



## Article

# Italian Adaptation and Validation of the Fear of War Scale and the Impact of the Fear of War on Young Italian Adults' Mental Health

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**Abstract:** The return of war to Europe with the Russo-Ukrainian conflict generated mental health effects even in countries not directly involved in the war. The present study describes the Italian adaptation and validation of the Fear of War Scale (FOWARS), i.e., a 13-item Likert scale built by a Romanian research team and exploring the fear of war. For the Italian adaptation, a sample of 150 young Italian adults (aged 18–30,  $M = 21.7$ ;  $SD = 2.2$ ) has been collected. Exploratory Factor Analysis conducted with PCA confirmed the bifactorial structure of the scale and detected two dimensions, i.e., the “Physiological dimension of fear” and the “Experiential dimension of fear”. The results of the Confirmatory Factor Analysis show adequate goodness of fit and the last version of the scale, consisting of 12 items, shows good internal consistency and convergent and discriminant validity. Positive significant correlations with the Worry Domains Questionnaire (WDQ) and the Depression Anxiety and Stress Scale (DASS-21) were also found. Moreover, results from ANOVA display significant differences between men and women, with the latter showing higher values of fear of war. Finally, *t*-test analyses highlight the impact of the fear of war on Italian young adults' mental health and worry. The Italian adaptation of FOWARS has good overall psychometric properties and can be used to explore the fear of war in the Italian young adult population to highlight the psychological impact of war and its relationship with mental health.

**Keywords:** fear of war; Italian adaptation; scale validation; young adults; mental health



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## 1. Introduction

The Russo-Ukrainian War is an international conflict that broke out in February 2022 and is currently ongoing. The conflict escalated in a European and global picture that had already been severely compromised by the recent trauma caused by the COVID-19 pandemic (Anand et al. 2020; De Rosa and Regnoli 2022; Horesh and Brown 2020; Regnoli et al. 2022), which produced a general decrease in people's mental well-being. This is especially true for specific populations that were found to be more at risk, such as young adults and healthcare professionals (Cao et al. 2020; Liyanage et al. 2021; Khan et al. 2022; Xiong et al. 2020; Parola et al. 2020; Vanhaecht et al. 2021). Adding to this, the climate change crisis and its ever-more-evident effects (which are less and less confined to remote geographical areas), exacerbate the already complex general condition. The alarming synergy among these collective events (Jeftić et al. 2021; Karaman et al. 2020; Zaid et al. 2022) risks producing a cumulative trauma (Khan 1963) that invades the individual and collective psychic horizon and further reverberates upon mental health.

Briefly, nowadays, old and new generations must face and deal with emergencies due to pandemics, war, and climate change (Allam et al. 2022; Ajad and Tiwari 2022; Carta et al. 2022). The impact of traumatic collective events on the psychological well-being of target populations has been widely accounted for in the literature (Bisson et al. 2015; Calderoni et al. 2006; Cardozo 2000). More recently, the impact of the war on Ukrainians has also been

addressed (Chaaya et al. 2022; Kalaitzaki et al. 2022). Nonetheless, minor consideration has been given to geographically non-adjacent countries and communities (Barchielli et al. 2022; Bezzi 2022; Hajek et al. 2022; Riad et al. 2023), though the negative impact of the war on the stability of single nations and entire continents has been long recognized (Armstrong-Jones 1917). Indeed, the damage generated by wars is not only economic and financial (Lee and Andrade 2011) but also psychological insofar as its brutality heightens potentially negative emotions, such as worry, anxiety, and fear. Furthermore, the globalized world in which the war takes place implies a daily hyper-exposure to distressing images and information that take on potentially catastrophic connotations on a global scale when they are combined with the nuclear threat. As has already been observed in relation to the pandemic (Banerjee and Rao 2020), such hyper-exposure weighs on the “information pollution” that intensifies negative states, such as anxiety, uncertainty, angst, and especially fear (Muhammed and Mathew 2022).

Fear, widely investigated in relation to the traumatic experience of the pandemic (Ahorsu et al. 2020; Veronese et al. 2021), is one of the basic emotional reactions triggered by the feeling of being in immediate danger: “a basic, intense emotion aroused by the detection of imminent threat, involving an immediate alarm reaction that mobilizes the organism by triggering a set of physiological changes” (APA Dictionary of Psychology). The psychological literature considers it a physiological state that is involuntarily activated but also a conscious mental process (Adolphs 2013; Barrett 2017; LeDoux 2015). Though different definitions have been provided, scholars agree on the distinction between the adaptive and maladaptive functions of fear. The first is crucial to human evolution, and it is the main mediator between the perception of threat and the implementation of defensive responses for survival (Baumeister et al. 2001); the second is associated with severe anxiety disorders and/or toxic stress and to avoidance behavior (Debiec and Olsson 2017; Gray 1987; Shern et al. 2016).

Boehnke and Schwartz (1997) were the first to explore the concept of fear of war, thus highlighting its connection with trait anxiety and personal beliefs and values, though they failed to detect a significant connection with mental well-being; others have investigated the positive correlations among fear of war, anxiety, and depression in young adults and psychosomatic symptoms in adolescents (Poikolainen et al. 1994, 2004). More recently, researchers have been exploring how the fear of war can also be detected in countries that are geographically distant from the conflict (Lybarger 2020) and, concerning the Russo-Ukrainian war, the extent to which it is taking its toll on the mental health of people who are not directly involved in it in terms of increased anxiety, fear, stress, and depressive states (Hajek et al. 2022; Riad et al. 2023; Skwirczyńska et al. 2022; Surzykiewicz et al. 2022).

