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Fear and concern about the outbreak of a world war: validation of an instrument in eight Latin American countries (Third World War scale)

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Abstract

Introduction Since the cold war, the population have not felt so much fear about the outbreak of the Third World War, sensation revived with the conflict between Russia and Ukraine.

Objective The aim is to validate a test in Latin America that measures fear perception and concern about a world war.

Methodology It is an instrumental study using Google Forms. It obtained 1684 participants in eight countries in Latin America. The creation of the first instrument was based on previous questionnaires that measured fear in the face of unexpected events, and other specific questions were added in the context of the war. Subsequently, the entire validation process was carried out. It was calculated the values of skewness, kurtosis, and communalities.

Results Exploratory factor analysis showed that two factors were generated, confirmed by the Kaiser–Meyer–Olkin test (KMO = 0,962) and Barlett's test (19558.5; df = 78; $p = 0.000$). Confirmatory factor analysis yielded seven items in two factors ($\chi^2 = 139,85$, df = 13, $p = 0.001$; RMR = 0.050; GFI = 0.980; CFI = 0,990; TLI = 0.980; and RMSEA = 0.080). The global Cronbach's alpha = 0.92 (for factor 1 = 0.98, and factor 2 = 0.88).

Discussion The final instrument with seven questions allows to measure adequately general fear (factor 1), and physical and mental repercussions due to the possibility of the outbreak of a world war (factor 2).

Keywords War, Repercussions, Physical health, Mental health, Latin America, World war

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Introduction

The specter of global conflict has shaped the collective consciousness of societies for over a century. The devastation wrought by the First and Second World Wars left indelible scars on nations such as the USA [1], Germany [2], and the United Kingdom [3, 4], not only in terms of physical destruction [5, 6], mental health [7, 8] such as posttraumatic stress disorder [9, 10]. The impact of these wars extended beyond the battlefield, altering economic structures, political alliances, and societal norms. The Cold War era further entrenched global anxieties, as the ideological and military rivalry between the United States and the Soviet Union brought the world to the brink of a Third World War [11–15]. While a direct global conflict was ultimately avoided, the nuclear arms race and proxy wars in various regions perpetuated a climate of tension and uncertainty.

In the post-Cold War era, the nature of conflict evolved, shifting from large-scale global wars to localized and asymmetric warfare. Armed conflicts in Syria [16–20], Yemen [21–26], the Sahel [27–29], and Sudan [30–33] have underscored the persistence of regional instabilities, often exacerbated by economic disparities, ethnic tensions, and geopolitical rivalries. Despite these ongoing struggles, the general perception in the twenty-first century was that large-scale global warfare was unlikely, fostering an atmosphere of relative peace, economic growth, and international cooperation [34, 35]. This perception, however, has been significantly challenged by recent geopolitical developments.

The global landscape shifted dramatically with the onset of the Russia-Ukraine conflict in February 2022 [36–40]. This war differs from recent localized conflicts in that it involves direct military aggression by a major global power against a sovereign nation, with significant international ramifications. The response of the global community has been sharply divided: the United States and the European Union have provided economic, military, and political support to Ukraine [41], while China has opposed sanctions against Russia and maintained strategic ties with the Kremlin [42, 43]. This geopolitical polarization has reignited fears of a broader confrontation, drawing parallels to Cold War-era tensions and prompting concerns over the potential escalation into a global conflict.

Recent scholarly discussions have highlighted the psychological and societal effects of conflict-related uncertainty, particularly in the context of media influence and public perception [44]. The role of perceived geopolitical threats in shaping societal attitudes toward security and international relations has been extensively studied, demonstrating that fear and uncertainty can influence national policies, public opinion, and even economic behaviors [45, 46]. Moreover, ideological and media-driven narratives contribute to the amplification of public fears, often shaping discourse on international security and defense strategies [47, 48]. Psychological research indicates that exposure to conflict-related news significantly affects collective anxiety and decision-making processes, influencing both individual perceptions and societal reactions [49, 50].

The ramifications of this conflict extend beyond Europe, affecting economies and societies worldwide. Latin America, despite its geographical distance from the epicenter of the Russia-Ukraine war, is not immune to its consequences. Historically, the region has experienced economic and political repercussions stemming from global conflicts, including shifts in trade dynamics, financial instability, and changes in foreign policy alignments. The economic impact of the COVID-19 pandemic further exacerbated vulnerabilities in Latin American economies, making them particularly sensitive to external shocks such as rising energy prices, supply chain disruptions, and inflationary pressures resulting from the war [51–56]. Given this context, understanding public perception of fear and concern regarding a potential world war is of paramount importance. Research on risk perception suggests that societal fears are not only shaped by direct exposure to conflict but also by the broader political, economic, and media landscape. In Latin America, where historical experiences with economic crises and political instability have fostered heightened sensitivity to global disruptions, measuring these perceptions can provide critical insights into how populations assess geopolitical threats and their potential impact on regional stability.

