Original

Mental health consequences of armed conflicts in adults: an overview

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ABSTRACT

Introduction. Armed conflicts (AC) in the world are still active and lead to the growth of violence, with a possible impact on mental health (MH).

Objective. to identify and synthesize the different consequences of AC on MH in the adult population in an overview of the literature.

Methods. Systematic search for reviews until May 2020 in MEDLINE (Ovid), EMBASE, Cochrane Central Register of Controlled Trials, LILACS and additional resources. The results were analyzing narratively, describing the characteristics of the studies, participants, and consequences in the MH. An analysis was made based on the year range of reviews' publication identified.

Results. Fifty-nine studies were included. The most representative populations were survivors, victims, and refugees. In general, among the symptoms predominant in relation to traumatic stress, anxiety, and depression were found fear, insecurity, panic, re-experimentation, sadness, anger, and violent behavior. Additionally, results were identified regarding vulnerable groups such as women, refugees, and combatants. Finally, other consequences linked with physical, social, cultural, occupational, and economic dimensions were detailed.

Conclusions: There are multiple consequences of AC in adult MH referent to depression and traumatic stress, with some kind clinical manifestations like dissociative, emotional instability, hostility, and cognitive impairment.

Key words. Adults; Mental health; Armed conflicts; Violence; War. (MeSH)

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CONSECUENCIAS DE LOS CONFLICTOS ARMADOS SOBRE LA SALUD MENTAL EN ADULTOS: REVISIÓN DE REVISIONES DE LA LITERATURA

RESUMEN

Introducción. Los conflictos armados (CA) en el mundo siguen activos y conllevan a un continuo crecimiento de violencia, con una posible afectación de la salud mental (SM).

Objetivo: identificar y sintetizar las diferentes consecuencias de los CA sobre la SM de la población adulta en una revisión de revisiones de la literatura.

Métodos. Búsqueda sistemática de revisiones hasta mayo de 2020 en las siguientes bases de datos: MEDLINE (Ovid), EMBASE, Cochrane Central Register of Controlled Trials, LILACS y recursos adicionales. Los resultados fueron analizados de forma narrativa, describiendo las características de los estudios, participantes y consecuencias en la SM. Igualmente, se realizó un análisis por rango de años de publicación de las revisiones incluidas.

Resultados. Cincuenta y nueve estudios fueron incluidos. Las poblaciones más representativas fueron sobrevivientes, víctimas y refugiados. Se evidenció a nivel general, un predominio de los síntomas relacionados con estrés traumático, ansiedad y depresión, entre ellos miedo, inseguridad, pánico, reexperimentación, tristeza, ira, e incluso comportamiento violento. Adicionalmente, se identificaron resultados en relación con grupos vulnerables como mujeres, refugiados y combatientes. Finalmente, se detallan otras consecuencias referentes a dimensiones físicas, sociales, culturales, ocupacionales y económicas.

Conclusión. Existen múltiples consecuencias de los CA en la SM de adultos predominantemente trastornos depresivos y del estrés traumático, con algunas manifestaciones de tipo disociativo, desregulación afectiva, hostilidad, y deterioro cognitivo.

Palabras clave. Adultos; Salud mental; Conflictos armados; Violencia; Guerra. (DeCS)

INTRODUCTION

Armed conflicts (AC) are defined as any organized violent interaction between armed actors with physical, psychological, mental and spiritual consequences for people[1]. According to The War Report, published in 2019, worldwide there were at least 69 active ACs in the territory of 30 states in 2018, which leads to both increased violence and damage to the social structure of the communities involved in such ACs[2]. As a result of the historical development of ACs, there is a large number of studies focused on addressing their economic and cultural repercussions[3-5]; however, other AC-related consequences such as malnutrition and low social development progress have been left aside[6]. In terms of health, several studies have reported increased mortality and disability rates, as well as an increased frequency of diseases and mental disorders with a wide range of manifestations in countries affected by ACs[7,8]. Particularly, regarding mental health (MH), a continuous risk of developing psychiatric disorders[9,10].

According to the World Health Organization (WHO), about 69 million people were affected by ACs by 2019[11]. Besides, a high prevalence of mental disorders has been reported in areas affected by ACs, where one out of five adults have a mental disorder such as depression, anxiety or psychosis, and in one out ten cases, the severity of the disorder is moderate or severe[11,12].

Due to the number of people globally affected by violent actions inherent to a ACs, research on the consequences of this complex phenomenon on MH has increased in recent years[9,10,13]. In this sense, depression, anxiety disorders and and traumatic stress are the main are the main mental health problems identified in individuals affected by such conflicts[14,15]. In addition to the clinical manifestations of mental disorders, they are exposed to other psychosocial effects related to the destruction of both their social structure and social well-being[16]. This growing interest in conducting research in this subject encompasses diverse contexts, population groups and clinical, social and environmental outcomes[6,17]; however, given the large amount of available evidence, it is necessary to synthesize the findings that have been reported and propose new ways to address the effects of ACs on MH. Bearing this in mind, the aim of this study was to identify and synthesize the different consequences that AC has on the MH of adults.

METHODOLOGY

An overview published until May 2020 in the MEDLINE (Ovid), EMBASE, Cochrane Database of Systematic Reviews (Ovid) and LILACS databases was conducted using the search strategy (**Annex 1**). Additionally, a gray literature search was performed in Open Grey and Google Scholar, as well as a snowball search of the references listed in the studies included after performing the abovementioned searches.

Secondary research studies (narrative literature or systematic reviews, with or without meta-analysis of quantitative or qualitative studies) addressing the possible consequences or effects of AC on the MH of adults (>18 years) exposed to any type of AC were included. There were no publication language or year restrictions.

Initially, the screening of records and data extraction was independently performed by four reviewers (JM, LR, NG, and DS) by reading their titles and abstracts. Disagreements were solved by consensus among all four reviewers. Then, the full texts of eligible studies were read in order to determine the studies to be finally included for analysis. This screening and selection process was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology[18].

Due to the high heterogeneity among studies included, pooling the results was not possible, and, therefore, a narrative synthesis of the findings was made. Furthermore, given the need to collect the greatest amount of information on the subject and acknowledge the different types of knowledge that has been generated over time, quality assessment of the reviews finally included in this study was not prioritized.

Results are presented chronologically by using publication year ranges. Additionally, in order to identify possible differential results, they were synthetized according to four types of population groups based on the categories proposed by *the International Humanitarian Law Glossary of the International Committee of the Red Cross* (ICRC) and the *United Nations High Commissioner for Refugees* (UNHCR), namely: civilians who are or have been victims of any AC (set of people involved in an AC but who are not members or the armed forces of a state or do not participate in an uprising), refugees (civilians who have been forced to flee their place of residence due to persecution, war or violence), veterans (retired members of military forces or who are in the process of laying down their arms and who have been involved in an AC or in war), and members of military forces or combatants (persons entitled to participate directly in hostilities in the context of an AC)[19,20].

RESULTS

In total, 677 potentially relevant studies were identified after removing duplicates (**Figure 1**). Then, 543 records were excluded after reading their title and abstract, and 75 more were excluded after performing a full-text reading (**Annex 2**). Finally, 59 publications were included for evidence

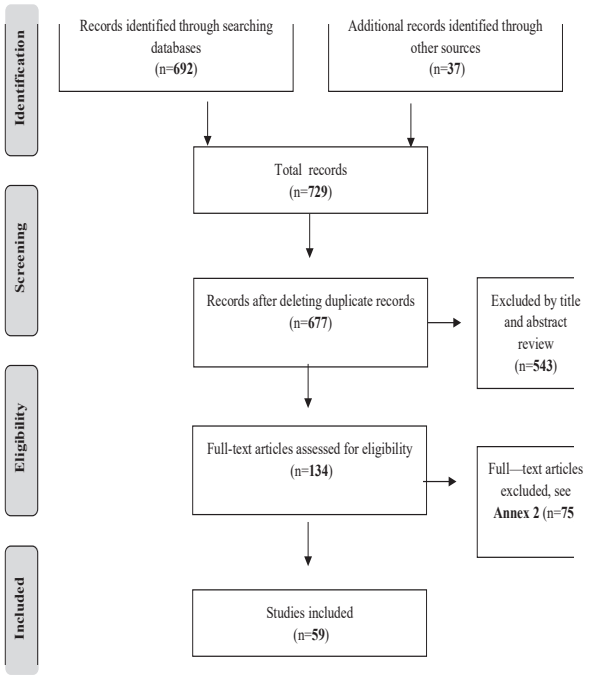

Figure 1 Screening process flow chart. Adapted from: Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA©.

