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

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Abstract

Background: 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, the vast majority of literature available on the field is based on measures with unverified psychometric qualities. This study's purpose was to design and validate a new self-report scale to specifically measure the extent of exposure to media content related to war, i.e. the War-related Media Exposure Scale (WarMES).

Method*:* A cross-sectional cross-national study based on 2635 community adults from five countries (Tunisia, Kuwait, Egypt, Jordan, Oman). The WarMES was administered to all participants, along with other measures to determine concurrent validity of the scale (depression and stress).

Results*:* Exploratory Factor Analysis performed on an initial pool of 18 items indicated that a 9-item one factor model fits the data well, which was then confirmed by Confirmatory Factor Analysis. Support for the WarMES's internal consistency reliability was provided by excellent McDonald ω and Cronbach's α values (0.96). The psychometric properties of the WarMES are equivalent between males and females, as well as between respondents of different nationalities. Evidence for concurrent validity was provided by demonstrating that war-related media exposure scores positively correlated with stress and depression.

Conclusion*:* Findings suggest that the WarMES is valid, reliable and allows to accurately measure the amount of time spent viewing war-content on media. Future validation studies are warranted to ensure that the WarMES maintains the same measurement properties in other languages and cultural contexts.

INTRODUCTION

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. Another 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 (Nations, 2023). 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 (Nations, 2023). 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 "shaked the world", has been qualified as "a crisis of humanity" (Nations, 2023), 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 (e.g., (Runze et al., 2022; Silver et al., 2013)). 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 wellbeing 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 (Silver et al., 2013). 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) (Silver et al., 2013). A 3-year longitudinal study in a national U.S. sample demonstrated that bombing-related media exposure following the 2013 Boston Marathon bombings and the 2016 Orlando Pulse nightclub massacre acted as a perpetuator of a cycle of high distress and media use (Thompson et al., 2019). 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 (Runze et al., 2022). A review by Pfefferbaum et al. (Pfefferbaum et al., 2014) 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 psychological outcomes, particularly posttraumatic stress disorder caseness and posttraumatic stress. Another literature review revealed that contact with media coverage of war is pervasive among children, and is related to multiple psychological outcomes, including school problems, behavior problems, anger, grief, distress, sadness, depression, anxiety, worry, fear, posttraumatic stress (Pfefferbaum et al., 2020). A meta-analytic review documented that mass trauma media consumption is positively linked to depression and anxiety in adults (Pfefferbaum et al., 2021). Authors concluded that clinicians should assess disaster-related media exposure as a contributor in populations presenting with depression and/or anxiety symptoms after mass trauma events (Pfefferbaum et al., 2021).

Measurement of war-related media exposure

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. However, 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. While some previous studies did not specify how war-related media contact was measured (Dyregrov & Raundalen, 2005), others opted for qualitative measurements (e.g., media availability in the home (Cantor et al., 1993)). 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 (e.g., (Al Ghalayini & Thabet, 2017; Thabet et al., 2014)), or a self-developed single item (e.g., “Do you watch news updates on television?”, from “Almost never” to “Many times a day” (Lavi et al., 2016); “With which frequency you watched media reports on the war?”, from “several times a day” to “I tried to avoid watching” (Lavi et al., 2013); “how much attention you paid to news about the war”, from “none” to a great deal” (Pfefferbaum et al., 2013); “In the past two 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") (Runze et al., 2022). 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 (Pfefferbaum et al., 2003); 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 (Soffer-Dudek & Shahar, 2010)).

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, the vast majority of 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, i.e. 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 confirmative factorial analysis; (2) examine internal consistency of the WarMES; (3) establish concurrent validity of the WarMES with measures of stress, depression, and insomnia. The formulated hypotheses are the following: (H1) Analyses will show support for a one-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 (Viladrich et al., 2017)); (H3) Measurement invariance will be established across gender and country groups; (H4) good concurrent validity will be demonstrated through positive correlations with stress and depression scores.