Thus, the present study aims to validate an instrument designed to measure the perception of fear and concern about a global conflict among Latin American populations. By doing so, it seeks to contribute to the broader discourse on global security perceptions, the psychological impact of geopolitical instability, and the role of media narratives in shaping public opinion in non-conflict regions. This study not only addresses an important gap in literature but also offers a framework for understanding how distant conflicts can influence regional and individual perceptions of security and stability.

Material and methods

Study design

The current study employs a quantitative approach with a correlational design using a survey for data collection. The quantitative approach allows for analyzing numerical data to understand social phenomena, while the correlational design seeks to identify associations between variables without manipulating them.

Patticipants

The participants were inhabitants of Latin America. The sampling type was non-probability, snow-type. We included people over 18 years old who resided in the surveyed countries during the last days of February and March 2022 and who wanted to be part of the research. People under 18 and who did not complete the survey adequately were excluded. We surveyed 1684 people from Colombia (439), Paraguay (339), Peru (293), Panama (168), Ecuador (152), Bolivia (149) and other countries (144). The median age was 23, with a range of 18–73 years old. A total of 62% were female, 11% had a secondary education/bachelor degree, 6% had technical studies, 73% had university studies, and 10% had studied a postgraduate program.

Instrument

The Third World War scale was an instrument proposed by the authors, which responded to the bibliographic search and the suggestions of seven experts in the field (psychologists, psychiatrists, researchers, and professors, among others). It was initially made up of seven items in Likert scale of the "Fear of COVID-19 Scale" [57], which has been validated in Spanish and used recently in the Peruvian population [58, 59]. These questions were adapted to the context of the war, to which six specific questions were added for the context of the possibility of the outbreak of the Third World War. The 13 items had five Likert-type answers (completely disagree, disagree, indifferent, agree, and completely agree). The final version after the process of validation is shown in the Appendix.

Data collection

The survey was shared virtually through the free Google Forms platform, and we sent the link through different social networks. The participants were informed of the objective of the study before the completion of the questionnaire. After three weeks of surveying, we proceeded to download the available data and perform quality control. These data were adequately processed to respect their anonymity. In addition, this information was only used by the authors and was kept in custody until the end of the study.

Data analysis

Descriptive analysis and exploratory factor analysis (EFA) were executed through FACTOR analysis version 11,05. We analyzed the mean, standard deviation, skewness and kurtosis of 19 items of the scale. Regarding the skewness and kurtosis coefficient, we took into account the value of ± 2 [60]. For EFA, we considered the Kaiser–Meyer–Olkin (KMO) coefficient and the Barlett's test. We used the unweighted least squares with Promin rotation [61]. For confirmatory factor analysis (CFA), the AMOS version 21 statistical program was used, considering structural equation modeling (SEM), and goodness of fit index (GFI), Tucker-Lewis Index (TLI), comparative fit index (CFI) was analyzed. In addition, the parameters for the root mean square error of approximation (RMSEA) and the root mean square (RMR) were considered, following the criteria proposed by Hu & Bentler, who stated that the GFI, AGFI, TLI and CFI should be higher than 0.9, and the RMSEA, lower than 0.08. Finally, the scale reliability was calculated through the McDonald omega coefficient (ω) using the Jamovi program.

Ethical issue

The project was approved by the Ethics Committee of the Universidad Norbert Wiener (File 1648–2022).

Results

The assessment showed that 11 of the 13 items obtained adequate values of Aiken's V. Only Item 3 and Item 7 had slightly lower values in comparison with the others. It was decided to keep them for later stages since they were not so different and were part of the initial scale used. Aiken's V was higher than 0.7 in almost all questions (question 3 had 0.62 and question 7 had 0.67). The same occurred with the values of the lower limit of the confidence interval, the great majority of which were above 0.59. For all these reasons, the Third World-War scale was judged largely optimal in terms of content-based evidence.

Preliminary analysis of the items

Table 1 shows a descriptive analysis of the 13 items of the Third World War scale. The mean, standard deviation, skewness and kurtosis were analyzed, and we found that Item 1 had the highest mean score (M = 3.44), and Item 13 showed greater dispersion (SD = 1.42). Regarding skewness and kurtosis values, they did not exceed the range ± 1.5 [21]. In addition, the commonalities were > 0.30.