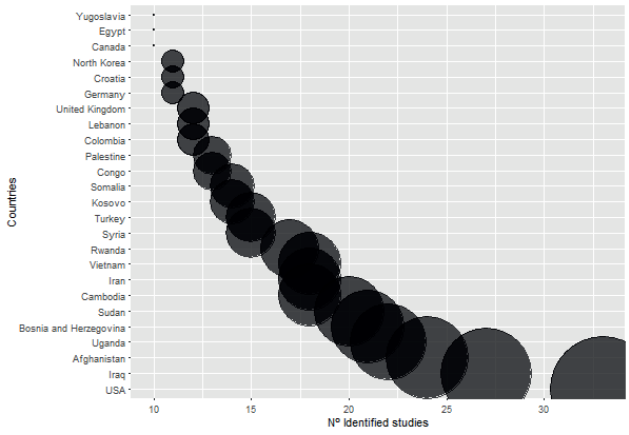

Figure 2 Relationship between the number of studies and countries where direct or indirect events resulting from ACs* took place. *Direct events: countries directly exposed to violent actions in the context of an AC or to military actions. Indirect events: countries facing other situations related to an AC, mitigation of violence and the reception and placement of refugees.

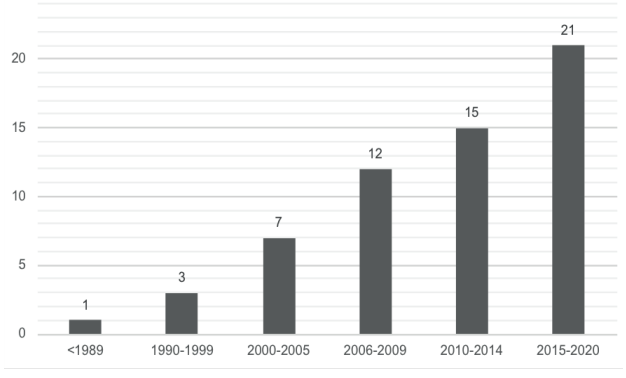

Figure 3 Relationship between the year of publication and the number of reviews included in this study.

synthesis purposes: 67.8% were systematic reviews and 32.2%, narrative literature reviews. In addition, 44% percent of the reviews included any type of available primary studies, which allowed evidencing a great diversity of primary study designs: 25.4% were cross-sectional studies; 18.6%, randomized controlled trials; 5%, empirical studies or case reports, and 2%, historical studies.

Regarding the type of population, 40.8% were civilian victims, 32.2%, refugees, 18.6%, veterans, and 8.4%, members of military forces or combatants. The characteristics of the 59 studies are detailed in **Table 1**, while the information reported by them in terms of MH outcomes and the main conclusion of each review are summarized in **Table 2**. With regard to the location of the ACs identified in this review, **Figure 2** shows the relationship between the number of studies and countries where direct events (countries directly exposed to violent actions in the context of an AC or to military actions) and indirect events (countries facing other situations related to an AC, the mitigation of violence and the reception and placement of refugees) took place. On the other hand, the relationship between the year of publication and the number of studies included is observed in **Figure 3**.

The synthesis of results carried out in the present study included information from the late 1980s, specifically a study published in 1989 that reported findings about cohorts born after World War II (**Figure 3**), in which a series of symptoms related to depression were suspected but possibly underdiagnosed[21]. Then, in the 1990s, three studies evaluated MH consequences of AC[22-24] (**Figure 3**). According to these studies, emotional problems and avoidance of social

Table 1 Basic characteristics of the included studies

Reference	# included studies	Population
Klerman, G. (1989)	13 studies	Population born after the second world war
Ørner, R. (1992)	Not reported, 82 references in total	European war veterans
Falk, B. (1994)	35 studies	Older adult population affected by combat or holocaust
Hyams, K. (1996)	Not reported	Persian Gulf War veterans
Silove, D. (2000)	Not reported, 40 references in total	Adults
Basoglu M., Jaranson J.M., Mollica R., Kastrup M. (2001)	Not reported, 108 references in total	Refugees
Porter, M., & Haslam, N. (2001)	12 studies	Refugees
Miller, L. (2003)	Not reported, 75 references in total	People directly or indirectly affected by terrorist acts
Danieli, Y., Brom, D., & Sills, J. (2005)	Not reported, 15 references in total	Adults
Porter, M., & Haslam, N. (2005).	56 studies	Comparison between a group of refugees and non-refugees
Vangiezen, A., Arensman, E., Spinhoven, P., & Wolters, G. (2005)	37 studies, 9 specific war context studies	Refugees or war veterans
Adamowski, Y. (2006)	Not reported, 11 references in total	War veterans
Murthy, R. S., & Lakshminarayana, R (2006)	Not reported, 55 references in total	Civil population affected by war
Orth, U., & Wieland, E. (2006)	39 studies	Participants with military war experience, criminal victimization, civil war experience, technological disasters, and health trauma due to war.
Okasha, A. (2007	Not reported, 30 references in total	Adults
Hiskey, S., Luckie, M., Davies, S., & Brewin, C. (2008).	10 studies	Older adults who were exposed to war contexts in their youth
Johnsen, G. E., & Asbjørnsen, A. (2008)	28 studies	War-affected population, war fighters, war veterans
Johnson, H., & Thompson, A. (2008).	Not reported, 48 references in total	Adult civilian survivors of war trauma and torture, tortured refugees and displaced population
Tolin, D. & Foa, E. (2008).	290 studies	Adults
Lindert, J., Ehrenstein, O. von, Priebe, S., Mielck, A., & Brähler, E. (2009)	35 studies	Refugees in first world countries
Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. & van Ommeren, M. (2009)	161 studies	Refugees and conflict-affected populations
Street, A. E., Vogt, D., & Dutra, L. (2009)	Not reported, 96 references in total	Veterans
Tempany, M. (2009)	43 references	Sudanese refugees
Braquehais, M. & Sher, L. (2010)	Not reported, 76 references in total	Soldiers and military forces
Crumlish, N., & O'Rourke, K..(2010)	20 studies	Refugees and asylum seekers
Perlman, S., Friedman, S., Galea, S., Nair, H. P., Er's-Sarnyai, M., Stellman, S., Greene, C. (2011)	Not reported, 97 references in total	General population with specific groups such as volunteers and rescue support personnel
Rizzo, A., Parsons, T. D., Lange, B., Kenny, P., Buckwalter, J. G., Rothbaum, B., & Beger, G. (2011)	Not reported, 70 references in total	Military and war veterans in Afghanistan and Iraq
Roberts, B., & Browne, J. (2011).	15 studies	Internally displaced persons, refugees and civilians affected by the war
Dossa, N. I., & Hatem, M. (2012)	10 studies	Women victims of war-related violence
Hassija, C. M., Jakupcak, M., & Gray, M. (2012)	8 studies	Veterans of the war in Iraq and Afghanistan
McFarlane, C. A., & Kaplan, I. (2012)	40 studies	Resettled refugees, asylum seekers, displaced persons and persons residing in their country of origin
Crosby, S. S. (2013)	Not reported	Refugees (immigrants who have fled their countries, after war, violence or natural disasters) and who have frequently suffered trauma.