Thus, it appears urgent to examine in greater depth the impact of collective traumas on the mental well-being of populations who are not directly exposed to them, especially those who have already been identified as potentially at risk during other traumatic events, such as the pandemic (Cao et al. 2020; Parola et al. 2020). Nonetheless, there are yet few research tools that investigate the psychological impact of war (Chandler 1991; Lybarger 2020), which makes the necessity to build, validate, and adapt them to this purpose even more relevant.

### 1.1. The Fear of War Scale (FOWARS)

Proximity to the conflict zone has led Kalcza-Janosi et al. (2023) to build a tool that measures the fear of war, which is conceptualized as “the appreciation of personally becoming a victim of war in one way or another” (Kalcza-Janosi et al. 2023, p. 5). After reviewing the literature on specific fear scales, such as the Nuclear War Anxiety Scale (Chandler 1991) and the Fear of COVID-19 Scale (Ahorsu et al. 2020), the authors created some items that are useful for exploring this theme, both in terms of the emotional experience associated with it and the frequency of occurrence of physiological symptoms. The first version of the tool was composed of 16 items. Later analyses led the authors to select 13 items and to build the final version of the FOWARS. This five-point Likert scale (range: 1 = strongly disagree;

5 = strongly agree) explores the fear of war through two dimensions named the “Experiential dimension of fear” (items 1–7) and the “Physiological dimension of fear” (items 8–13), which were built starting from the very definition of fear in psychology (as reported in the APA, Dictionary of Psychology). The first dimension explores the subjective experience associated with war through various items, such as “I am scared because I know war costs human lives” or “I am concerned about the serious consequences of the war”, whereas the second dimension is concerned with the physiological responses triggered by the fear of war through certain items, such as “I start to tremble when I think the war reaches here, as well” or “My palms sweat when I think the war will reach us too”. The original scale shows great internal coherence, good fit indices, and good convergent validity, from which it is possible to conclude that the investigated subject is strongly associated with the Intolerance of Uncertainty (IUS-12) and with Anxiety, Depression, and Stress (DASS-21).

### 1.2. Aims and Hypotheses

To the authors’ knowledge, there are currently no validation studies of tools that are aimed at investigating the fear of war conducted in Italy, and only a few investigate its impact on the mental health of young Italians. In light of this, the present study pursues two interconnected aims: on the one hand, the Italian adaptation of the Fear of War Scale (FOWARS) in a sample of young adults with the verification of its psychometric properties, and, on the other, the exploration of the possible impact of fear of war on mental health in the aforementioned target.

Hence, the following research questions (R) and hypotheses (H) have been formulated:

**R1.** *Are all FOWARS items translated into Italian relevant and appropriate for exploring the fear of war construct?*

**R2.** *Does the Italian adaptation of the scale keep the original two-dimensionality?*

**Hypothesis 1 (H1).** *The preliminary tests of feasibility are acceptable and significant, and the factorial structure of the Italian adaptation can be confirmed.*

**Hypothesis 2 (H2).** *The scale and its dimensions have good internal coherence.*

**Hypothesis 3 (H3).** *The standardized factor loadings, the Composite Reliability values, and the Average Variance Extracted from the two factors that emerged are adequate.*

**Hypothesis 4 (H4).** *The Italian adaptation of the FOWARS shows positive and significant associations with the WDQ and the DASS-21, as partly shown in the validation study of this tool.*

**Hypothesis 5 (H5).** *The square root of the Average Variance Extracted from the factors is lower than the correlation between the two factors and the FOWARS.*

**Hypothesis 6 (H6).** *The Italian adaptation of the FOWARS shows weak or absent association with the SWLS and the IUS-12.*

**Hypothesis 7 (H7).** *In agreement with the original research study, women may show higher levels of fear of war than men.*

**Hypothesis 8 (H8).** *Higher levels of fear of war might favor Anxiety, Depression, and Stress.*

## 2. Materials and Methods

### 2.1. Italian Adaptation of FOWARS

The back translation method was used to create the Italian version of the FOWARS. For the English version, an Italian native speaker with extensive knowledge of English translated all items of the scale from English to Italian. The scale was presented by the authors in three languages, but the adaptation was conducted on original English items.

Then, an English native speaker translated the scale back from Italian to English. A researcher in English Linguistics and a certified translator compared the two versions and, after making the necessary adjustments and corrections, defined the last version of the Italian adaptation of the FOWARS. In the Italian translation of the scale, a simple syntax was used, and no adaptations were made for specific Italian dialects. The English items of the original scale were clear and simple; therefore, minimal adjustments were made during translation.

The Italian adaptation of the FOWARS has been accepted by the corresponding author of the original scale.

## 2.2. Participants and Procedure

Theoretically, considering the number of 10 participants per item, a minimal sample of 130 participants would have been adequate to evaluate the psychometric proprieties of the scale (Mundfrom et al. 2005). Furthermore, a minimum sample size of 128 participants was also determined a priori to ensure the minimum necessary number of subjects for the Exploratory and Confirmatory Factor Analysis (a priori power analysis assumptions:  $d = 0.5$ ;  $\alpha = 0.05$ ; power = 0.80; Comrey and Lee 1992).

