] In a Lancet letter, it has been estimated that "up to 186 000 or even more deaths could be attributable to the current conflict in Gaza."[2] Besides, Palestinian citizens were facing dire shortages of essentials, such as food, water, medicine, and electricity. Hospitals, refugee camps, mosques, churches, and UN facilities have not been spared from continued bombardment and ground operations by the Israel Defense Forces.[3] Since then, hundreds of thousands of protesters have gathered in different major cities around the world to call for a ceasefire in Gaza. The intensifying conflict has "shaken the world," has been qualified as "a crisis of humanity,"[3] and has clearly indirectly affected people beyond Gaza. Experiences from previous wars showed that one of the routes through which populations might be impacted is media.[4,5] Indeed, after October 7th, the global population has been acutely and continuously exposed to extensive war-related media content through different and multiple media platforms. Massive exposure to such content might pose a major threat to mental health and well-being of entire societies.

Several previous studies indicated associations between trauma-event-related media contact and short- and long-term detrimental psychological effects. One exemplary longitudinal study of the relationship between acute manmade disaster media contact and negative mental health outcomes is on the Iraq War and the September 11 attacks.[4] Findings showed that early Iraq War- and 9/11-related television exposure and frequency of exposure to war images (i.e., 4 or more hours daily) predicted an increased likelihood of reporting high acute stress as well as posttraumatic stress symptoms over time (3 years after 9/11).[4] A 3-year longitudinal study in a national US sample demonstrated that bombing-related media exposure following the 2013 Boston

Marathon bombings and the 2016 Orlando Pulse massacre acted as a perpetuator of a cycle of high distress and media use.[6] More recently, a study found that media exposure about the Russian-Ukrainian war predicted stress symptoms in a sample of adolescents aged 13-25 years from the Netherlands.[5] Previous literature reviews have also pointed to the existence of enough evidence supporting a strong relationship between disaster television viewing, mostly in the context of terrorism, and a range of negative psychological outcomes,[7–9] highlighting that clinicians should assess disaster-related media exposure as a contributor in populations presenting with psychiatric symptoms after mass trauma events.[9]

Measurement Issues of War-related Media Exposure in the Current Literature

The measurement of the extent to which people are exposed to war-related media content is crucial for the understanding of its effects on their mental health. While some previous studies did not specify how war-related media contact was measured,[10] others opted for qualitative measurements (e.g., media availability in the home[11]). Studies that adopted quantitative measures either used an item (i.e., "Seeing mutilated bodies and dead people on television") included in a composite measure of exposure to multiple traumatic Events,[12,13] or a self-developed single item (e.g., "Do you watch news updates on television?" from "Almost never" to "Many times a day;"[14] "With which frequency you watched media reports on the war?" from "several times a day" to "I tried to avoid watching;"[15] "how much attention you paid to news about the war," from "none" to a great deal;"[16] "In the past 2 weeks, how many hours per day have you spent engaging with content related to the war in Ukraine on all media channels that you use," from "0 hours" to "6 hours or more").[5] Finally, other studies used self-developed short measures with unknown and untested psychometric properties (e.g., 2 items on the amount of bombing-related television viewing and emotional reactions to the programming;[17] 5 items on how many terror-related programs (such as the news) respondents watched on television, and to what extent this made them feel angry, nervous, scared, and sad[18]). Overall, there appears to be a lack of valid and reliable scales, and lack of standardization in measures, which makes it difficult to quantitatively examine this specific media content consumption and impedes interpretation and comparison of research findings.

Rationale

Massive exposure to extensive war-related media content has become part of everyday life for an increasing number of people of all ages throughout the world. Media exposure to such content has become even more expanded with the rise of new technologies (e.g., smartphone, social media). Millions of people witnessing early, repeated media coverage of wars and armed conflicts are at heightened risk of developing both acute and chronic mental health conditions. However, most literature available on the field is based on measures of exposure with unverified psychometric qualities. Therefore, it appears of utmost importance to make available valid and reliable exposure measures to enable sound assessment and monitoring of people indirectly exposed to war through media who may experience elevated emotional distress and negative psychosocial impact.