METHODS

1.1. Sample and procedure

A cross-sectional study was carried-out one to three weeks after the start of Israel's war on Gaza on October 7th, 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).

1.2. 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 (Boateng et al., 2018), 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 (e.g., (Lavi et al., 2013; Lavi et al., 2016; Pfefferbaum et al., 2013; Pfefferbaum et al., 2003; Runze et al., 2022; Silver et al., 2013; Soffer-Dudek & Shahar, 2010)). Based on their findings, a first pool of 18 items was produced in such a way that it ensures to be a rich source that is relevant to the content of interest (See Appendix for items). Negatively worded and lengthy items were avoided. Respondents were asked to indicate how frequently on average per day, over the past two weeks, they spend seeing each of the types of war-related content on TV, radio, newspapers, magazines, or the Internet (e.g., television shows, breaking news, music videos, YouTube, Instagram, Facebook, TikTok, etcetera). Sample items include “Victims under rubble” and “Families forcibly displaced from their homes”. We decided a Likert format for scaling that had five response options which were “None” (0), “Less than one hour per day” (1), “1 to 2 hours per day” (2), “3 to 5 hours per day” (3) and “More than 5 hours per day” (4). An expert panel evaluated all items for conciseness and clarity. Items were then given to a sample of 30 community adults who were requested to note what they understood while reading the items.

The Cohen Perceived Stress Scale (PSS-10)

This is a 9-item self-report scale used to measure the degree to which respondents felt that life situations were stressful, overwhelming, uncontrollable, and unpredictable during the past month. Items are scored on a 5-point response scale ranging from 0 (never) to 4 (very often). Greater scores reflect higher levels of perceived stress. The Arabic validated version of the PSS-10 was used (Ali et al., 2021), with a Cronbach alpha of .678.

The Patient Health Questionnaire–9 (PHQ-9)

This scale is composed of 9 items assessing and grading the severity of depression in the last 2 weeks (Kroenke et al., 2001). The scale covers the 9 diagnostic criteria of the clinical diagnosis of depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders (Kroenke et al., 2001). Each item is rated on a Likert scale from 0 (absence of symptom) to 3 (presence of symptom nearly every

day). Higher scores indicate more severe depression. The Arabic version was used (Dagher et al., 2023), which yielded a Cronbach alpha of .879 in the present sample.

Data Analysis

We used the FACTOR program v.12.04.01 (Lorenzo-Seva & Ferrando, 2006) 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 (Kaiser & Rice, 1974). Moreover, the Expected Residual correlation direct Change (EREC) index was used to assess the residual correlation between two items (i.e. doublets); items appearing in different doublets were removed (Ferrando et al., 2022). The polychoric correlations were applied to since the data had an ordinal nature. The Unweighted Least Squares (ULS) method was used to extract the factors (Lloret-Segura et al., 2014), whereas the Parallel Analysis was used to determine the number of factors to be extracted (Calderón Garrido et al., 2019; Timmerman & Lorenzo-Seva, 2011).

Subsequently, we performed 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 conduct a confirmatory factor analysis ranges from 3 to 20 times the number of the scale's variables (Mundfrom et al., 2005). Therefore, we assumed a minimum sample of 54 and 360 participants needed to have enough statistical power. To check if the model was adequate, several fit indices were calculated: the normed model chi-square (χ^2/df), the Steiger-Lind root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), the Tucker-Lewis Index (TLI) and the comparative fit index (CFI). Values ≤ 5 for χ^2/df, and $\leq .08$ for RMSEA, ≤ 0.05 for SRMR and .90 for CFI and TLI indicate good fit of the model to the data (Hu & Bentler, 1999). Multivariate normality was not verified at first (Bollen-Stine bootstrap p = .002); therefore, we performed non-parametric bootstrapping procedure. Evidence of convergent validity was confirmed via the calculation of the Average Variance Extracted (should be > 0.5).