The Italian adaptation of the FOWARS was conducted by recruiting 150 young adults (48.7% male, 51.3% female) between 18 and 30 years of age ( $M = 21.7$ ;  $SD = 2.2$ ). At the time when the questionnaires were collected, most participants resided in Campania (86%), 42% lived in towns, and 58% lived in the province. Concerning relationship status, 52% of the participants were single and 46% were in a non-cohabiting relationship. Most participants (58.7%) were students, 22% of whom were working students, 16.7% were workers, and 2.7% were unemployed. Concerning the level of current education, 78% of the participants were attending university courses, especially three-year bachelor's programs (59.3%).

Participants were recruited in Italy via social media pages in January 2023. All data were collected through self-report questionnaires using an Internet-based survey, and participants were recruited via snowball and virtual snowball sampling. The sample size was decided based on theoretical references and preliminary analyses, as reported above, and time availability for this study. Participation in this study was voluntary and anonymous, and all people involved were encouraged to answer as truthfully as possible and signed a consent form that included the aims of this study.

Data were analyzed using SPSS 28.0 and SPSS AMOS 28.0.

## 2.3. Measures

In addition to the Fear of War Scale (FOWARS), the following tools were also used to examine the data:

A *socio-demographic questionnaire* was constructed to collect information regarding participants' age and gender, region of residence, place of residence (town vs. country), civil status, level of education, occupation, and type of current education.

The *Intolerance of Uncertainty Scale* (IUS-12; Carleton et al. 2007; Italian adaptation and validation by Bottesi et al. 2015a), a 12-item self-report instrument assessing intolerance of uncertainty, was used. The authors highlighted 2 subscales composed of 7 items for prospective intolerance of uncertainty and 5 items for inhibitory intolerance of uncertainty. This is a 5-point Likert-type scale ranging from 1 = "Strongly disagree" to 5 = "Strongly agree". Bottesi et al. (2015a) reported good psychometric properties and good internal consistency ( $\alpha = 0.80$ ). In the present study, Cronbach's  $\alpha$  was 0.89.

The *Worry Domains Questionnaire* (WDQ; Tallis et al. 1994; Italian adaptation and validation by Morani et al. 1999), a 25-item self-report instrument assessing non-pathological worry across five general worry domains, including Relationships, Lack of Confidence, Aimless Future, Work-Related, and Financial worries, was used. This is a 5-point Likert scale ranging from 1 = "Not at all" to 5 = "Extremely". Morani et al. (1999) reported good psychometric properties and good internal consistency ( $\alpha = 0.90$ ). In the present study, Cronbach's  $\alpha$  was 0.92.

The *Satisfaction with Life Scale* (SWLS; Diener et al. 1985; Italian adaptation and validation by Di Fabio and Busoni 2009) was used; this is a 5-item self-report instrument assessing global life satisfaction. It has a mono-dimensional structure and a 7-point Likert-type scale ranging from 1 = “Strongly disagree” to 7 = “Strongly agree”. Di Fabio and Busoni (2009) reported good internal consistency ( $\alpha = 0.85$ ). The Cronbach’s  $\alpha$  in the current study was 0.86.

The *Depression Anxiety and Stress Scale* (DASS-21; Lovibond and Lovibond 1995; Italian adaptation and validation by Bottesi et al. 2015b), a 21-item self-report instrument assessing depression, anxiety, and stress on 3 subscales composed of 7 items for Depression, 7 items for Anxiety, and 7 items for Stress, was used. The scale is a 4-point Likert-type scale ranging from 0 = “Did not apply to me at all” to 3 “Applied to me very much or most of the time”. Bottesi et al. (2015b) reported good psychometric properties and good internal consistency for Depression ( $\alpha = 0.82$ ), Anxiety ( $\alpha = 0.74$ ), and Stress ( $\alpha = 0.85$ ). In the present study, Cronbach’s  $\alpha$  was 0.90 for Depression, 0.90 for Anxiety, and 0.87 for Stress.

#### 2.4. Statistical Analyses

Explorative Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to verify the factorial structure of the scale described by the authors (Kalcza-Janosi et al. 2023), answer research questions 1 and 2, and test Hypothesis 1. A preliminary Kaiser–Meyer–Olkin (KMO) test was performed to verify the sample adequacy (where values between 0.8 and 0.9 were considered great (Field 2017)), and Bartlett’s test of sphericity was conducted to verify correlations of the significant items.

EFA was performed using the Principal Component Analysis (PCA), and Varimax rotation was chosen. In the present study, we selected a few factor extraction criteria, such as eigenvalues  $> 1.0$ , communality  $\geq 0.30$  for each item, and factor loading  $> 0.50$  for each item that was associated with other extracted factors. According to Comrey and Lee (1992), the loadings were considered as follows: loadings  $> 0.71$  = excellent; loadings between 0.63 and 0.70 = very good; loadings between 0.55 and 0.62 = good; loadings between 0.45 and 0.54 = fair; and loadings between 0.32 and 0.44 = poor.

Furthermore, we used the maximum likelihood estimation method to conduct a CFA. Following Hu and Bentler (1999) and McDonald and Ho (2002), we used the following indices to evaluate the model’s goodness of fit: chi-squared distribution and the degrees of freedom ( $X^2/df$ ; in a range from 2 to 5); Goodness of Fit Index (GFI;  $\geq 0.90$ ); Comparative Fit Index (CFI;  $\geq 0.90$ ); Incremental Fit Index (IFI;  $\geq 0.90$ ); Normed Fit Index (NFI;  $\geq 0.90$ ); Tucker–Lewis Index (TLI;  $\geq 0.90$ ); Root Mean Square Error of Approximation (RMSEA; considered good if the values are  $< 0.05$ , reasonable if they are  $< 0.08$ , and average if they are  $< 0.10$ ); and Standardized Root Mean Square Residual (SRMR;  $\leq 0.09$ ).