Exploratory Factor Analysis (EFA)

EFA was performed and the items saturated in two factors. The pertinence of this analysis is demonstrated by calculating the Kaiser–Meyer–Olkin index (KMO = 0.962) and Barlett's test (19558.5; gl = 78; $p = 0.000$), which were acceptable. The unweighted least squares method with Promin oblique rotation and parallel analysis was used to determine the factors. Item 6 was eliminated because it had factor loadings in both factors. Factor 1 (general fear of the outbreak of a world war) explains 65.57% of the variance.

Table 1 Preliminary analysis of the items of the Third World War scale

	M	SD	S	K	H
Item 1	3.44	1.301	−0.708	−0.682	0.576
Item 2	3.28	1.221	−0.551	−0.735	0.595
Item 3	2.422	1.108	0.319	−0.668	0.70
Item 4	2.878	1.268	−0.09	−1.129	0.635
Item 5	2.966	1.23	−0.193	−1.037	0.679
Item 6	2.336	1.081	0.35	−0.616	0.779
Item 7	2.43	1.131	0.281	−0.829	0.821
Item 8	2.98	1.252	−0.258	−1.089	0.67
Item 9	2.916	1.298	−0.105	−1.165	0.678
Item 10	3.043	1.347	−0.171	−1.208	0.744
Item 11	3.214	1.413	−0.332	−1.22	0.88
Item 12	3.232	1.412	−0.353	−1.209	0.884
Item 13	3.236	1.429	−0.348	−1.231	0.888

M Mean, *SD* standard deviation, *S* Skewness coefficient, *K* kurtosis coefficient, *h* Communality

It is made up of Items 2, 4, 6 and 8, with saturation values greater than 0.40. In addition, Factor 2 (physical and mental repercussions due to the fear of the outbreak of a world) contributes 11.36% of the variance and is made up of Items 3, 4, 5, 7 and 8, with saturation greater than 0.50 (Table 2).

Confirmatory factor analysis

The internal structure of the Third World-War scale was analyzed with CFA (Table 3). The results of the original model reported unsatisfactory goodness-of-fit indices. Therefore, through the index modification technique, two respecifications were performed. In the first one, Items 1 and 2 were eliminated, but an adequate fit was not achieved. In the second re-specification, Items 9, 10 and 3 were eliminated, and a satisfactory factor structure model was obtained. The FIs show that the seven-item model with two underlying factors is adequate ($\chi 2 = 139.85$, df = 13, $p = 0.001$; RMR = 0.050; GFI = 0.980; CFI = 0.990; TLI = 0.980; and RMSEA = 0.080) (Fig. 1).

Reliability

The internal consistency of the general scale reported an excellent value ($\omega = 0.92$), as well as factor 1, which measures the general fear of the outbreak of a world war ($\omega = 0.98$); and factor 2, which measures the physical and mental repercussions of the fear of the outbreak of a world war ($\omega = 0.88$). Thus, Table 4 shows the final Third World War scale and, as it has two factors, each factor can be analyzed separately, or a final addition can be performed with the seven questions. In both cases, the scores should be added up (strongly disagree = 1 point, disagree = 2 points, indifferent = 3 points, agree = 4 points, strongly agree = 5 points). Having all the participants' scores, we can observe that those in the top tercile of the scores (33% of the best scores) should be considered as those with the most significant fear/concern about the outbreak of World War III.

Table 2 Exploratory factor analysis of the items of the Third World War scale

Items	F1	F2
1. I am afraid or concerned that a world war will break out	0.579	
2. It makes me uncomfortable to think about a world war breaking out	0.436	
3. My hands get clammy when I think about a new world war		1.000
4. I am afraid or concerned that I might lose my life because of a new world war		0.732
5. Seeing news and stories about the possibility of a new world war on social networks makes me nervous or anxious		0.743
6. My heart races or palpitates when I think of a new world war		0.993
7. I am afraid or concerned that events currently taking place will lead us to a new world war		0.582
8. I am afraid or worried that my country's soldiers will be asked to go to war	0.518	
9. I am afraid or worried that my political leaders will ask us to join the armed conflict as a country	0.715	
10. I am afraid or concerned that atomic bombs will be dropped or used against us	1.000	
11. I am afraid or concerned that biological weapons will be used against us	0.910	
12. I am afraid or concerned that weapons of mass destruction will be used against us	0.996	
Inter-factors correlation		
F1	1	
F2	0.743*	1

F1: general fear of the outbreak of a world war; F2: physical and mental repercussions due to fear of the outbreak of a world war