Table 1 (cont.) Basic characteristics of the included studies

Reference	# included studies	Population
Meffert, S., & Ekblad. (2013)	13 studies	Populations that suffer massive trauma, that is, those exposed and/or displaced by armed conflict and refugee populations.
Agazio, J., Goodman, P., & Padden, D. (2014)	Not reported, 91 references in total	U.S. military and their families
Campo-Arias, A., Oviedo, H. C., & Herazo, E. (2014)	13 studies	Victims of the armed conflict
Hines, L., Sundin, J., Rona, R., Wessely, S., & Fear, N. (2014)	49 studies	The sample participants were ex-combatants from the wars in Iraq or Afghanistan
Patel, N., Kellezi, B., & Williams, A. C. de C. (2014)	9 studies	Refugee survivors of torture in Europe and Africa
Siriwardhana, C., Ali, S. S., Roberts, B., & Stewart, R. (2014)	23 studies	Refugees around the world
Bogic, M., Njoku, A., & Priebe, S. (2015)	29 studies	16,010 refugees affected by war
Bryan, C., Griffith, J., Pace, B., Hinkson, K., Bryan, A., Clemans, T. & Imel, Z. (2015)	22 studies	Military and Veterans
Fulton, J., Calhoun, P., Wagner, H. Schry, A., Hair, L., Feeling, N., Beckham, J. (2015)	33 studies	Veterans of Operation Enduring Freedom and Iraqi Freedom
Hassan, G., Ventevogel, P., Jefee-Bahloul, H., Barkil-Oteo, A., & Kirmayer, L. (2016)	Not reported, 111 references in total	Syrian refugees
Weiss, W., Ugueto, A, Mahmooth, Z., Murray, L., Hall, B., Nadison, M., Bass, J. (2016)	88 studies	Survivors of torture and other acts of systematic violence took place in Europe
Álzate, M. & Dono, M. (2017)	28 studies	General population affected by armed conflict in the aforementioned countries
Ba, I., & Bhopal, R. S. (2017)	20 studies	Victims of sexual violence from African countries
Baird, E., Williams, A. de C., Hearn, L., & Amris, K. (2017)	3 studies	Survivors of torture among refugees, asylum seekers, war survivors and survivors of organized violence, and in various settings, including prisons, detention centers, refugee camps, accommodation centers, health care facilities and in the community.
Janulewicz, P. Krengel, M., Maule, A., White, R., Cirillo, J., Sisson, E., Sullivan, K. (2017)	14 studies	Gulf War Veterans
Jones, G. L., & Hanley, T. (2017)	8 studies	Military women
Morina, N., Malek, M., Nickerson, A., & Bryant, R. (2017)	18 studies	Survivors of mass violence
Seguin, M., & Roberts, B. (2017)	50 studies	Civilians affected by conflict in low- and middle-income countries.
Waszak, D. L., & Holmes, A. (2017).	Not reported, 99 references in total	War veterans after the attacks of September 2011
Giordano, A., Bader, C., Richmond, T. & Polomano, R. (2018)	22 studies	Soldiers and military forces mainly
Morina, N., Stam, K., Pollet, T. V., & Priebe, S. (2018)	33 studies	War survivors who remained in the conflict area
Morina, N., Akhtar, A., Barth, J., & Schnyder, U. (2018)	38 studies	Displaced population and refugees affected by armed conflict in a war region or an unstable country
Purgato, M., Gastaldon, C., Papola, D., van Ommeren, M., Barbui, C., & Tol, W. (2018)	28 studies	Victims of humanitarian crises framed in conflicts
Weisleder, P., & Rublee, C. (2018)	Not reported, 37 references in total	Refugees
Hoppen, T. H., & Morina, N. (2019).	22 studies	Civilian survivors of wars and conflicts
Abu Suhaiban, H., Grasser, L. R., & Javanbakht, A. (2019)	28 studies	Refugees and survivors of torture
Amodu, O. C., Richter, M. S., & Salami, B. O. (2020)	31 studies	Displaced adult women

Table 2 Description and details of the included studies

Reference	Outcome/ Mental Health consequences	Conclusions
Klerman, G. (1989)	Cohorts born since World War II are among the most physically healthy cohorts and were raised during economic prosperity period in the United States of America and Western Europe.	Hypotheses about the relationship between social forces and increased risk of depression could be tested by studies among groups that did not experience the same social changes.
Ørner, R. (1992)	Continuous reactions to traumatic stress were associated with the intensity of combat experience and the retrospective reporting of emotional problems in the early period upon returning from war.	The current (1992) status of post-traumatic stress disorder (PTSD) emerges as a potent long-term psychological, medical, and social predictor.
Falk, B. (1994)	In 1994, 4 to 5 decades after their actual combat experiences in World War II and the Korean War, many veterans still had PTSD.	The findings of this study support the idea that PTSD may be a delayed or cyclical disorder, i.e., that despite it does not occur in the months or days following the traumatic event, it can be developed in later years
Hyams, K. (1996)	Preliminary results from epidemiologic studies conducted on Persian Gulf War veterans show there is not an overall increase in the rates of hospitalization, birth defects, or mortality due to medical causes.	Persian Gulf War veterans had many diseases resulting from various causes.
Silove, D. (2000)	Events such as being tortured, being confined in concentration camps, and other serious violations of human rights can be particularly threatening and have an impact on the development of PTSD symptoms.	PTSD and depression comorbidity can be particularly disabling, and intrusive PTSD symptoms may be the strongest predictor of health care utilization over time.
Basoglu M., Jaranson J.M., Mollica R., Kastrup M. (2001)	Survivors of torture may show higher levels of traumatization, as suggested by the higher rates of PTSD reported in studies that also involved survivors of non-activist torture.	The presence of symptoms of both PTSD and depression is lower in people who were tortured in the context of armed conflict but are not refugees.
Porter, M., & Haslam, N. (2001).	Forcibly displaced people had a worse mental health in terms of stress compared to internally displaced persons and to those who had not been victims of forced displacement.	Effective models of mental health service provision for refugees must adapt to the impact of the refugee's broader social, economic, political, and situational contexts.
Miller, L. (2003)	The most distressing aspect of the traumatic experience is the destruction of fundamental beliefs about oneself and the world.	Survivors of terrorist acts often exhibit symptoms of anxiety, avoidance, denial, memory impairment, decreased concentration, and nightmares.
Danieli, Y., Brom, D., & Sills, J. (2005)	Individual and community resilience is an important psychosocial protective factor against the consequences of terrorism in particular, and trauma exposure, in general.	The importance of multidimensional assessment in cases of traumatic grief following terrorism-related experiences to determine appropriate intervention strategies becomes evident.
Porter, M., & Haslam, N. (2005).	Post-displacement accommodation of resettled refugees in permanent private lodgings is associated with a significantly better mental health compared to those resettled in temporary institutional and private lodgings.	There are several conditions that make mental health maintenance difficult in these individuals, thus these factors should be considered in order to provide them with comprehensive support interventions that promote mental health.
Vangiezen, A., Arensman, E., Spinhoven, P., & Wolters, G. (2005).	The degree of involvement and severity of emotionally arousing events tend to be associated with greater consistency over time or memory amplification.	Additional details of an emotionally arousing event are likely to be recalled at a later stage.
Adamowski, Y. (2006)	During the American Civil War, the occurrence of a mental disorder among young soldiers with obsessive thoughts about their homes was reported. These soldiers were diagnosed with an acute form of homesickness.	Soldiers with acute combat stress reaction syndrome returned to active duty more quickly when they were treated at an early stage and close to military operations.
Murthy, R. S., & Lakshminarayana, R (2006)	Women are more vulnerable to the psychological consequences of war; also, the greater the exposure to trauma, both physical and psychological, the more pronounced the symptoms.	Both physical and psychological support minimize the effects of war-related traumas, as well as the role of religion and cultural practices as ways of coping with armed conflict-related situations.
Orth, U., & Wieland, E. (2006)	Anger and hostility are substantially related to PTSD in individuals who have experienced all possible types of traumatic events.	Specific treatment for anger is necessary to achieve subjective well-being and social functioning, and not only if anger has a causal effect on PTSD.