To test Hypothesis 2, the internal consistency of the FOWARS adaptation was evaluated. Item means, standard deviations, and mean item–item correlation were calculated. The reliability test was evaluated through Cronbach’s  $\alpha$  (Cronbach and Meehl 1955) and McDonald’s  $\omega$  (McDonald 1999), and values  $\geq 0.70$  were considered acceptable (Santos 1999).

Concerning Hypothesis 3, convergent validity was evaluated by calculating Standardized Factor Loading (SFL;  $\geq 0.50$ ), Composite Reliability (CR;  $\geq 0.70$ ), and Average Variance Extracted (AVE;  $\geq 0.50$ ) (Bagozzi and Yi 1988; Fornell and Larcker 1981; Hair 2010). Moreover, to further test Hypothesis 4, convergent validity was verified using Pearson’s correlation analysis ( $p$ -value  $< 0.01$ ;  $r$  between 0.10 and 0.29 = Low association;  $r$  between 0.30 and 0.49 = moderate association; and  $r > 0.50$  = high association).

As for Hypothesis 5, we evaluated discriminant validity through the Fornell and Larcker criterion (Fornell and Larcker 1981), viz. the Square Root of the Average Variance Extracted (SQRT-AVE) of the Factor Loadings was compared with the correlation value between the factors and an SQRT-AVE value that was larger than the correlation between the factors was used as a clear indication of acceptable discriminant validity.

In addition, to further test Hypothesis 6, the discriminant validity was verified using Pearson’s correlation analysis.

Furthermore, one-way ANOVA was computed to check the sociodemographic differences in fear of war and to test Hypothesis 7. Effect sizes were measured through Eta-square ( $\eta^2$ ; small  $\geq 0.01$ ; medium  $\geq 0.059$ ; large  $\geq 0.138$ ) (Cohen 1988).

After splitting the global score of the FOWARS (<2.5 = Low fear of war; >2.5 = High fear of war), several *t*-test analyses were conducted to explore group differences in Stress, Anxiety, and Depression and to test Hypothesis 8. Effect sizes were measured through Cohen's *d* (*d*; small < 0.02; medium = 0.05; large > 0.08; huge > 1.0).

### 3. Results

#### 3.1. Factorial Structure: EFA and CFA—Research Questions 1, 2, and Hypothesis 1

The KMO value was 0.89, and Bartlett's test of sphericity was significant ( $\chi^2$  (*df* = 78) = 1261.44; *p* < 0.001), indicating that the data were adequate for factor analysis. As in the original scale, PCA identified two factors (Table 1). The eigenvalue of the first factor (F1 = Physiological dimension of fear) was 6.46, while the eigenvalue of the second factor (F2 = Experiential dimension of fear) was 1.99. The total percentage of variance explained by the two factors was 64.99% (F1 = 44.8%; F2 = 14.6%).

**Table 1.** FOWARS EFA of 13 items: communalities and factor loading (*N* = 150).

Items	Communalities	F1	F2
(1) Sono spaventato perché so che la guerra ha un costo in vite umane. (I am scared because I know war costs human lives).	0.686	0.083	0.824
(2) Ho paura che la guerra possa trascinarsi a lungo. (I am afraid that the war will drag on for a long time).	0.771	0.218	0.850
(3) Temo che le trattative di pace risultino inutili. (I fear that the peace talks will be fruitless).	0.371	0.046	0.608
(4) Temo che il mondo non sarà più un posto sicuro. (I am afraid the world will no longer be a safe place).	0.430	0.307	0.514
(5) Il pensiero della guerra mi mette a disagio. (I feel uncomfortable when I think of the war).	0.653	0.302	0.712
(6) Le conseguenze della guerra (economiche, politiche, ecc.) mi preoccupano. (I am concerned about the serious consequences of the war (economic, political, etc.)).	0.697	0.245	0.798
(7) Ho paura dello scoppio di un conflitto nucleare. (I am afraid that a nuclear war will break out).	0.544	0.334	0.581
(8) Tremo al pensiero che la guerra arrivi anche qui. (I start to tremble when I think the war reaches here, as well).	0.655	0.754	0.294
(9) Sudo freddo al pensiero che guerra arrivi anche qui. (My palms sweat when I think the war will reach us too).	0.777	0.859	0.195
(10) Ho le palpitazioni (mi viene la tachicardia) al pensiero che la guerra scoppi anche nel nostro Paese. (My heart is beating faster (my heart rate is rising) when I think the war will break out in our country too).	0.819	0.886	0.184
(11) Non dormo bene perché sono preoccupato che la guerra raggiunga anche noi. (I have a sleep disorder because I am worried the war will get to us too).	0.626	0.780	0.131
(12) Mi vengono i brividi (ho la pelle d'oca) quando penso che la guerra scoppi anche qui. (It gives me the creeps (I get goosebumps) when I think the war will break out here too).	0.688	0.809	0.184