The purpose of this study was to design and validate a new self-report scale to specifically measure the extent of exposure to media content related to war, the War-related Media Exposure Scale (WarMES), in the Arabic language. More specifically, the study aimed to: (1) explore the factorial structure of the WarMES in a sample of Arabic-speaking adults from the general population of different Arab countries, and in both genders, based on exploratory and confirmatory factorial analysis; (2) examine internal consistency of the WarMES; and (3) establish concurrent validity of the WarMES with measures of stress and depression. The formulated hypotheses are the following: (H1) Analyses will show support for a 1-dimensional factor structure of the WarMES, indicating that the scale reflects a single latent construct; (H2) the scale will have appropriate reliability (i.e., McDonald omega and Cronbach's alpha above .70[19]); (H3) Measurement invariance will be established across gender and country groups; and (H4) good concurrent validity will be demonstrated through positive correlations with stress and depression scores.

Methods

Sample and Procedure

A cross-sectional study was carried out 1-3 weeks after the start of Israel's war on Gaza on October 7, 2023. An anonymous questionnaire has been created using Google Forms and disseminated to participants via social media platforms and messaging applications. The target population consisted of community adults, aged over 18 years, originating from and residing in one of the Arab countries involved in this study (i.e., Egypt, Jordan, Kuwait, and Tunisia). Respondent-driven sampling and snowball sampling techniques were implemented to collect data. Before answering the questionnaire, general instructions including study objectives were thoroughly explained. Participation was on a voluntary basis and an informed consent form was included in the first section of the questionnaire. The study protocol was approved by the ethics committee of Razi Psychiatric Hospital (Reference #ECRPH-2023-0068).

Measures

The first part of the questionnaire assessed the sociodemographic characteristics of participants, including age, gender, education level, and country.

The War-related Media Exposure Scale (WarMES)

According to the recommended best practices in scale development for health research,[20] the development process of the WarMES was performed following different steps. Before designing the scale, the researchers deeply reviewed prior research and the existing measures available[4,5,14–18]. In addition, images, videos, social media posts, and other media content (e.g., news websites, television news, news magazines, daily newspapers) of the past weeks of war in Gaza were deeply and thoroughly analyzed. Indeed, due to its significant consequences and dramatic character, the latest war in Gaza has garnered unprecedented media attention all over the world, and content depicting various forms of suffering and horror experienced during war has dominated international media coverage since it began on October 7. 2023. Therefore, we believe that the list of items initially generated can be considered relatively exhaustive, covering a large spectrum of war content broadcasted in the media. From all the digital and broadcast media analyzed, and based on all findings

from the literature, a first pool of 18 items was produced referring to such contents (see Appendix 1). Negatively worded and lengthy items were avoided. Sample items include "Victims under rubble" and "Families forcibly displaced from their homes." In line with measures of general media exposure used in past research,[21–23] the WarMES asks respondents to report how much time in hours per day over the past 2 weeks they have spent watching war media content on radio, TV, magazines, newspapers, or the Internet via various media formats (e.g., music videos, television shows, breaking news, TikTok, Facebook, Instagram, YouTube, etc.). We decided a Likert format for scaling that had 5 response options which were "None" (0), "Less than 1 hour per day" (1), "1-2 hours per day" (2), "3-5 hours per day" (3) and "More than 5 hours per day" (4). Scores for each item are then combined into a total score for frequency of war media exposure. An expert panel composed of 2 psychiatrists, 2 psychologists, and an epidemiologist evaluated all items for conciseness and clarity. Because items were designed to be simple, short, with focused formulations, no ambiguities or unclarities could be detected by the experts. Therefore, no changes were deemed necessary. Items were then given to a sample of 30 community adult participants who were requested to note what they understood while reading the items. Those participants did not indicate any confusing or ambiguous wording; thus, no modifications of the item wording were incorporated.

The Cohen Perceived Stress Scale (PSS-10)

This is a self-administered scale composed of 10 items and used to assess the degree to which respondents felt that life situations were stressful, uncontrollable, unpredictable, and overwhelming over the last month. Each item is rated on a 5-point scale from 0 (never)-4 (very often). A higher total score indicates greater levels of perceived stress. The version validated in Arabic of the PSS-10 was used[24] (Cronbach alpha = .678).

The Patient Health Questionnaire–9 (PHQ-9)

This is a 9-item measure evaluating the severity of depressive symptoms over the past 2 weeks.[25] The PHQ-9's items cover diagnostic criteria of the clinical diagnosis of depressive disorder according to the DSM-5.[25] Each item is scored on a 4-point Likert-type scale ranging from 0 (absence of symptom)-3 (presence of symptom nearly every day). Greater scores reflect higher levels of depression. The Arabic validated version of the scale was adopted[26] (Cronbach alpha = .87).