To examine measurement invariance of the WarMES scores between genders and countries, we conducted multi-group CFA (Chen, 2007) using the total sample. Measurement invariance was assessed at the configural, metric, and scalar levels (Vadenberg & Lance, 2000). We accepted $\Delta CFI \leq .010$ and $\Delta RMSEA \leq .015$ or $\Delta SRMR \leq .010$ (.030 for factorial invariance) as evidence of invariance (Swami et al., 2022).

We used Cronbach's α coefficient and McDonald's ω coefficient to examine reliability. The WarMES score was considered normally distributed according to its skewness and kurtosis values (between ± 1). The Student t test was used to compare two means. The ANOVA test was used to compare three or more means, whereas the Pearson test was used to correlate two continuous variables. P < 0.05 was deemed statistically significant.

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.

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%)

Factorial validity

Prior to this analysis, we confirmed the suitability of the data for EFA via the KMO test (KMO = .96) and Bartlett's test ($p \leq .001$). None of the items was removed because of low MSA (< 0.5) or low communality (< 0.3). 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 as they were the most frequently repeated in the doublets, resulting in 9 remaining items. Another factor analysis was then conducted with the remaining 9 items. The KMO index (KMO = .94) and Bartlett's test ($p \leq .001$) confirmed the adequacy of the data for the factor analysis. Results indicated an adequate fit to a unidimensional structure supported by the parallel analysis, the GFI (GFI = .99) being greater than .95, the explained variance of 79.73%, the UniCo (UniCo = .99) indice greater than .95, the I-ECV (I-ECV = .97) greater than .85 and MIREAL (MIREAL = .13) lower than .30.

The unidimensional model was tested via a CFA on subsample 2. Results indicated that fit of the one-factor model of the WarMES was modest: SRMR = .023, CFI = .968, TLI = .958 and RMSEA = .106 [.098, .113]. The modification indices between residuals of items 6–10, 7–9 and 14–18 were high; after adding correlations between those residuals, the numbers improved as follows: RMSEA = .079 (90% CI .071,

.087), SRMR = .017, CFI = .984, TLI = .976. The standardized estimates of factor loadings of the EFA and CFA were all adequate (see Table 1). The AVE value was also adequate = .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).

Measurement invariance

The results of showed measurement invariance between genders and between countries at the configural, metric 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 = .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 < .001. The post-hoc analysis revealed that this difference was significant between Jordan and Egypt (p < .001), Jordan and Tunisia (p < .001), Jordan and Kuwait (p < .001), Jordan and Oman (p < .001), Egypt and Kuwait (p < .001), Tunisia and Kuwait (p < .001), Kuwait an Egypt (p < .001), Kuwait and Tunisia (p < .001), Kuwait and Oman (p = .002).

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

Items		Frequency of each item					EFA	CFA
		None	Less than one hour per day	1 to 2 hours per day	3 to 5 hours per day	More than 5 hours per day		
1	Threats of attacks against the civilian population	568 (21.6%)	734 (27.9%)	624 (23.7%)	417 (15.8%)	292 (11.1%)	.81	.80
2	Bombs exploding*	471 (17.9%)	809 (30.7%)	653 (24.8%)	407 (15.4%)	295 (11.2%)		
3	Buildings destroyed*	348 (13.2%)	755 (28.7%)	650 (24.7%)	502 (19.1%)	380 (14.4%)		
4	Injured adult civilians*	388 (14.7%)	741 (28.1%)	635 (24.1%)	495 (18.8%)	376 (14.3%)		
5	Injured kids*	339 (12.9%)	715 (27.1%)	632 (24.0%)	502 (19.1%)	447 (17.0%)		
6	Injured professionals (e.g., healthcare providers, journalists)	484 (18.4%)	872 (33.1%)	609 (23.1%)	384 (14.6%)	286 (10.9%)	.92	.87
7	Injured animals (e.g., cats, dogs)	864 (32.8%)	912 (34.6%)	411 (15.6%)	250 (9.5%)	198 (7.5%)	.68	.65
8	Killed adult civilians	440 (16.7%)	788 (29.9%)	599 (22.7%)	457 (17.3%)	351 (13.3%)	.94	.93
9	Killed kids	382 (14.5%)	724 (27.5%)	584 (22.2%)	501 (19.0%)	444 (16.9%)	.91	.93
10	Killed professionals (e.g., healthcare providers, journalists)	525 (19.9%)	828 (31.4%)	565 (21.4%)	394 (15.0%)	323 (12.3%)	.93	.89
11	Victims under rubble	390 (14.8%)	762 (28.9%)	607 (23.0%)	457 (17.3%)	419 (15.9%)	.94	.90
12	Victims calling for help*	395 (15.0%)	736 (27.9%)	624 (23.7%)	464 (17.6%)	416 (15.8%)		
13	Victims crying or terrorized*	349 (13.2%)	736 (27.9%)	609 (23.1%)	487 (18.5%)	454 (17.2%)		
14	Families forcibly displaced from their homes	493 (18.7%)	780 (29.6%)	559 (21.2%)	433 (16.4%)	370 (14.0%)	.90	.84