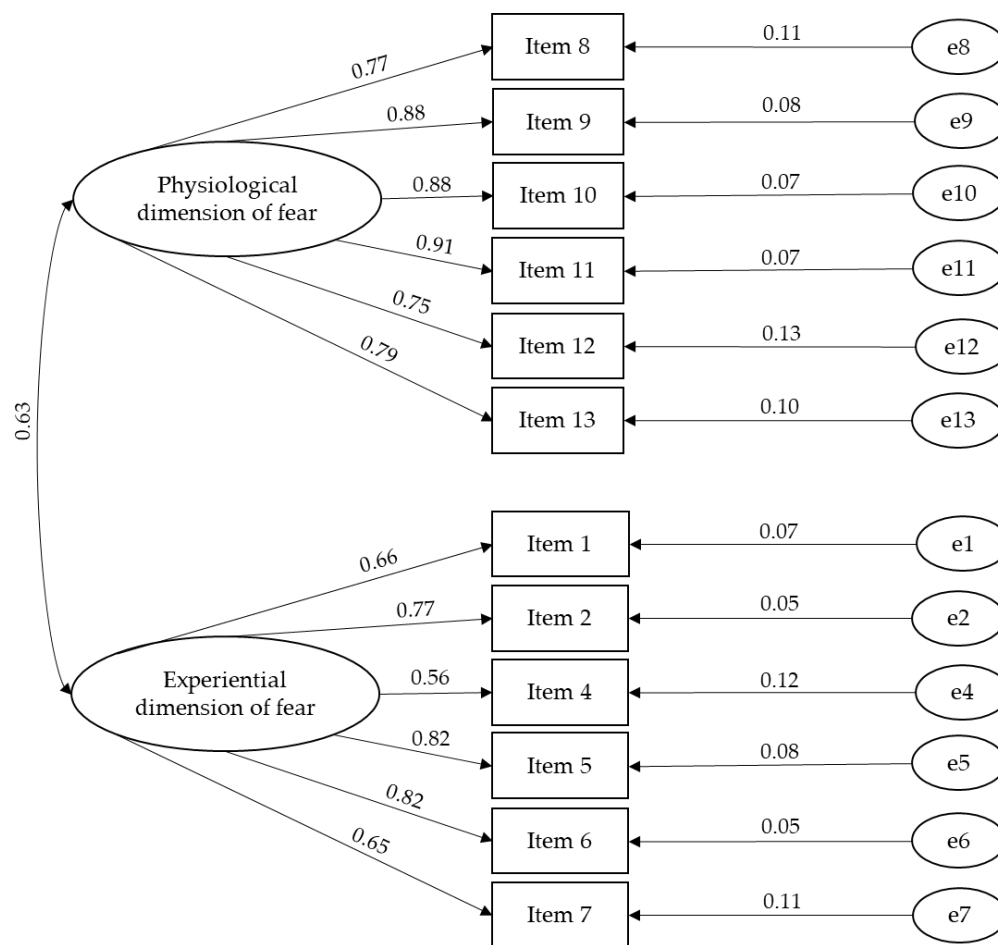
**Table 1.** *Cont.*

Items	Communalities		F1	F2
(13) Mi si torce lo stomaco (ho la nausea) quando penso che la guerra scoppi anche qui. (It makes me sick to the stomach (I have nausea, stomach upset) when I think the war will break out here too).	0.732	0.843		0.147
Eigenvalues		6.46		1.99
% of variance		44.8		14.6

Note: Convergence for rotation performed in 3 iterations.

As seen in Table 1, all items of the scale meet the selected extraction criteria. Compared to the original scale, we reported a reversal of the two factors, though the items remain the same, as originally highlighted, and are divided as follows: items 1, 2, 3, 4, 5, 6, and 7 were associated with F2 (“Experiential dimension of fear”), while items 8, 9, 10, 11, 12, and 13 were associated with F1 (“Physiological dimension of fear”).

Regarding the Confirmatory Factor Analysis (CFA), the default model considered  $\chi^2/df$  ( $df = 64; p = 0.00$ ) = 3.15; GFI = 0.83; CFI = 0.89; TLI = 0.86; IFI = 0.89; NFI = 0.85; RMSEA = 0.12; and SRMR = 0.09. To improve the model fit, item 3 was deleted because it had a factor loading < 0.50. This allowed for an improvement in all goodness of fit indices:  $\chi^2/df = 2.03$  ( $df = 51; p = 0.000$ ); GFI = 0.90; CFI = 0.95; TLI = 0.94; IFI = 0.96; NFI = 0.92; RMSEA = 0.08; and SRMR = 0.08. Table 2 and Figure 1 show the final model.



**Figure 1.** FOWARS Italian adaptation definitive model.

**Table 2.** Psychometric test of the original scale and of the Italian adaptation ( $N = 150$ ).

Psychometric Test	Original Scale (Kalcza-Janosi et al. 2023)	Italian Adaptation	Cut-Off
$\chi^2/df$	4.74	2.03	( $2 < \chi^2/df > 5$ )
GFI	0.91	0.90	$\geq 0.90$
CFI	0.94	0.95	$\geq 0.90$
TLI	0.92	0.94	$\geq 0.90$
IFI	-	0.96	$\geq 0.90$
NFI	0.95	0.92	$\geq 0.90$
RMSEA	-	0.08	$\leq 0.10$
SRMR	0.04	0.08	$\leq 0.09$

3.2. Item Analysis and Reliability—Hypothesis 2

Mean scores for single items varied from a minimum score of 1.87 (item 11) to a maximum score of 4.29 (item 1), and the standard deviation for the single items varied from 0.94 (item 2) to 1.53 (item 12). The Pearson Item–Total correlation for the “Physiological dimension of fear” ranged between 0.66 and 0.79, while it ranged between 0.47 and 0.74 for the “Experiential dimension of fear”. The Pearson correlation between items of “Physiological dimension of fear” was  $0.52 < r > 0.81$  ( $p < 0.001$ ) and it was  $0.34 < r > 0.74$  ( $p < 0.001$ ) between items of “Experiential dimension of fear”.