Data Analysis

We used the FACTOR program v.12.04.01[27] to perform the Exploratory Factor Analysis (EFA). A minimum sample between 90 and 180 participants was deemed necessary based on 5-10 participants per scale's item. We carried out an EFA in the first subsample, made up of 33% (1/3) of the total sample (859 subjects). The Kaiser-Meyer-Olsen (KMO) and Bartlett's P values were used to confirm the adequacy of the data for EFA. The Measure of Sampling Adequacy (MSA) values were verified to check if any item needs to be eliminated if MSA < 0.5.[28] Moreover, the Expected Residual correlation direct Change (EREC) index was used to assess the residual correlation between 2 items (i.e., doublets); items appearing in different doublets were removed.[29] The polychoric correlations were applied because the data had an ordinal nature. The Unweighted Least Squares (ULS) method was used to extract the factors[30] with no rotation applied, whereas the Parallel Analysis was used to determine the number of factors to be extracted;[31,32] the latter

was conducted based on 500 random datasets using permutation of the raw data.

Subsequently, we conducted a Confirmatory Factor Analysis (CFA) to verify the factor structure obtained in the EFA on the remaining 66% (2/3) of the sample (n = 1777). We used the SPSS AMOS v.26 for this purpose. The minimum sample size to perform a CFA ranges from 3-20 times the number of items of the scale.[33] Thus, a minimum sample of 54 and 360 participants was assumed as required to have enough statistical power. To check the adequacy of the model, several fit indices were calculated: the root mean square error of approximation (RMSEA), the normed model chi-square (χ^2/df), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and standardized root mean square residual (SRMR). Values ≤ .08 for RMSEA, and ≤ 5 for χ^2/df, .90 for CFI and TLI, and ≤ 0.05 for SRMR indicated good fit of the model to the data.[34] Multivariate normality was not verified at first (Bollen-Stine bootstrap P = 0.002); thus, we conducted non-parametric bootstrapping procedure. Evidence of convergent validity was confirmed via the calculation of the Average Variance Extracted (should be > 0.5).

To test measurement invariance of the WarMES scores between sexes and countries, we performed multi-group CFA[35] using the total sample. Measurement invariance was evaluated at the configural, scalar, and metric levels.[36] We accepted ΔCFI ≤ .010 and ΔRMSEA ≤ .015 or ΔSRMR ≤ .010 (.030 for factorial invariance) as evidence of invariance.[37]

McDonald's ω coefficient and Cronbach's α coefficient were used to test reliability. The WarMES score was considered normally distributed according to its kurtosis and skewness values (between ±1). The Pearson test was used to correlate 2 continuous variables, whereas the ANOVA test was used to compare 3 or more means. The Student t test was used to compare 2 means. P < 0.05 was considered statistically significant. The effect sizes were considered small, medium, or large according to the correlation coefficients of 0.2, 0.5, and 0.8, respectively.[38]

Results

A total of 2635 participants filled the survey, with a mean age of 23.98 ± 7.55 years, 73.1% females, and 91.9% having a university level of education. The details of the participants per country are summarized in Table 1.

Factorial Validity

Firstly, the suitability of the data for EFA was confirmed via Bartlett's test (P ≤ .001) and the KMO test (KMO = .96). None of the items was removed because of low communality (< 0.3) or low MSA (< 0.5). However, 11 doublets were identified through the EREC index, which led to the removal of items 2, 3, 4, 5, 12, 13, 15, 16, and 17, given that they were the most repeated in the doublets. This has resulted in 9 remaining items. Then, a subsequent factor analysis was performed with the remaining 9 items. The Bartlett's test (P ≤ 0.001) and KMO index (KMO = .94) confirmed that the data were adequate for the factor analysis. Findings showed an adequate fit to a 1-dimensional solution supported by the parallel analysis, the GFI (GFI = .99) being higher than .95, the explained variance being of 79.73%, the I-ECV (I-ECV = .97) being higher than .85, the UniCo index (UniCo = .99) being higher than .95, and the MIREAL (MIREAL = .13) being lower than .30. Figure 1 shows the scree plot with parallel analysis.