Table 3 Goodness-of-fit indices of factorial models of the Third World War scale

Goodness-of-fit index	Original (12 items)	Model 1 (10 items)	Model 2 (7 items)
CMIN	3281.91	1844.60	139.85
DF	53	34	13
P	0,000	0.000	0.000
CMIN/DF	61.92	54.25	10.76
RMR	0.170	0.140	0.050
GFI	0.740	0.810	0.980
CFI	0.860	0.900	0.990
TLI	0.820	0.870	0.980
RMSEA	0.190	0.180	0.080

Discussion

The instrument evaluated the perception, fear and concern of respondents about the use of atomic weapons, biological weapons and weapons of mass destruction in the event of a possible war. After dropping atomic bombs in World War II, a greater risk of psychological sequelae and concern about long-term effects after the explosion has been observed in survivors [62]. These questions were considered due to what was observed in a study carried out after the terrorist attacks in New York, on September 11 that showed that people of African American descent, Hispanic population, women and people between 45 and 64 years of age had a great concern for future terrorist attacks. There was a need for health professionals to be more involved in the psychological and mental preparation of the population in the face of the imminent risk of future attacks with weapons of mass destruction [63]. It is imperative to evaluate these concerns in the Latin American context to know the current perspective. In addition, it is important to assess mental health risks of those affected by the war and who migrated to the American continent. Similarly, their descendants, who have not been in the conflict but who have close information about the war and weapons of mass destruction, should be considered as well [64].

In addition, all international events have repercussions, whether direct or indirect, many people are affected, and it is important to generate instruments that can assess the consequences of these repercussions in different areas. Little is known about the fear or impact that may be caused by the probability of a war event on a global scale in Latin America. There is not yet a scale made and validated in our sociocultural context, a reason that prompted us to develop and validate this instrument. With the analysis of more than 1,600 responses, our instrument demonstrated high reliability. There is currently an article made by researchers in Romania, who validated a scale called FORWARS [65]. That scale evaluated the fear of a possible war conflict people may have. That also demonstrated positive parameters such as reliability and internal consistency. One contribution regarding our instrument is that it was administered in the context of one of the largest wars seen in the last decades. This is, the situation became very tense; hence, economic, and social reprisals towards the aggressor country began to be seen, which brought a panorama of a possible

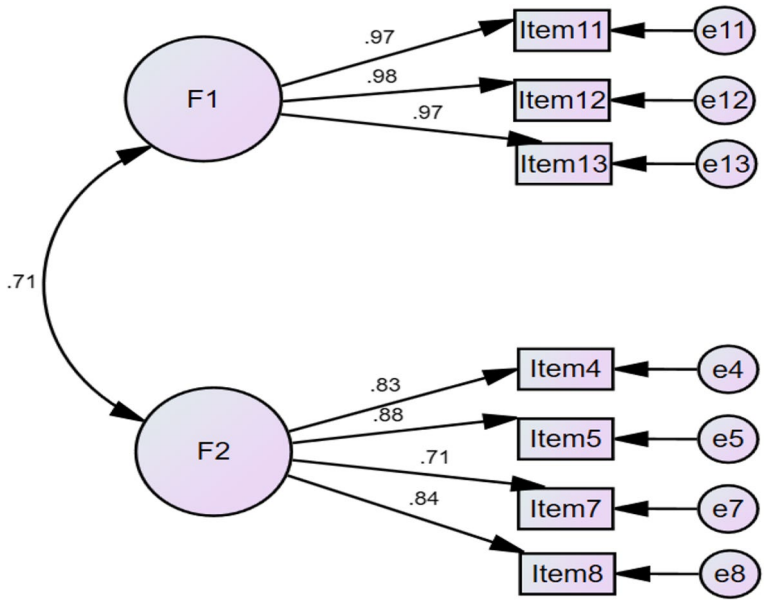

Fig. 1 Third World-War scale model

Table 4 Final Third World-War scale

In the face of an imminent world war,…
1. I am afraid or concerned that atomic bombs will be dropped or used against us
2. I am afraid or concerned that biological weapons will be used against us
3. I am afraid or concerned that weapons of mass destruction will be used against us
4. I am afraid or concerned that I might lose my life because of a new world war
5. Seeing news and stories about the possibility of a new world war on social networks makes me nervous or anxious
6. My heart races or palpitates when I think of a new world war
7. I am afraid or concerned that current events will lead us to a new world war

outbreak of a third world war, a situation that has not been measured by the last scales that were validated in other contexts of peace or small local/regional conflicts. The concern or fear of a possible war can generate high levels of anxiety, depression and stress in people. Therefore, it is important to evaluate mental health in this type of context since these conditions can have repercussions on physical health, with consequences that can lead to a poor quality of life. Creating instruments that provide us with an overview of the situation is crucial to taking action and preventing people's health from being affected in similar contexts. That is why it is expected that the instrument will be used freely (free of charge), so that researchers can evaluate their reality, mainly when an armed conflict occurs in their country or region, since this could lead to greater warlike conflicts between powers.