The scale showed very good internal consistency. Cronbach’s alpha of the “Experiential dimension of fear” was 0.86, while that of the “Physiological dimension of fear” was 0.92 and that of the global scale was 0.91. Similarly, McDonald’s omega coefficient was 0.86 for the “Experiential dimension of fear”, 0.92 for “Physiological dimension of fear”, and 0.92 for the global scale. This information is reported in Table 3.

**Table 3.** Item descriptive analysis, correlation item–total, scale dimension, and reliability.

Item	M	SD	r Item-Total	Scale Dimension	Item Range	Correlation Range	$\alpha$	$\omega$
1	4.29	0.98	0.47					
2	4.22	0.94	0.60					
4	3.73	1.21	0.65	Experiential (Items 1–7)	1–5	$0.34 < r > 0.74$ $p = < 0.001$	0.86	0.86
5	3.74	1.19	0.59					
6	4.13	0.96	0.68					
7	3.81	1.19	0.74					
8	3.23	1.42	0.78					
9	2.87	1.51	0.79	Physiological (Item 8–12)	1–5	$0.52 < r > 0.81$ $p = < 0.001$	0.92	0.92
10	2.47	1.47	0.66					
11	1.87	1.12	0.71					
12	2.48	1.53	0.72					
13	2.25	1.41	0.72	Global			0.91	0.92

3.3. Convergent and Discriminant Validity—Hypotheses 3 to 6

Standardized factor loadings of the FOWARS adaptation were all  $> 0.50$ , with  $\lambda$  ranging from 0.56 to 0.91. The value of the Composite Reliability (CR) of F1 was 0.92, and that of F2 was 0.86. The value of the Average Variance Extracted (AVE) from F1 was 0.66, while that of F2 was 0.52. Both subscales were significantly positive when correlated with each other ( $r = 0.63$ ;  $p < 0.001$ ) and showed high correlation with the total score (“F1”  $r = 0.93$ ;  $p < 0.001$ ; “F2”  $r = 0.85$ ;  $p < 0.001$ ). Moreover, Pearson correlations with measures of non-pathological worry (WDQ) and mental health (DASS-21) were conducted to further test convergent validity. The correlation between the FOWARS and the WDQ showed a significant positive moderate association ( $r = 0.40$ ;  $p < 0.001$ ). In more detail, there were significant positive correlations between the “Physiological dimension of fear” and the WDQ ( $r = 0.39$ ;  $p < 0.001$ ) and between the “Experiential dimension of fear” and the WDQ



( $r = 0.33; p < 0.001$ ). Pearson correlations of the FOWARS with Stress, Anxiety, and Depression showed a significant positive association of a moderate degree ( $r = 0.46; p < 0.001$   $r = 0.49; p < 0.001$   $r = 0.41; p < 0.001$ ).

Concerning discriminant validity, the Square Root of the Average Variance Extracted (SQRT-AVE) was compared with the correlation between the two factors. The SQRT-AVE of F1 was 0.81 and the SQRT-AVE of F2 was 0.72, viz. above the correlation between the two factors considered ( $r = 0.63$ ). Furthermore, intercorrelations between FOWARS dimensions, Satisfaction with Life (SWLS), and Intolerance of Uncertainty (IUS-12) were conducted. The results showed that there were no significant correlations between the FOWARS dimensions and the SWLS, whereas correlations between the Italian adaptation of the FOWARS and the IUS-12 ( $r = 0.27; p < 0.001$ ) and between the two dimensions of the FOWARS and the IUS-12 (“F1”:  $r = 0.27; p < 0.001$ ; “F2”:  $r = 0.20; p < 0.001$ ) were indeed found in the data (Table 4).

**Table 4.** Pearson’s correlations for convergent and divergent validity.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. FOWARS	--								
2. Physiological	0.93 **	--							
3. Experiential	0.85 **	0.60 **	--						
4. IUS 12 Global	0.28 **	0.27 **	0.20 *	--					
5. WDQ Global	0.40 **	0.39 **	0.33 **	0.60 **	--				
6. Stress	0.46 **	0.42 **	0.41 **	0.43 **	0.54 **	--			
7. Anxiety	0.49 **	0.51 **	0.33 **	0.32 **	0.41 **	0.73 **	--		
8. Depression	0.41 **	0.43 **	0.28 **	0.48 **	0.52 **	0.74 **	0.68 **	--	
9. SWLS	−0.09	−0.13	−0.02	−0.33 **	−0.51 **	−0.34 **	−0.24 **	0.50 **	--

Note: \*\*  $p < 0.001$ ; \*  $p < 0.05$ .

### 3.4. Descriptive Analyses for Psychological Variables and Group Differences—Hypotheses 7 and 8

The results of the descriptive analyses conducted on the psychological variables are shown in Table 5.