Table 1. Details of the participants per country

	Total (N = 2635)	Jordan (N = 422; 16.0%)	Egypt (N = 924; 35.1%)	Tunisia (N = 453; 17.2%)	Kuwait (N = 669; 25.4%)	Oman (N =167; 6.3%)
Age (years)	23.98 ± 7.55	27.62 ± 10.16	20.65 ± 3.98	23.86 ± 4.47	26.01 ± 9.07	25.34 ± 7.45
Gender						
Males	709 (26.9%)	163 (38.6%)	123 (13.3%)	127 (28.0%)	247 (36.9%)	49 (29.3%)
Females	1926 (73.1%)	259 (61.4%)	801 (86.7%)	326 (72.0%)	422 (63.1%)	118 (70.7%)
Education						
Secondary or less	213 (8.1%)	78 (18.5%)	9 (1.0%)	9 (2.0%)	108 (16.1%)	9 (5.4%)
University	2422 (91.9%)	344 (81.5%)	915 (99.0%)	444 (98.0%)	561 (83.9%)	158 (94.6%)
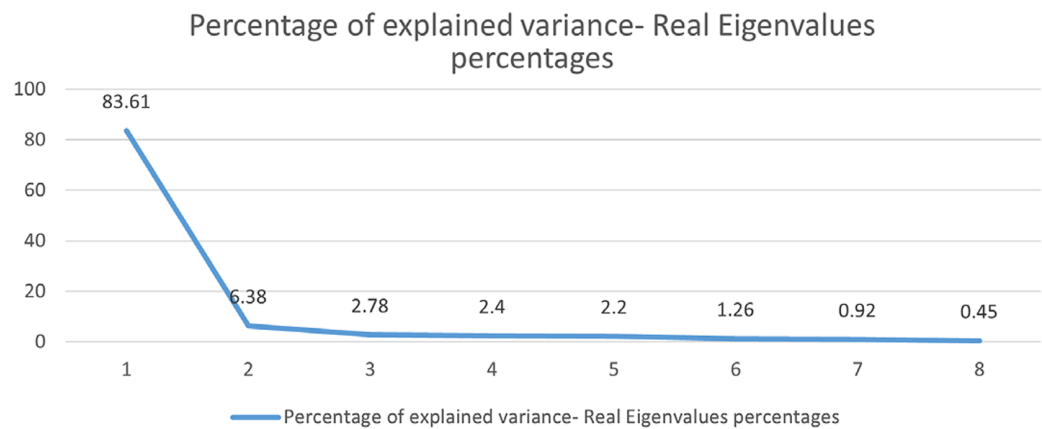
Figure 1. Scree plot with parallel analysis.
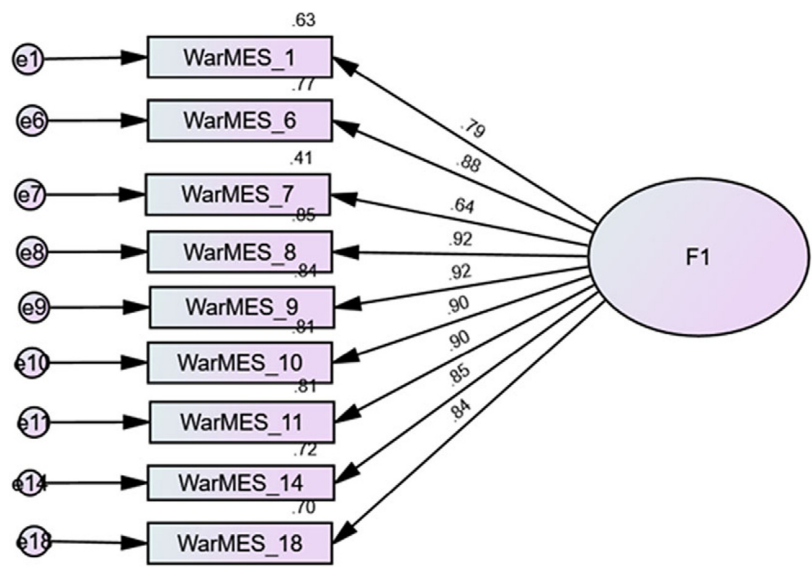
Figure 2. Standardized Estimates of Factor Loadings of the war media exposure scale deriving from the Confirmatory Factor Analysis.