The current scale measures perception regarding the possibility of a Third World War and, thus, simulates other emergencies that occurred worldwide, such as the COVID-19 pandemic. Moreover, the base scale used was validated in this context [57]. In addition, many other scales were validated in this context as well; for example, the scale validated by Mejia et al. measured the fatalism of the Peruvian population due to the lack of knowledge and fear caused by COVID-19 [66]. This had items that evaluated the hopes for the future and the consequences at the personal level, as well as the fear of death or infection. Thus, both scales coincide in the fact that they seek to evaluate the effect of a global event on the individual. Zugey Galán also proposed the measurement of future perspectives with respect to COVID-19. Hence, her research transcends the cross-sectional reality and evaluates the future perspective and yearnings [67]. Therefore, future cross-sectional studies should determine the differences between past, present and future perceptions. Although there are antecedents of wars or pandemics, the instruments to be validated should evaluate the present, based on the antecedents, but also give a glimpse of the future or what is to come.

The main limitation of the research is selection bias since snowball sampling had to be used for many reasons: 1) In an instrumental study, it is very rare to use random sampling; authors prefer to have many respondents. 2) we obtained a total of 1684; if this is divided by the seven final questions, 240 people were surveyed for each of the final items. 3) We had several countries in a critical region with many differences in cultures and beliefs. Therefore, this shows that the validation process has a representative sample and relevant results. This is the first report at a specific time at the beginning of the war and when there was the possibility of a global war. The results presented are baseline; this should continue with additional analysis for larger populations, which consider some associations (this could be with observational or follow-up studies) to find the influence between the sociodemographic variables and the items or factors, which would give a deeper insight. In addition, it would be very valuable if the analysis were done for each country separately, which goes hand in hand with a much larger and more varied sample for each place.

Conclusion

This study has enabled the development and validation of a reliable scale to measure fear and concern about the possibility of a Third World War. The results obtained demonstrate that the instrument has adequate content validity, factor structure and internal consistency, which makes it a useful tool to assess the psychological impact of the threat of a global conflict on the population. Through exploratory and confirmatory factor analyses, two main dimensions were identified: the general fear of the outbreak of a world war and the physical and mental repercussions associated with this fear. The robustness of these findings supports the applicability of the scale in future studies on the emotional and social impact of war events in different geographical and cultural contexts. Furthermore, the relevance of this instrument lies in its ability to fill a gap in the literature, since until now, there was no validated scale in the Latin American context to assess these specific concerns. The comparison with previous studies reinforces the importance of having tools adapted to different sociocultural realities, given that risk perception and emotional responses can vary

significantly depending on historical, political and social factors. In this sense, the present scale is distinguished by having been applied in a context of high geopolitical tension, in which the threat of a global war has been perceived with greater intensity due to economic sanctions, international polarization and political uncertainty. The findings of this study highlight the need to continue researching the psychological effects of war and conflict on the general population. It has been observed in historical antecedents, such as the September 11 attacks or the use of nuclear weapons in World War II, that the perception of war risk can generate anxiety, depression and post-traumatic stress in vulnerable groups. In this sense, the present scale offers a fundamental tool for mental health professionals, researchers and decision makers to assess the impact of these fears on people's quality of life.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s40359-025-02622-2.

Supplementary Material 1.

Authors' contributions

C.R.M., R.F.C.E. wrote the conceptualization and methodology. C.R.M., R.F.C.E., T.R.A.-R., E.G.Z.-H., L.V.-U. made the validation. C.R.M., R.F.C.E., J.A. made the formal analysis. C.R.M., T.R.A.-R., O.M.-B., E.G.Z.-H., L.V.-U., V.J.P.-F., D.P.A.-L., J.A.C.L., A.A.M.-B. made the investigation. C.R.M., R.F.C.E., O.M.-B., E.G.Z.-H., L.V.-U., V.J.P.-F., D.P.A.-L., A.A.M.-B., J.A., A.A.-R., S.D.-A.-A., N.M.D., J.A.Y. wrote the manuscript. All authors reviewed the manuscript.

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Data availability

The data is available upon the request.

Declarations

Ethical approval and consent to participate

The project was approved by the Ethics Committee of the Universidad Norbert Wiener (File 1648–2022). The participants were also informed of the objective of the study before completing the questionnaire. Informed consent was obtained from all participants. The ethical principles of the Declaration of Helsinki conducted this study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests

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