Table 2 (cont.) Description and details of the included studies

Okasha, A. (2007)	The consequences of war inevitably include deterioration of existing social structures, exposure to stress and trauma, and the resulting increased rates of mental disorders and physical morbidity in these people.	The health consequences of war persist, and as a result, so do the social and economic consequences that shape all other experiences for a generation that has survived a war.
Hiskey, S., Luckie, M., Davies, S., & Brewin, C. (2008).	The resurgence of symptoms related to re-experiencing an emotionally arousing event, known as "combat alertness", is the predominant clinical pattern in war veterans.	Middle age is the period in which symptom absence is most marked, while age-related losses (especially physical health) trigger the occurrence of latent PTSD in older adults.
Johnsen, G. E., & Asbjørnsen, A. (2008).	War combat trauma and sexual/physical abuse were chosen to analyze the effect of trauma type. Significant memory impairment was observed in both types of traumas.	Verbal memory impairment is present in adults with PTSD, and this is a consistent finding across studies. Stronger effects were observed in war veterans compared to people exposed to sexual and physical abuse.
Johnson, H., & Thompson, A. (2008)	Civilians may experience a higher frequency of intrusive memories and a lower frequency of emotional numbness.	Protective factors play an important role in determining the psychological effect of war trauma and torture.
Tolin, D. & Foa, E. (2008).	A higher prevalence of rape, sexual assault, and combat among female participants could be interpreted as a factor contributing to sex differences in PTSD frequency.	Compared to men and boys, women and girls are more likely to meet the diagnostic criteria for PTSD.
Lindert, J., Ehrenstein, O. von, Priebe, S., Mielck, A., & Brähler, E. (2009).	A better economic performance of the host country may be related to a lower prevalence of symptoms in migrant workers, but not in the case of refugees.	Refugees are more likely to develop depression and anxiety compared to migrant workers. This situation is explained by the fact that refugees do not have sufficient resources to cope with life in the host country.
Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. & van Ommeren, M. (2009)	A trend towards reducing the risk of developing mental health disorders over time once the armed conflict ends or the process of resettlement is completed.	Torture and cumulative exposure to traumatic events were the factors more strongly associated with PTSD and depression, respectively.
Street, A. E., Vogt, D., & Dutra, L. (2009)	Compared to men, women are approximately twice as likely to be diagnosed with PTSD.	Besides going through armed conflict-related situations, women must face the gender role imposed by men.
Tempany, M. (2009)	Refugees' functioning was not necessarily reduced, and they often reported being more concerned about current stressors than about their past traumas.	Most quantitative studies found high prevalence rates of mental disorders in refugees, particularly PTSD and depression.
Braquehais, M. & Sher, L. (2010)	PTSD prevalence data vary a lot from country to country, this could be due to genotypic response to trauma, personal preconceptions, and sociocultural interests.	A comprehensive management model of war-related PTSD should consider both genotypic and phenotypic findings.
Crumlish, N., & O'Rourke, K..(2010)	With the exception of narrative exposure therapy, none of the therapies used to treat PTSD in refugees and asylum seekers is supported on strong evidence.	There is not enough evidence supporting the efficacy of different therapies such as cognitive behavioral therapies to treat PTSD, anxiety, and depression in refugees and asylum seekers.
Perlman, S., Friedman, S., Galea, S., Nair, H. P., Er's-Sarnyai, M., Stellman, S., Greene, C. (2011)	3 to 5 days after the event, 44% of United States adult population had experienced substantial stress, fear, and insecurity, as well as higher rates of PTSD.	Risk factors for PTSD included proximity to the 9/11 attack site, living or working in lower Manhattan, and/or being a rescue worker.
Rizzo, A., Parsons, T. D., Lange, B., Kenny, P., Buckwalter, J. G., Rothbaum, B., & Beger, G. (2011)	The design and implementation of virtual reality applications is growing at various stages of the military deployment cycle to prevent, identify, and treat combat-related PTSD in military members on active duty and veterans.	There is a growing interest in using virtual reality to treat PTSD and stress in military members on active duty and in veterans.
Roberts, B., & Browne, J. (2011)	Women have poorer psychological health following an armed conflict. In addition, low educational attainment was associated with poorer psychological health, and events such as the murder of a family member or a friend, rape and sexual abuse, and being disabled due to violence are predictors of psychological trauma.	The findings provide evidence regarding the multiple effects of demographic, socioeconomic, and trauma exposure-related factors on psychological health.

Table 2 (cont.) Description and details of the included studies

Dossa, N. I., & Hatem, M. (2012)	Culturally tailored cognitive behavioral therapy (CBT), cognitive processing therapy, and narrative exposure therapy can successfully help civilians reduce their PTSD symptoms.	Culturally tailored Culturally tailored CBT can successfully help female civilians who experienced war or armed conflict-related trauma.
Hassija, C. M., Jakupcak, M., & Gray, M. (2012)	Evidence supports four-factor models of PTSD symptoms that classify emotional numbness and/or dysphoria symptoms as a distinct symptom cluster of PTSD.	There are positive associations between emotional numbness/dysphoria severity and greater engagement in health risk behaviors, impaired interpersonal functioning, and poorer psychological adjustment.
McFarlane, C. A., & Kaplan, I. (2012).	Psychological sequelae in survivors of persecution are associated with chronic, prolonged, repetitive, and intergenerational trauma.	Improvements in symptoms of PTSD, depression, and anxiety, as well as in somatic symptoms were observed after a series of interventions.
Crosby, S. S. (2013)	Torture and cumulative exposure to potentially traumatic events were the strongest predictors for PTSD and depression, respectively.	Refugees' trauma can be aggravated by additional losses: loss of their cultural/social traditions, loss of their language and communication skills, and loss of their professions and social status.
Meffert, S., & Ekblad. (2013).	Interpersonal therapy showed the highest effect sizes in both depression and PTSD treatment.	In order to choose an evidence-based intervention that is acceptable and appropriate for the community, mental health intervention options can be reviewed and discussed with the community.
Agazio, J., Goodman, P., & Padden, D. (2014)	Psychological symptoms experienced by the combatant's family members fluctuate in different stages including prolonged anticipation of possible grief, stress, anger, emotional disorganization, and anticipation of their return.	The well-being of the family unit has a direct impact on the readiness, retention, and overall efficacy of soldiers.
Campo-Arias, A., Oviedo, H. C., & Herazo, E. (2014)	The data revealed a high frequency of anxiety and depression symptoms, as well as possible cases of mental disorders, particularly those related to stressors and traumatic events such as post-traumatic stress disorder (PTSD).	The sequelae of internal armed conflict go beyond the diagnosis of a mental disorder. Being a victim also implies facing a series of material damages and multifactorial psychosocial consequences.
Hines, L., Sundin, J., Rona, R., Wessely, S., & Fear, N. (2014)	PTSD prevalence rates were higher in studies conducted in military combatants engaged in combat in the Iraq war than in those conducted in combatants involved in the Afghanistan war.	The categorization of studies according to deployment location and military branch allowed the identification of differences between subgroups that provide more evidence supporting the factors underlying the development of PTSD.
Patel, N., Kellezi, B., & Williams, A. C. de C. (2014)	Torture affects the functioning of a person in terms of self-esteem, sense of agency, and quality of life.	Choosing the appropriate treatment requires paying attention to the specific problems of potential participants and their social and material context, as well as to cultural norms about the expression and management of psychological problems.
Siriwardhana, C., Ali, S. S., Roberts, B., & Stewart, R. (2014)	Most studies found relatively high levels of mental disorders in the affected population and focused on PTSD diagnosis. PTSD, depression and anxiety were the disorders most frequently studied.	High quality social support and family support are associated with greater resilience and lower levels of psychological problems in all phases of migration due to armed conflict.
Bogic, M., Njoku, A., & Priebe, S. (2015)	Exposure to pre-migration traumatic experiences and post-migration stress were the factors most consistently associated with PTSD, depression, and anxiety.	Mental disorders tend to be highly prevalent in war refugees many years after resettlement; this may be influenced by post-migration socioeconomic factors.
Bryan, C., Griffith, J., Pace, B., Hinkson, K., Bryan, A., Clemans, T. & Imel, Z. (2015)	The relationship between combat-specific exposure and suicide-related outcomes was two times higher than the association between general deployment and all suicide-related outcomes.	Exposure to murder and atrocities is at least one factor that increases the vulnerability of military personnel and veterans to suicide-related outcomes.
Fulton, J., Calhoun, P., Wagner, H. Schry, A., Hair, L., Feeling, N., Beckham, J. (2015)	The average prevalence of PTSD in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) veterans in the studies included in this meta-analysis was 23%, confirming that PTSD is an important problem in these veterans.	The racial composition of the study sample was a significant predictor of the prevalence estimate; specifically, as the percentage of Caucasian participants increased, the prevalence of PTSD decreases.
Hassan, G., Ventevogel, P., Jefee-Bahloul, H., Barkil-Oteo, A., & Kirmayer, L. (2016).	Social fabric is severely disrupted, leaving many Syrian families isolated and disconnected from larger support structures.	Syrian civilians affected by the Syrian civil war may experience several mental health problems such as the exacerbation of pre-existing mental disorders, the occurrence of new problems caused by the violence resulting from the conflict, and the development of adjustment disorders.