The unidimensional model was tested via a CFA on sub-sample 2. Results showed that fit of the single-factor model of the WarMES was acceptable: SRMR = .023, CFI = .968, TLI = .958 and RMSEA = .106 [.098, .113] (Figure 2). The standardized estimates of factor loadings of the EFA and CFA were appropriate (see Table 2). Besides, the AVE value was appropriate = .73.

The reliability of the items was excellent for the WarMES scale in the total sample (α = .96 / ω = .96), sample 1 (α = .96 / ω = .96) and sample 2 (α = .96 / ω = .96).

Table 2. English Items of the WarMES, their frequency, and Standardized Estimates of Factor Loadings from the Exploratory (EFA) and Confirmatory Factor Analysis (CFA)

Items		None	Less than one hour per day	1-2 hours per day	3-5 hours per day	More than 5 hours per day	EFA	CFA
1	Threats of attacks against the civilian population	568 (21.6%)	734 (27.9%)	624 (23.7%)	417 (15.8%)	292 (11.1%)	.81	.79
2	Injured professionals (e.g., health care providers, journalists)	484 (18.4%)	872 (33.1%)	609 (23.1%)	384 (14.6%)	286 (10.9%)	.92	.88
3	Injured animals (e.g., cats, dogs)	864 (32.8%)	912 (34.6%)	411 (15.6%)	250 (9.5%)	198 (7.5%)	.68	.64
4	Killed adult civilians	440 (16.7%)	788 (29.9%)	599 (22.7%)	457 (17.3%)	351 (13.3%)	.94	.92
5	Killed kids	382 (14.5%)	724 (27.5%)	584 (22.2%)	501 (19.0%)	444 (16.9%)	.91	.92
6	Killed professionals (e.g., health care providers, journalists)	525 (19.9%)	828 (31.4%)	565 (21.4%)	394 (15.0%)	323 (12.3%)	.93	.90
7	Victims under rubble	390 (14.8%)	762 (28.9%)	607 (23.0%)	457 (17.3%)	419 (15.9%)	.94	.90
8	Families forcibly displaced from their homes	493 (18.7%)	780 (29.6%)	559 (21.2%)	433 (16.4%)	370 (14.0%)	.90	.85
9	Count of the number of civilians killed	443 (16.8%)	763 (29.0%)	567 (21.5%)	445 (16.9%)	417 (15.8%)	.87	.84

The header "Frequency of each item" spans the None / Less than one hour per day / 1-2 hours per day / 3-5 hours per day / More than 5 hours per day columns.

Measurement Invariance

The results of showed measurement invariance between genders and between countries at the configural, metricm and scalar levels (Table 3). The results showed that there was no significant difference between males and females in terms of WarMES scores (15.38 ± 10.42 vs 15.64 ± 9.86; $t(2633) = -.60$, $P = 0.550$.

A higher mean WarMES score was significantly found in Jordan (22.44 ± 9.66), followed by Oman (15.60 ± 9.37), Tunisia (15.33 ± 7.57), Egypt (14.75 ± 10.04), and Kuwait (12.52 ± 9.84; $F(4, 2630) = 74.25$, $P < 0.001$). The post-hoc analysis revealed that this difference was significant between Jordan and Egypt ($P < 0.001$), Jordan and Tunisia ($P < 0.001$), Jordan and Kuwait ($P < 0.001$), Jordan and Oman ($P < 0.001$), Egypt and Kuwait ($P < 0.001$), Tunisia and Kuwait ($P < 0.001$), Kuwait and Egypt ($P < 0.001$), Kuwait and Tunisia ($P < 0.001$), and Kuwait and Oman ($P = .002$).

Concurrent Validity

Higher WarMES scores were significantly and weakly correlated with more severe depression ($r = .20$; $P < 0.001$) and stress ($r = .13$; $P < 0.001$) symptoms, with a small effect size.

Discriminant Validity

The square root of the AVE value was 0.85, which was higher than the correlations between the WarMES and other measured constructs, supporting discriminant validity for the scale.