**Table 5.** Descriptive analyses ( $N = 150$ ).

Item	M	SD	Range
1. FOWARS	3.26	0.91	1–5
Physiological	2.53	1.20	1–5
Experiential	3.98	0.83	1–5
2. IUS 12 Global	35.01	10.12	16–60
3. WDQ Global	48.24	19.90	3–96
4. Stress	26.01	10.25	0–42
5. Anxiety	17.37	11.15	0–42
6. Depression	20.65	10.81	0–42
7. SWLS	18.73	6.34	5–34

One-way analyses of variance were conducted between gender, occupational status, and educational level and the FOWARS, the Physiological fear of war, and the Experiential fear of war. Female participants reported significantly higher scores than male participants on the FOWARS ( $M_F = 3.53$  vs.  $M_M = 2.93; F(1, 149) = 10.41, p < 0.001; \eta^2 = 0.13$ ) but also on the “Physiological dimension of fear” ( $M_F = 2.87$  vs.  $M_M = 2.12; F(1, 149) = 8.88, p < 0.001; \eta^2 = 0.11$ ) and on the “Experiential dimension of fear” ( $M_F = 4.19$  vs.  $M_M = 3.74; F(1, 149) = 7.33, p < 0.001; \eta^2 = 0.09$ ). No significant differences were highlighted between the other sociodemographic variables considered.

Several *t*-tests were conducted to compare non-pathological Worry, Stress, Anxiety, and Depression levels in young Italian adults with low and high levels of fear of war. Participants with a greater fear of war had significantly higher WDQ levels compared to

those with lower fear of war ( $M_{\text{HFear}} = 51.94$  vs.  $M_{\text{LFear}} = 39.97$ ;  $t(137) = 3.10$ ,  $p = 0.002$ ;  $d = 0.62$ ). Participants with a high level of fear of war had significantly higher Stress levels compared to those with low fear of war ( $M_{\text{HFear}} = 28.34$  vs.  $M_{\text{LFear}} = 21.64$ ;  $t(137) = 3.48$ ,  $p < 0.001$ ;  $d = 0.69$ ). Moreover, participants with a high level of fear of war had significantly higher Anxiety levels compared to those with low fear of war ( $M_{\text{HFear}} = 19.55$  vs.  $M_{\text{LFear}} = 13.33$ ;  $t(137) = 2.86$ ,  $p = 0.005$ ;  $d = 0.57$ ). Finally, participants with a high level of fear of war had significantly higher Depression levels compared to those with low fear of war ( $M_{\text{HFear}} = 22.53$  vs.  $M_{\text{LFear}} = 17.53$ ;  $t(137) = 2.58$ ,  $p = 0.011$ ;  $d = 0.51$ ).

#### 4. Discussion

The present study describes the process of creating the Italian adaptation of the Fear of War Scale (Kalcza-Janosi et al. 2023) and its psychometric properties. Just like its original version, the scale keeps a two-dimensional structure and explores the fear of war through twelve items divided into two interconnected dimensions: the “Physiological dimension of fear” (items 8–13) and the “Experiential dimension of fear” (items 1–7). Unlike the original scale, item 3 has been deleted, as it invalidated the dimension to which it pertained. The psychometric analysis conducted on the Italian version of the FOWARS shows how this tool has excellent internal coherence and, both globally and by dimension, the set of indices displays an adequate and satisfying adaptation of the bifactorial model to the data, which is in line with the original version of the same and in agreement with the recommendations provided in the previous literature (Hu and Bentler 1999; McDonald and Ho 2002).

The standardized factor loadings and the values of the AVE and CR are above the cut-off suggested by Hair (2010), which highlights the consistency of this set of items in measuring the latent constructs, a satisfactory percentage of variance explained by each factor and, therefore, a good convergent validity of the tool. As in Kalcza-Janosi et al. (2023), the scale positively correlated with Anxiety, Depression, and Stress (DASS-21) and showed a significant and positive moderate correlation with the WDQ. The square root of the AVE values is greater than the correlation value between the two factors, indicating how the two-dimensional structure of the tool can extract greater variance, thus detecting a good discriminant validity. The correlational analyses show the absence of a significant connection between the FOWARS and the SWLS, while drawing attention to a weak positive correlation between the FOWARS and the IUS-12, thus highlighting the presence of a weak relationship between the two constructs, however conceptually distinct.

Contrary to what emerged from the original study (Kalcza-Janosi et al. 2023), the weak positive association with IUS-12 could derive from Italy's greater distance from conflict zones. Proximity to war-torn areas, contact with war refugees, as well as the direct influences of the conflict on national security policies, could lead to greater global levels of uncertainty in neighboring populations. As highlighted by Kalcza-Janosi et al. (2023), this could explain the greater presence of fear of war, but also a stronger positive relation with the IUS-12.

The study described here also pursued the aim of investigating the presence of fear of war in a sample of Italian young adults and its impact on their mental health. As can be seen in Table 3, the items associated with the “Experiential dimension of fear” appear to have higher average scores than the items associated with the “Physiological dimension of fear”, and this could derive from the geographical location of Italy with respect to the territories involved in the Russo-Ukrainian war. Thus, geographical distance could explain the lower physiological response to the emotion of fear, which tends to be activated when a threat is perceived as close or imminent (Debiec and LeDoux 2004; Rosen and Schulkin 1998). The progression of the war, the creeping nuclear threat, and hyper-exposure to distressing information and images seem to affect the growth of a maladaptive fear that affects mental health, as already reported for past conflicts (Poikolainen et al. 1994, 2004).

In agreement with Kalcza-Janosi et al. (2023) and other studies on this subject (Hajek et al. 2022; Poikolainen et al. 2004; Skwirczyńska et al. 2022), the sample of Italian young adults also corroborates the hypothesis that the fear of war is positively associated with

Anxiety, Depression, and Stress (DASS-21). The *t*-test analyses conducted also highlight the real impact of the fear of war on the target's mental health: young people with the highest FOWARS scores show significantly higher levels of Anxiety, Depression, and Stress.