Items		Frequency of each item					EFA	CFA
		None	Less than one hour per day	1 to 2 hours per day	3 to 5 hours per day	More than 5 hours per day		
15	Victims facing a shortage of food and/or potable water*	389 (14.8%)	762 (28.9%)	598 (22.7%)	475 (18.0%)	411 (15.6%)		
16	Victims facing a shortage of fuel and/or electricity*	439 (16.7%)	749 (28.4%)	582 (22.1%)	448 (17.0%)	417 (15.8%)		
17	Hospitals facing a shortage of medical supplies*	359 (13.6%)	742 (28.2%)	605 (23.0%)	485 (18.4%)	444 (16.9%)		
18	Count of the number of civilians killed	443 (16.8%)	763 (29.0%)	567 (21.5%)	445 (16.9%)	417 (15.8%)	.87	.83

*Items removed.

Table 3

Measurement invariance across genders and countries in the total sample.

Model	CFI	RMSEA	SRMR	Model Comparison	ΔCFI	ΔRMSEA	ΔSRMR
Model 1: Genders							
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							
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 = Steiger-Lind root mean square error of approximation; SRMR = Standardised root mean square residual.

Concurrent validity

Higher WarMES scores were significantly and positively correlated to more severe depression ($r = .20$; $p < .001$) and stress ($r = .13$; $p < .001$) symptoms.

DISCUSSION

The ongoing wars and conflicts have ravaged the Middle East, and does 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 (Pfefferbaum et al., 2014; Pfefferbaum et al., 2021; Pfefferbaum et al., 2020), hence the strong need for simple, effective and economic measurement instruments for specifically measuring this factor. The present study contributes to the literature in this field by developing and validating a new self-administered scale, i.e. 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.

An EFA-to-CFA approach was used to explore the best-fitting model of the WarMES. EFA indicated that a 9-item one 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 one-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. Furthermore, support for the WarMES'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 two 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 (Van De Schoot et al., 2015).

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. In particular, war-related media exposure scores positively correlated with stress, and depression symptoms severity. Empirical evidence from past experiences (e.g., Iraq War and the September 11th, 2001, attacks (Silver et al., 2013), the 2013 Boston Marathon bombings and the 2016 Orlando Pulse nightclub massacre (Thompson et al., 2019), the Russian-Ukrainian war (Runze et al., 2022)) 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 offers additional support to the

patterns of correlations between war-related media exposure and other psychopathology in adults from the general population, and further highlights the relevance of assessing and monitoring the construct, especially in 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. Second, self-reports measures were used, thereby making the data subject to recall bias. 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 since this approach has attracted more female and highly educated participants. Fourth, test-retest reliability of the WarMES was not investigated, and still needs to be verified in future psychometric studies.

Conclusion

From the present findings, it can be inferred that the WarMES is valid, reliable and allows to accurately measure 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. 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. Future validation studies are warranted to ensure that the WarMES maintains the same measurement properties in other languages and cultural contexts.

Declarations

Conflicts of interest:

none.

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