Table 3. Measurement invariance across genders and countries in the total sample

Model	CFI	RMSEA	SRMR	Model Comparison	ΔCFI	ΔRMSEA	ΔSRMR
Model 1: Genders							
Males	.973	.102	.021				
Females	.964	.110	.024				
Configural	.982	.059	.016				
Metric	.982	.055	.020	Configural vs metric	<.001	.004	.004
Scalar	.982	.052	.020	Metric vs scalar	<.001	.003	<.001
Model 2: Countries							
Jordan	.979	.077	.022				
Egypt	.953	.130	.027				
Tunisia	.938	.134	.040				
Kuwait	.975	.093	.019				
Oman	.926	.167	.037				
Configural	.977	.042	.018				
Metric	.975	.038	.035	Configural vs metric	.002	.004	.017
Scalar	.966	.040	.039	Metric vs scalar	.009	.002	.004

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Discussion

The present study contributes to the literature in this field by developing and validating a new self-administered scale: the War-related Media Exposure Scale (WarMES). As anticipated, findings showed that the scale has a single-factor structure in both genders and all country groups, as well as adequate reliability and good concurrent validity. Therefore, the WarMES appears to be suitable for use among Arabic-speaking populations. The ongoing wars and conflicts have ravaged the Middle East, and do not promise to subside in the near future. After October 7th, the ongoing conflict between Israelis and Palestinians has been particularly devastating and deadly, causing the world population to be constantly exposed to potentially distressing and traumatic media content. There is sufficient evidence that war-related media contact carries the potential for negative and long-lasting psychological impacts,[7–9] hence the strong need for simple, effective, and economic measurement instruments for specifically measuring this factor.

An EFA-to-CFA approach was used to explore the best-fitting model of the WarMES. EFA indicated that a 9-item 1-factor model fits the data well, which was then confirmed by CFA. This implies that the construct of war-related media exposure as assessed in our data should be regarded as unidimensional. The unidimensionality of the WarMES may enhance the clarity and interpretability of the obtained results without the complexity of depicting multiple underlying factors, thus increasing its utility as a measure for expediently assessing acute media exposure to war-related content. In addition, due to its 1-factor structure, the WarMES can easily be adaptable across various contexts and populations, allowing for generalized comparisons and wider application in both clinical practice and research. Although the RMSEA values exceeded the recommended threshold of 0.08, RMSEA tends to be inflated in models with low degrees of freedom (df < 50).[42,43] Given the low degrees of freedom in our model (df = 27), RMSEA may not be a reliable indicator in this case. Instead, model evaluation should rely on the other fit indices such as CFI and SRMR, which have been shown to be more stable under these conditions.[44] In our study, both CFI and SRMR values were adequate, supporting a good fit despite the elevated RMSEA. Furthermore, support for the War-MES's internal consistency reliability was provided by excellent McDonald ω and Cronbach's α values of 0.96 for both.

Measurement invariance was tested using 2 series (gender and country) of multi-group CFA to indicate whether latent means might be compared across groups. Findings showed that the psychometric properties of the WarMES are equivalent between males and females, as well as between respondents of different nationalities and cultural backgrounds (North-African/Maghrebian, i.e., Tunisia; Middle Eastern, i.e., Egypt and Jordan; Gulf, i.e., Kuwait and Oman). These results imply that the WarMES measures the same construct in the same way across gender and country, and that any reported differences in scores are not attributed to differences in the interpretation of the items, or in scale properties and functionality across subgroups. Establishing this psychometric property is highly relevant as it will enable to make meaningful cross-group latent factor mean comparisons in future research.[39] Establishing measurement invariance across the different nation groups supports cross-culture validity of the WarMES and reflects the extent to which the data gathered using this scale are comparable across different cultural environments.[40] Cross-national comparisons in WarMES scores showed that greater exposure to war-related media was significantly exhibited by Jordanian participants, followed by Omanis, Tunisians, Egyptians, then Kuwaitis. Highest scores in Jordanians compared

to those from other nations can be explained by the fact that the Jordanian state and society can be more directly affected by the war in Gaza due to geographical proximity.[41] Since October 2023, the war was "taking a psychological toll on a country (i.e., Jordan) whose citizens deeply identify with, and care about the suffering of, the Palestinian people,"[41] and Jordanians were particularly concerned about any further displacement of the Palestinian people.[42]

Finally, correlational analyses provided evidence for concurrent validity of the WarMES by demonstrating that its scores were related to relevant constructs in the expected directions. War-related media exposure scores positively correlated with stress and the severity of symptoms of depression. Empirical evidence from past experiences (e.g., Iraq War and the September 11, 2001 attacks,[4] the 2013 Boston Marathon bombings and the 2016 Orlando Pulse nightclub massacre,[6] the Russian-Ukrainian war[5]) has shown that immediate contact with media coverage of wars and conflicts may trigger acute stress responses and psychological distress in individual, even if the exposed individual is not directly affected. This reveals patterns of correlations between war-related media exposure and other psychopathology in adults and further highlights the relevance of assessing and monitoring this construct, especially in the most vulnerable populations.