If, on the one hand, these results seem to confirm the neuropsychological studies in which overlap of the neuro-biological circuits of fear and anxiety emerges (Shin and Liberzon 2010), on the other hand, they also confirm the importance of exploring the psychological impact of traumatic collective events, such as war, even in populations who are not directly involved through an ecological lens (Hajek et al. 2022; Riad et al. 2023; Skwirczyńska et al. 2022; Surzykiewicz et al. 2022). As in Kalcza-Janosi et al. (2023), ANOVA shows that women have higher average scores than men in the global score and both dimensions of the scale. The few studies in the literature also suggest that women traditionally have higher levels of fear of both traditional and nuclear war than men (Boehnke and Schwartz 1997; Hamilton et al. 1988). This gender difference can be interpreted considering, on the one hand, the social role of women, who are usually more dedicated to the care and well-being of others (Chodorow 1989), and, on the other hand, the existence of a response bias, which would explain how, following equal inter-gender concern, there is less recognition of fear by men due to cultural stereotypes (Bamberg and Mohr 1988). It is believed that the possible ability of women to recognize complex emotional states may become a further risk factor that could increase states of maladaptive fear in women, thus affecting their well-being and mental health (Hamilton et al. 1988), especially given the relationship between fear of war and increasing internalizing disorders in young adults in general and women in particular (Van Loo et al. 2023).

In addition to the correlational analyses showing a positive and significant association between the FOWARS and the WDQ, the *t*-test results also show that participants with higher levels of fear of war also exhibit higher levels of nonpathological worry. Because the WDQ is a scale that explores concerns about work, the economy, the future, and interpersonal relationships, correlational analysis and *t*-test results confirm the cross-cutting impact of the war on economic arrangements and political and social issues (Lee and Andrade 2011). In young adults, this is translating into an increase in the levels of personal and collective concern, which is to be further investigated in subsequent studies.

Indirect exposure to the return of war in Europe seems to affect the mental health of young adults who are already compromised by the pandemic's trauma (Allam et al. 2022; Carta et al. 2022) and are yet again challenged by potentially catastrophic scenarios related to the climate crisis. These are events with a strong emotional impact that risk acquiring the value of cumulative trauma.

In any case, as shown in Barchielli et al. (2022), the Russo-Ukrainian war has affected the Italian population—from the increase in prices to the reduction of foodstuffs to the increase in energy costs—which reverberates on mental health (Riad et al. 2023). Therefore, it is relevant to investigate the relationship between potentially traumatic collective events and mental well-being, particularly in those targets that the literature has already shown to have been particularly at risk during the pandemic trauma.

#### *Limitations and Future Directions*

Convenience sampling was used, and this implies specific biases, such as the volunteers' bias, related to the special characteristics of individuals who voluntarily participate in a study. In fact, given that the snowball sampling method may reduce the generalizability of our results, we suggest that future research increase the representativeness of the sample (see Cohen and Arieli 2011).

Furthermore, the participants are mostly young adult students, and this may have biased our results. Several studies show how young adults are more invested in contemporary social dilemmas than other age groups, and this makes them more exposed to the impact that the latter can have on mental health and psychological well-being (Barchielli et al. 2022; Bezzi 2022; Galliano 2020). It is precisely the greater degree of involvement of young adults that has oriented and motivated this research and its aim of providing a

psychometrically valid tool to explore the impact of fear of war on young adults' mental health in the Italian context. However, we would like to point out that the decade-long worsening of the mental health of young adults on the one hand and the greater interest of this target in contemporary social problems on the other may have influenced the outcome of this analysis.

For these reasons, and because the Italian adaptation of the FOWARS in a sample of young adults shows good psychometric properties, future research should also consider samples that are not only more numerous but also more equally distributed for sociodemographic variables, such as employment status and educational qualifications. At the same time, future studies should consider evaluating the psychometric properties of the Italian adaptation of the FOWARS in other targets or in the general population.

## 5. Conclusions

To the authors' knowledge, the Italian adaptation of the FOWARS is the first such tool in Italy to ever explore the psychological impact of war through the fear of war construct. The scale presented in this study possesses good overall psychometric properties and thus can be deemed a useful tool to investigate the psychological impact of war on the Italian young adult population through the detection of fear.

Beyond the validation process described, the preliminary results of this study highlight how the war is influencing youth mental health even in the Italian context, as already reported in other countries (Hajek et al. 2022; Skwirczyńska et al. 2022). Specifically, the Russian–Ukrainian war seems to have exacerbated fears of its rapid escalation in this evolutionary target as well as worries, anxiety, and the perception of danger, despite the geographical distance (Barchielli et al. 2022; Bezzi 2022).

In the wake of what was described by the authors of the original scale (Kalcza-Janosi et al. 2023), the Italian adaptation of the FOWARS could be used as a tool to explore fear of war as a state condition through individual surveys or as a prolonged reaction through repeated measurement.

The possibility of relying on psychometrically valid tools to explore the impact of war can be seen as a starting point for enriching research on the state of mental health in young adults and investigating the possible impact of potentially traumatic collective events, an area of study that has been little explored in psychological research.

Furthermore, the adoption of the presented tool could preliminarily help mental health professionals in designing targeted interventions for this age group, possibly signaling the need to integrate specific social and contextual determinants that may affect the state of mental health in young adults. Creating spaces for sharing experiences, concerns, and fears relating to potentially traumatic collective events, and supporting the construction of shared narratives, can support the elaboration process, thereby reducing the impact of negative emotions connected to such experiences (Pennebaker and Seagal 1999; Donnelly and Murray 1991) and counteracting the difficulty of representing them (Hirschberger 2018).

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