Table 2 (cont.) Description and details of the included studies

Weiss, W., Ugueto, A, Mahmooth, Z., Murray, L., Hall, B., Nadison, M., Bass, J. (2016)	Narrative exposure therapy was the most effective therapy in PTSD and depression cases, while in the case of anxiety, CBT was the most effective therapy.	CBT, which includes exposure components, shows the best evidence for effectively addressing the symptoms of PTSD, depression and anxiety.
Álzate, M. & Dono, M. (2017)	Trust is a variable that is frequently associated with intergroup contact, which in turn is associated with conciliatory processes.	It is necessary to design explanatory and diagnostic models that contribute to the promotion of early social reconciliation processes.
Ba, I., & Bhopal, R. S. (2017)	Social consequences can lead to psychological and physical suffering and vice versa. In addition, social rejection or stigmatization can result in delayed health care seeking and then in a high prevalence of related complications.	Mental health consequences of sexual violence in the context of armed conflict are related to discrimination and the lack of state support to address the situation.
Baird, E., Williams, A. de C., Hearn, L., & Amris, K. (2017)	There is no basis for the widespread belief that pain from torture is somehow caused by a psychological disorder, apart from the discomfort caused by re-experiencing the event.	There is insufficient evidence to support or refute the use of any intervention to manage persistent pain in survivors of torture.
Janulewicz, P. Krengel, M., Maule, A., White, R., Cirillo, J., Sisson, E., Sullivan, K. (2017).	Gulf War veterans had a worse performance in the visuospatial subtest, in all four attention and executive function scores, and two of the six learning and memory subtests.	Gulf War deployment is associated with a significant impact on visuospatial, attention, executive function, and learning and memory domains, but not on simple motor function.
Jones, G. L., & Hanley, T. (2017)	Female veterans returning to their home experienced trauma-related problems (hypervigilance/hyperarousal, depression and anger).	Female war veterans find it difficult to fulfill stereotypical female roles, such as being a caregiver.
Morina, N., Malek, M., Nickerson, A., & Bryant, R. (2017)	Cognitive Behavioral Therapy based treatments that focused on trauma produced a big change, as did supportive "counseling" and psychoeducation.	Treatments that have been shown to be effective in developed countries can be effective in addressing mental health needs in low- and middle-income countries.
Seguin, M., & Roberts, B. (2017)	Support-seeking behavior was the coping strategy most commonly reported in civilians affected by armed conflict.	Social support availability is mediated by social context, which both enables and limits the coping strategies available to men and women affected by armed conflicts.
Waszak, D. L., & Holmes, A. (2017).	Veterans had more health problems when there was comorbidity of PTSD and other disorders such as substance use, major depressive disorder, and suicidal ideation.	Veterans have complex and comorbid primary and behavioral health needs (e.g., polytrauma, multiple injuries, chronic health conditions, and ill-defined conditions).
Giordano, A., Bader, C., Richmond, T. & Polomano, R. (2018).	Having a large size injury and the severity of pain increase the risk of developing PTSD after being injured in combat, whereas early symptom management decreases the risk of PTSD.	Results evidence a compelling need to improve the standardized assessment of pain and mental health symptoms across transitions in the provision of care to these patients.
Morina, N., Stam, K., Pollet, T. V., & Priebe, S. (2018)	More than half of participants with depression met the diagnostic criteria for comorbid PTSD. Mental distress is significantly higher in patients with PTSD and depression comorbidity than in those with PTSD or depression alone.	Both depression and PTSD are highly prevalent in war survivors who remained in the area affected by the armed conflict.
Morina, N., Akhtar, A., Barth, J., & Schnyder, U. (2018)	PTSD, depression, and anxiety disorders were the mental disorders most commonly studied.	There is a high variation among the prevalence rates of the mental disorders that were assessed (PTSD, depression and anxiety).
Purgato, M., Gastaldon, C., Papola, D., van Ommeren, M., Barbui, C., & Tol, W. (2018)	PTSD symptoms decreased considerably in adults who received psychological therapies compared to those who only received standard treatment, those who did not undergo any treatment at all, or were on a waiting list.	The use of psychological therapies in people with armed conflict-related PTSD, anxiety, or depression shows immediate effects, as well as and some medium- and long-term effects.
Weisleder, P., & Rublee, C. (2018)	Population estimates support the idea that refugees are 10 times more likely to have PTSD than the general population.	Neuropsychological disorders are the leading causes of morbidity in survivors of armed conflict and torture.
Hoppen, T. H., & Morina, N. (2019)	It has been estimated that approximately 242 million adult war survivors residing in (postwar) regions suffer from PTSD (95% CI, 198,895,226-288,571,119) and that about other 238 million adult war survivors have depression (95% CI, 200,320,269-277,577,934).	354 million adult war survivors suffer from PTSD and/or major depression and, of these, about 117 million have both conditions. PTSD and major depression in war-affected societies must be prioritized as a serious global health problem.

Table 2 (cont.) Description and details of the included studies

Abu Suhaiban, H., Grasser, L. R., & Javanbakht, A. (2019)	While a PTSD rate as high as 88.3% has been documented in survivors of torture from the Middle East (ME), Central Africa (CA), South Asia (SA), and Southeast Europe (SE), depression and anxiety rates as high as 94.7% and 91% have been reported in 131 African torture survivors and 55 South African survivors of torture, respectively.	Age, sex, the severity and type of torture, the length of time elapsed from exposure to torture and receiving health care services, post-migration hardships, immigration status, social support, marital status, and religion have been reported as possible predictors or protective factors of psychological distress.
Amodu, O. C., Richter, M. S., & Salami, B. O. (2020).	Mental health was explored in ten studies, in particular the burden of emotion-focused care and family responsibilities in women, which led them to bear the brunt of family disintegration.	The psychological impact of sustained trauma within the household and from outsiders, persistent fear of the unknown, loss of loved ones and livelihoods, housing problems, and lack of family support or community connection created a severe strain on women's mental health.

activities[22], as well as intrusive memories and hypervigilance[23] were the most frequent reactions and symptoms. In addition, most of these manifestations were associated with the intensity of the combat experience in individuals exposed to it[22], the duration of the AC[23], and the inability to identify all health problems related to AC (24) (**Table 2**).

Then, between 2000 and 2005 (**Figure 3**), seven of studies focused on determining a series of symptoms including distress about the experience suffered during the exposure to the AC[25-27], decreased sense of security and contextual/personal confidence[7,28], and others such as phobias, anxiety, panic attacks and depression[27,29]. Post AC contextual and environmental stress, nightmares, intrusive thoughts, reliving the events experienced during the AC, and increased traumatization were also considered[26]. In this regard, a study assessing the association between memory and the nature of the events experienced found that the greater the degree of involvement and severity of the event, the more frequently and longer it tends to be memorized, with severe emotional effects directly related to related to post-traumatic stress disorder (PTSD)[29]. Regarding specific results according to population groups, it was found that women have a higher risk of being victims of sexual exploitation and sexual violence[27]. In general, victims of forced displacement may experience an increased worsening of their MH even if they are internally displaced people[28]. In this sense, providing economic, social, emotional, and shelter support to these victims could favor full remission from MH disorders derived from exposure to AC in this population[30].

Finally, during the same time range, several studies reported that the presence of PSTD related to exposure to an AC is a possible predictor of the use of MH services[7,25,26]. Traumatic stress has been defined as a set of emotional and behavioral disorders directly related to the fear, significance and horror following a conflict, war or terrorist event, and is described as a preponderant diagnosis[27]. It is worth noting that all studies agree that this set of MH disorders is directly related to the effects of war, as well as to forced displacement, vulnerability, and the intensity and nature of trauma[25].

Between 2006 and 2009 a total of 12 studies were published (**Figure 3**). Besides, a particularity of these studies is that they provide data about some countries affected by AC, such Afghanistan, where high prevalence rates of anxiety, depression and PSTD were evidenced[6]; Cambodia, in which high frequency levels of psychiatric symptoms even after 10 years after exposure to AC were reported[6]; Sri Lanka, where psychosocial sequelae, PSTD, anxiety and depression were described in 64%, 27%, 26% and 25% of victims of the AC[6], and Uganda, where psychological disorders were up to two times more frequent in refugees compared to the general population[6] (**Table 2**).

Among said 12 studies, a meta-analysis found that feelings of anger and hostility (defined as a predisposition to reject others because of a hurtful and harmful interpretation of their actions) are substantially related to PSTD in individuals that have experienced any kind of traumatic event[31]. The effect size was larger in cases in which anger is inhibited and suppressed than in those in which it is expressed through physical or verbal aggression. Besides, a negative correlation with the ability to regulate anger was found, being more evident in individuals who had been exposed to traumatic events related to military actions than in those exposed to other types of traumatic events that were not related to an AC, and in the months after the traumatic event than in the immediate period after being exposed to it; however, no significant differences by gender or age were observed[31].