Study Limitations

There are some limitations that need to be discussed. First, predictive validity of the WarMES could not be tested in the context of the present study due to the cross-sectional design. In addition, from this design, we cannot determine the directionality of the relationships between war-related media exposure and psychological outcomes. Additional longitudinal studies are required to ascertain causality. Second, self-reports measures were used, thereby making the data subject to recall bias and social desirability effects. Third, an online questionnaire and a convenience sampling technique were adopted to gather data, which might have limited the generalizability of our sample to the broader general adult population, especially because this approach has attracted more female and highly educated participants. Future studies using representative samples of the target population based on probability sampling are needed to draw firm conclusions. Furthermore, the sample consisted of participants from 4 Arab countries (Egypt, Jordan, Kuwait, and Tunisia), which may limit the generalizability of the findings to other cultural or national contexts. Snowball and respondent-driven sampling methods may have introduced sampling bias, as participants were likely to recruit people from their own social networks, potentially reducing sample diversity and representativeness. We must mention that Google Forms does not allow the tracking of the IP addresses and completion rates; therefore, we cannot verify duplicate responses. However, all survey items were made mandatory to reduce missing data. Fourth, test-retest reliability of the WarMES was not investigated, preventing assessment of the scale's stability over time; therefore, it still needs to be verified in future follow-up psychometric studies. Given the large sample size in our study (*n* = 2635), we acknowledge that statistical significance may be inflated, potentially identifying weak effects as statistically significant. The effect sizes between exposure and stress and depression were small and *P* values were likely inflated due to the large sample; therefore, results should be interpreted with caution. Another point worth noticing is that statistically significant, yet weak correlations between WarMES scores and depression and stress were observed, raising questions about the scale's clinical

sensitivity to detect mental health outcomes. Future research should consider including additional relevant measures, such as anxiety or PTSD symptoms, to support and strengthen concurrent validity of the WarMES. Finally, further relevant information about participants (such as perceived disruption of their daily lives, or any involvement in the given war conflict) was not collected in the context of the present study.

Practical and Theoretical Implications of the Study

From the present findings, it can be inferred that the WarMES is valid, reliable, and allows for accurate measurement of the amount of time spent viewing war images in media. The WarMES has a simple unidimensional factor structure that facilitates its integration into psychological evaluations, interventions, and research. As a valid and reliable measure, the WarMES will hopefully enable identification and monitoring of indirect exposure to wars through media and accurately assess its effects on mental health in adults. The WarMES has the advantage of being a relatively short self-report measure, taking around 3 minutes to complete, which enables to both reduce the burden placed on respondents and improve data quality. This is particularly relevant for clinical practices and research conducted in low-resource settings, where time and resources are often limited. Making this measure available could provide a better overview of the extent to which Arabic-speaking populations are exposed to war-related media, and a deeper understanding of the effects of exposure on their psychological health, functioning, and wellbeing. The WarMES could provide practitioners and policy and decision-makers access to evidence-based information to inform real-life decision-making and protect the public's health in times of war. In particular, the scale could be integrated into existing mental health screenings to help inform clinicians' efforts to provide mental health care in times of conflicts and wars by identifying, understanding, managing, and preventing excessive or prolonged exposure to war-related content on various forms of media among the most vulnerable population groups. The scale may also be used to help raise the public´s awareness of the detrimental effects of war-related media coverage on mental health, and the necessity to minimize the amount of time spent watching war content. At the same time, some practical challenges to its implementation should be acknowledged, such as the self-report nature that may be prone to subjectivity and some inaccuracy due to inaccurate recall or discomfort with self-disclosing personal information.

Conclusion

Our study enhances the trauma and disaster literature by creating a new measure to accurately assess the extent of media exposure to war or armed conflict events in future clinical and research practices. The scale was shown to be valid, reliable, and a useful tool to detect the amount of time spent watching war's media coverage through various means and platforms. Future validation studies are warranted to ensure that the WarMES maintains the same measurement properties in other languages and cultural contexts.

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Data availability statement. The datasets generated and/or analyzed during the current study are not publicly available due to restrictions from the ethics committee but are available from the corresponding author upon reasonable request.

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