A review published in 2008 addressed the clinical course of PTSD symptoms by summarizing the findings reported during two decades by studies conducted in war veterans. In the review, data were analyzed according to the type of presentation of PTSD: immediate onset and chronic course,

late-onset (5 to 35 years after the end of AC), onset before 5 years had passed after the end of conflict, and PTSD cases in which symptoms worsened at different periods. According to this review, reliving the traumatic experience was reported in 11-34% of cases, where the reactivation of intrusive memories, the presence of typical symptoms of hyper alertness, the occurrence of nightmares and the development of other sleep disorders and irritability were evidenced[32]. Finally, the authors of the review conclude that there is not a clear way to differentiate remission and recurrence episodes from true late-onset forms of PTSD and recommend systematically studying PTSD symptoms in other population groups and not only in male war veterans[32].

Studies conducted in war veterans have described sex differences in terms of MH consequences of AC. In this sense, it has been reported that events involving sexual violence and participation in military combat operations are associated with a higher risk of PTSD, being the higher prevalence and severity of these disorders in women some of the factors explaining such sex differences[33,34].

On the other hand, symptoms that young adults develop after being exposed to an AC include obsessive thoughts about their homes, increased self-imposed social distancing and other somatic symptoms such as fever and diarrhea[35]. In older adults (>65 years) a relationship between poor social functioning and an inevitable worsening of their mental health after exposure to a traumatic event has been found, which, in turn causes the consequences of AC to persist throughout different generations[36].

The effects that ACs have on cognitive functions are still being studied. In this sense, in 2008, a study assessing the effect of war combat and sexual abuse on cognitive impairment found that cognitive impairment was greater in war veterans who also had PTSD[37]. Another important finding is the association between being tortured and the development of PTSD, where the need to correlate the symptomatology of this diagnosis with different cultures stands out, given that reactions to potentially traumatic events vary in some cultures and are not always perceived as a symptom[38].

Finally, between 2006 and 2009, the number of studies conducted on refugees increased. Some findings regarding this population include that the prevalence of depression in refugees is twice as high as in the general population[39], and that their exposure to a potential traumatic event (in addition to their refugee status) increases the risk of worsening their levels of depression and/or PTSD[40,41].

The highest number of studies were published between 2010 and 2020 (n=36) (**Figure 3**), which confirms that research on this topic has experienced an increasing trend. Fifteen studies published between 2010 and 2014 agree that the most frequent MH disorders are PTSD, anxiety and depression[42-45]. In specific cases such as the September 11 terrorist attacks, it was found that stress levels, fear, insecurity, episodes of depression and panic attacks increased considerably in adults[46]. On the other hand, in the context of the Iraq and Afghanistan wars, one study identified a set of PTSD-related symptoms including inability to remember aspects of the trauma, low interest and motivation in engaging in meaningful activities, emotional detachment, and a limited level of affection[47]. Another prevalence study conducted in these two countries reported that PTSD prevalence was higher in Iraq war ex-combatants (12.9% CI95%[11.3-14.4%]) compared to Afghanistan war ex-combatants (7.1% CI95%[4.6-9.6%])[48]. Similarly, a study conducted on Colombian victims of forced displacement due to the AC described wide variations in terms of the frequency of mental disorders, as the prevalence of MH disorders symptoms, possible cases of mental disorders (using mental health clinical assessment scales) and confirmed MH disorder diagnosis cases (with or without structured interviews) ranged from 9.9% to 63%, 21% to 97.3%, and 1.5% to 32.9%, respectively[49]. Additionally, this study also found an association between high MH morbidity and emotional well-being, as well as associations between these two factors and other negative multidimensional factors such as poverty, unemployment and social exclusion[49].

Regarding the different types of populations, it was found that combatants are exposed to common stressors such as bombs, enemies and expecting other violent situations, which will eventually lead to the development of PTSD as the main clinical manifestation[44], being transient mental disorders, as well as mood disorders, somatic symptoms and social dysfunction, the main symptoms[44,50]. With regard to women, one study reported that the consequences of AC are more severe for women, as they may have a poorer mental health and a greater risk of being victims of violence and sexual abuse after the AC has ended.[51]. Some studies conducted on combatants describe the effects that AC has on the family members of combatants by pointing out how they must respond to their demands in the context of the AC, which increases the level of stress within the family group and interrupts the normal development of children and adolescents, and causes the emergence of feelings of guilt, anxiety, somatic and behavioral symptoms, which eventually will further affect both family and community dynamics, either in the presence or absence of the combatant in the family group[52].

In the case of refugees, torture has been correlated with severe physical, psychological, social, occupational and spiritual disturbances in this population[45]. Disabling

MH disorders include fear, anxiety, phobias, depression and PSTD, which translate into altered interpersonal, family and community relationships[45,53]. In addition, refugees who are persecuted or do not achieve stability showed particular characteristics such as the multiplicity of dissociative symptoms, affective dysregulation and interpersonal difficulties[54]. Other relevant findings in this population include worsening of the trauma due to disconnection from cultural and social traditions, loss of communication skills, loss of social and occupational status; in addition, the prevalence rates of PTSD and depression were 30.6% and 30.8%, respectively[55]. Furthermore, another study concluded that the abovementioned disorders were associated with serious psychological stressors affecting refugees and that gave rise to resilience, characterized by the need to understand and take advantage of social, family cohesion and community cohesion, such as religious relationships, complexities[56].

On the other hand, a total of 21 studies were published between 2015 and 2020, (**Figure 3**). These studies focused on the following MH consequences of AC: perceptible behavioral disorders, cognitive problems, avoidant attitudes, increased violent behavior and mental distress[57-60]. A study about a series of systematic acts of violence carried out in European countries identified symptoms associated with traumatic stress, followed by depression and anxiety, which strengthens the findings of studies conducted in previous years[61]. On the other hand, a study conducted in 23.990 survivors of ACs from different countries, reported that 23.8% had PTSD (95% CI, 19.5-28.3%) and 23.3%, major depressive disorder (95% CI, 19.6-27.2%)[62]. World population adjusted estimates and models revealed that 1) worldwide at least one in five individuals has experienced war between 1989 and 2015, and 2) that, based on the pooled prevalence of 23.8%, about 242 million and 238 million adult survivors of AC that still live-in regions affected by an AC suffer from PTSD and major depressive disorder, respectively[62] (Table 2).

Women have been the most frequently studied population in recent years, in particular the consequences of sexual violence in the context of AC[63]. In this regard, according to one study, the consequences of sexual violence for women not only include the MH disorders that have been extensively addressed in the present review, but also social repercussions such as rejection, stigmatization, physical difficulties and, above all, the intergenerational transmission of sexual violence and psychological abuse[63,64]. In addition, it was found that as a result of exposure to AC-related traumatic events, women develop hypervigilance in their homes, and experience anger episodes in daily situations more frequently, as well as changes in their roles as mothers, loss of identity and social adaptation problems[65,66].

A descriptive synthesis reported that refugees have a greater exposure to potentially traumatic experiences or to violence during and after ACs, finding a higher prevalence of PTSD, depression and anxiety in this population[15]. For example, it has been shown that the main problems that Syrian refugees must face amidst the Syrian AC are related with the loss of both their family and social structures, as well as the pain caused by such losses[67]. These losses worsen pre-existing mental disorders, which are then considered new problems directly related to violence and forced displacement; besides, the forced adaptation of refugees in other countries also aggravates other mental health problems[67]. Furthermore, two studies highlight that, based on data from approximately 30 primary studies, PTSD, depression and anxiety occur in 2.2% to 88.3%, 5.1% to 81%, and 1% to 80% of refugees[9]. Similarly, it has been reported that refugees are up to 10 times more likely to develop PTSD than the general population, mainly due to their type of exposure to AC and the characteristics inherent to being a refugee[68]. Finally, according to a study conducted in 2019, depression and PTSD remained the most prevalent MH disorders in individuals living in areas of Nepal affected by AC (27.9%) and in African survivors of ACs (94.7%), respectively[64].

Regarding military combatants, studies conducted on combatants involved in an AC have described an association between, on the one hand, suicidal ideation, suicide attempts and suicide, and, on the other, exposure to combat in the context of an AC; similarly, these individuals have a greater vulnerability to MH problems, which increases their adaptation problems after the end of the AC[69]. In the case of members of military forces that have engaged in combat, it was described that those who were wounded by firearms or severely injured were twice as likely to develop PTSD compared to the general population. Similarly, a case series reported PTSD and depression comorbidity in these individuals, which in turn represented a serious limiting factor for their military life[70].

In a study conducted on Iraq war veterans, 23% of combatants had PTSD, which clearly affected their occupational performance[71]. Furthermore, another study found that war veterans suffering from PTSD were more prone to develop psychoactive substance use disorders, sleep disorders, metabolic disorders, sexual dysfunction and suicidal ideation[72]. Finally, regarding the research of the consequences of AC for combatants in terms of memory and other cognitive functions, a study reported that war veterans have more visuospatial, attention, executive function, learning and memory problems, and that they are primarily related to military deployment[73].

Torture and other types of violence associated with human being and dignity undermining practices, which are usual in the context of ACs, are negatively reflected in

the occurrence of PTSD[74]. It is worth mentioning that five categories of variables that can contribute to all resilience processes were identified: psychosocial recovery, peer support, group resignification, emotional variables and conflict management strategies[75].

DISCUSSION

The present review identified a large body of scientific evidence on the negative MH consequences of AC in adults. In addition, it was observed that the publication of studies addressing this subject increased in the last 5 years.

Most of the studies retrieved in this review focused on characterizing MH disorders associated with exposure to AC, while only a minority focused on the psychosocial consequences of AC. Symptoms of anxiety, depression and PTSD were predominant in all publication year ranges established for results synthesis purposes, where wide variations in terms of their prevalence rates and a high comorbidity among these manifestations were evidenced[62]. Heterogeneity regarding the prevalence of these disorders is usual among studies carried out in populations living in regions that have been affected by AC. In addition, although most studies included were conducted in countries located in North America, Europa, Asia and Africa, the reviews conducted in Central and South American countries replicate these results and offer a great opportunity for discussion. For example, in Colombia, according to a systematic review that included studies conducted on victims of forced displacement due to the internal AC, the prevalence of mental disorders ranged from 1.5% to 32.9%; in addition, the authors of said systematic review emphasized the need to use structured interviews in the diagnostic evaluation of this population to obtain more solid results from a biomedical perspective[49]. Such differences in terms of prevalence rates of mental disorders in this population in the country calls for a deeper reflection not only on this problem, but also on the complex phenomenon of violence in Colombia and the socio-political climate that possibly permeates the collection of information.

Despite a greater methodological rigor, prevalence ranges of mental disorders are still wide, especially those of PTSD. For example, a study on the effects of AC in inhabitants of Guatemala found that the prevalence rates of mental disorders (diagnosed using standardized instruments) in different population groups affected by violence were high, but that in fact the prevalence of PTSD was low as it ranged from 2% to 11.8%, while the prevalence of other disorders ranged from 32% to 52% (depression: 38.8%-41.8%; anxiety: 27.7%-54.4%; sleep problems: 75%)[76]. Similar to ACs taking place in Afghanistan, Cambodia, Sri Lanka and Uganda, ACs in Central and South America share a series of social and cultural barriers and, above all, a conception of psychopathology that ignores the daily MH repercussions of AC, the under-reported mental disorders or the resulting problem that implies the normalization of victimization. This constitutes a first call to make measurements and obtain pooled results that consider the context, territories and reality in which ACs occur.

In addition, a study conducted in Nicaraguan civilians when the country was amidst an AC reported an estimated overall prevalence of mental disorders of 27.9% using the Self Reporting Questionnaire (SRQ). In the case of structured interviews, the estimated prevalence rates and their 95% confidence intervals for the most common MH disorders that corresponded with current classifications of depressive, anxiety and PTSD-related disorders were: neurosis 7.5% (5.2%-9.8%), depression 6.2% (2.6%-8.1%), and brief psychotic disorder 3.3% (2.6%-6.5%) (77). Given this panorama, we are faced with two situations: first, the need to establish new methods to quantify the effects of AC on health that are mainly based on integral and situational models; second, to change the focus of research on this topic to those other reports, symptoms, expressions and actions that can either affect or be a manifestation of a MH disorder.

The correlations between the development of mental disorders and the duration of the AC, the degree of participation in war events and the intensity of traumatic experiences reported by several studies included in this review are consistent with the findings described by other reviews on the subject[22-24]. A comparative study on the prevalence of mental disorders in inhabitants of Colombian municipalities that were categorized according to the presence and intensity of AC, found that 10.8% of the participants living in municipalities permanently affected by the Colombian AC had experienced any affective or anxiety disorder during their lifetime, while this only occurred in 7.2% of those living in municipalities in which the AC was intermittent. On the contrary, the prevalence of PTSD was higher in those municipalities where AC was intermittent, but the difference was not statistically significant; however, it should be noted that the authors of said study make a warning regarding the imprecision of PTSD prevalence data in municipalities that are not affected by the Colombian AC, making it impossible to compare these figures[78]. With regard to such impossibility to compare said figures, on the one hand, there is a need for new approaches that allow conducting studies comparing territories, populations and specific groups that are or have been affected by an AC, and, on the other, the importance of performing longitudinal studies, follow-up studies and reviews synthesizing this information to obtain a more complete knowledge on this topic and bring us closer to poorly related multidimensional phenomena is evident.

From the perspective of psychopathology, it is worth noting the recognition of dissociative symptoms, the deterioration of social relationships, emotional detachment, and the restriction of affection and interests, which reflects the evolution of traumatic stress[47,49,55,78-80]. Similarly, the evolution of this concept reflects emotional, behavioral and cognitive manifestations different from the classic symptoms of hypervigilance, revival or avoidance of the traumatic event, such as having a hostile attitude and an altered ability to regulate or express anger[31,81]. In addition, explanatory models about the psychological processes involved in the occurrence of these manifestations have important implications for the treatment of this population[31,81].

The association between traumatic stress, alcoholism, use of other psychoactive substances and suicidal behavior, documented in the studies included in this review, as well as in other publications, is another finding of great importance in the field of public policies and therapeutic interventions aimed at victims of AC[72,82]. For example, in the comparative study carried out in Colombian municipalities, alcohol consumption was higher in municipalities in which AC was no longer present, while marijuana consumption was higher in those where AC was more intense; in this regard, several hypotheses related to the possible control that armed groups exert over alcohol consumption have been proposed to explain these associations; however, such hypotheses must be tested in other types of studies[78]. Similarly, the effects of traumatic stress on cognitive functioning, which have been documented in various populations exposed to violence, are also relevant in the field of therapeutic interventions[49,78,80,83,84].

Regarding the differential effects of AC according to the type of population, compared to men, women have been found to be more vulnerable to violence and sexual exploitation, and to have a greater social burden[28,33,34,63]. In the case of refugees, several studies report that vulnerability is higher in this population due to the separation from their families, the loss of traditions and their forced adaptation in other countries[40,41,55,68]. However, it has been suggested that the wide differences between the mental disorders prevalence rates described in internally displaced people and war refugees could be mediated by psychosocial circumstances inherent to the place they migrate in terms of proximity or of cultural similarities and differences with the place they come from[78]. It is also worth mentioning that higher probabilities of developing schizophrenia or other psychotic disorders as a result of social adversity before and during the migration process to Western Europe have been described in war asylum seekers or war refugees from Eastern Europe, the Middle East, North Africa and Asia[85]. Although in the present review we did not identify any review specifically addressing this last finding, the literature published worldwide has provided multiple data and findings that must be considered not only when these refugees migrate, but also at the time of evaluation and follow-up of this population in their new destinations. In addition, pre and post migratory variables or factors must consider cultural and economic barriers, as well as the effects of the migration process on the family structure, routines, occupation and traditions of refugees, as they will surely affect their MH.

Another important finding reported by the studies included in the present review is the intergenerational transmission of the violence and traumas resulting from wars and ACs. This problem has been studied since the late 1980s, initially from an attachment theory approach[86], and later from the epigenetics and systemic approach in sociology perspectives[87,88]. The latter, briefly mentioned in the studies included in this review, explain how the exposure of adults to traumatic events consequences on their parental roles and the relationship with their children has, particularly the detriment of the development and well-being of the latter, which contributes to the perpetuation of family and community dynamics conducive to the development of other forms of violence, problems and associated mental disorders[52].

Also, the fact the identification of clinical conditions in biomedical studies addressing MH in individuals exposed to AC is based only on the time of occurrence of symptoms and the type of symptoms, leaving aside cultural aspects or those related to the highly abnormal contexts in which these people are involved, stands out. Under such conditions, many symptomatic manifestations could even prove to be adaptive within the context of general abnormality of everyday life posed by wars[80].

In the same vein, it is surprising that only a minority of studies question that reactions to extreme events such as torture or exposure to armed confrontations fall into diagnostic categories[74]. Studies about interventions and supporting actions aimed at victims of social and political violence and wars in Central and South American countries, and that have been conducted from a psychosocial perspective since the last third of the 20th century, describe the importance of depathologizing the normal psychological manifestations expressed by people exposed to highly abnormal contexts in order to contribute to overcoming the effects of violence on victims of AC based on the resignification of their identity, the recognition of personal and social resources, the promotion of social participation and community support, and their recognition as holders of rights, together with the strengthening of social changes that favor human welfare beyond wars[83,84].

The fact that we did not identify enough studies addressing the effects of AC on the MH of adults from

psychosocial approaches or from perspectives derived from the positive conceptualization of MH could be considered a limitation of the present study, since, as mentioned above, most of the studies that were retrieved focused on this topic from biomedical perspectives. This is to be expected as the search was predominantly carried out in biomedical databases, so future studies should consider approaching this phenomenon from psychosocial perspectives or those derived from the positive conceptualization of MH, as well as addressing MH in these populations beyond describing the occurrence of possible diseases resulting from exposure to war, without ignoring its existence.

CONCLUSIONS

The negative effects of AC on the MH of adult population were evidenced in the development of depressive disorders and PTSD, with some differences in the symptomatic manifestations described in recent research that broaden the concept of traumatic stress to highlight dissociative, affective dysregulation, hostility, and cognitive processes involvement and impairment manifestations. This change reflects the conceptual evolution of traumatic stress over time.

Promoting research on this subject from a psychosocial perspective is essential, as its current presence in international literature addressing the consequences of AC on MH of adults is scarce. From a biomedical perspective, conducting studies differentiating subpopulations among adults exposed to violence in the context of AC is of great importance, as there are some more vulnerable groups that require differentiated protection, and in which follow-up studies are needed to determine the coping mechanisms and variables associated with resilience.

CONFLICT OF INTERESTS

None.

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Annex 1 (cont.)	Search Strategy
Electronic search report No. 1	
Database	MEDLINE(R)
Platform	Ovid
Search Date	01-05-2020
Search Date Range	Without restrictions
Language restrictions	Without restrictions
Other limits	Reviews, maximum sensitivity
Search strategy (results)	1. exp Adult/ (7132696) 2. middle aged.ab,ti. (41529) 3. aged.ab,ti. (562605) 4. 1 OR 2 OR 3 (7368951) 5. exp Armed Conflicts/ (10326) 6. war.ab,ti. (38019) 7. (War and (conflict or crimen)).ab,ti. (1918) 8. 5 OR 6 OR 7 (44491) 9. 4 AND 8 (11102) 10. limit 8 to "reviews (best balance of sensitivity and specificity)" (467)
Identified references	467
Electronic search report No. 2	
Database	Embase
Platform	Elsevier
Search Date	01-05-2020
Search Date Range	Without restrictions
Language restrictions	Without restrictions
Other limits	Reviews
Search strategy (results)	11. 'adult'/exp OR adult* (9266026) 12. 'older adult*':ab,ti (96838) 13. 1 OR 2 (9266026) 14. 'war'/exp (31774) 15. 'armed conflict*':ab,ti (1282) 16. 'crimean war':ab,ti (117) 17. 4 OR 5 OR 6 (32327) 18. 3 AND 7 (6565) 19. 8 AND 'Review'/it (280) 20. 9 AND 'Review'/it AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) (60)
Identified references	60
Electronic search report No. 3	
Database	Cochrane Database of Systematic Reviews
Platform	Ovid

Annex 1 (cont.)	Search Strategy
Search Date	01-05-2020
Search Date Range	Without restrictions
Language restrictions	Without restrictions
Other limits	Reviews
Search strategy (results)	1. adult.mp. [mp=title, short title, abstract, full text, keywords, caption text] (4297) 2. middle aged.mp. [mp=title, short title, abstract, full text, keywords, caption text] (648) 3. aged.mp. [mp=title, short title, abstract, full text, keywords, caption text] (3744) 4. 1 OR 2 OR 3 (5912) 5. armed conflicts.mp. [mp=title, short title, abstract, full text, keywords, caption text] (7) 6. war.mp. [mp=title, short title, abstract, full text, keywords, caption text] (89) 7. (war and (conflict or crimen)).mp. [mp=title, short title, abstract, full text, keywords, caption text] (22) 8. 5 OR 6 OR 7 (90) 9. 4 AND 8 (65)
Identified references	65
	Electronic search report No. 4
Database	LILACS
Platform	Biblioteca Virtual de la Salud (iAHx)
Search Date	01-05-2020
Search Date Range	Without restrictions
Language restrictions	Without restrictions
Other limits	LILACS
Search strategy (results)	1. tw:((adult OR middle aged OR aged) AND (war* OR armed conflict*) AND (review)) AND (instance:"regional") AND (db:("LILACS")) (100)
Identified references	100

Annex 2 Studies excluded with reasons.

#	Reference	Title	Reason for exclusion
1	Allen, I. M. (1986).	Posttraumatic stress disorder among black Vietnam veterans.	Not review
2	Mino, Y., & Ohara, H. (1991).	[A review on mental health and psychiatric services in England].	Not focused on armed conflict
3	Choy, T., & De Bosset, F. (1992).	Post-traumatic stress disorder: an overview.	Not review
4	Coulter, N. A. (1992).	Militarism: a psychosocial disease.	Not review
5	Camp, N. M. (1993).	The Vietnam War and the ethics of combat psychiatry.	Not focused on mental health
6	Goreta, M. (1994).	Posttraumatic stress disorder resulting from war traumas and its forensic- psychiatric meaning	Not review
7	Loo, C. M. (1994).	Race-related PTSD: the Asian American Vietnam veteran.	Not review
8	Wood, D. P., & Hirschberg, B. C. (1994). Hypnosis	Hypnosis with the surgical patient.	Not review
9	Jongedijk, R.A., Carlier, I.V.E., Schreuder, B.J.N. and Gersons, B.P.R. (1996)	Is there a place for the Complex Post-Traumatic Stress Disorder?	Not found
10	Mazor, A., & Mendelsohn, Y. (1996).	Continuous suffering: A systemic couple therapy of an adult child survivor	Not review
11	Subilia, L., Bertrand, D., & Loutan, L. (1996).	[Identification of victims of violence and torture: the practitioner's role].	Not review
12	Smith, L. (1997)	Critical thinking, health policy, and the Hmong culture group, Part II.	Not review
13	Flint, A. J. (1998).	Management of anxiety in late life.	Not focused on armed conflict
14	Hodgins, S. (1998).	Epidemiological investigations of the associations between major mental disorders and crime: methodological limitations and validity of the conclusions.	Not review
15	Joshi, P. T. (1998).	Guidelines for international trauma work	Not review
16	de Vries, M., Soetekouw, P.M., van Bergen, L.F., van der Meer, J.W., Bleijenberg, G. (1999)	[Somatic and psychological symptoms in soldiers after military clashes and peace-keeping missions].	Not focused on mental health
17	Mander, G. (1999).	The absent father and his return: Echoes of war	Not review
18	Van der Hart, O., Brown, P., & Graafland, M. (1999)	Trauma-induced dissociative amnesia in World War I combat soldiers.	Not review
19	Solomon, Z. (2000).	The psychological consequences of war: The Israeli experience	Not found
20	Breslau, N. (2001).	The epidemiology of posttraumatic stress disorder: what is the extent of the problem?.	Not review
21	Solomon, Z. (2001).	The impact of posttraumatic stress disorder in military situations.	Not found
22	Rose, S. C., Bisson, J., Churchill, R., & Wessely, S. (2002).	Psychological debriefing for preventing post-traumatic stress disorder (PTSD)	Not focused on armed conflict
23	Kaiman, C. (2003).	PTSD in the World War II combat veteran.	Not review
24	Hunter, E. C., Sierra, M., & David, A. S. (2004).	The epidemiology of depersonalization and derealization. A systematic review.	Not focused on armed conflict

Annex 2 (cont.)	Studies excluded with reasons		
25	O'Donnell, C. (2005).	The greatest generation meets its greatest challenge: Vision loss and depression in older adults	Not review
26	Vickers, B. (2005).	Cognitive model of the maintenance and treatment of post-traumatic stress disorder applied to children and adolescents	Not focused on the population
27	Kloner, R. A. (2006).	Natural and unnatural triggers of myocardial infarction.	Not focused on mental health
28	Schraiber, L. B., D'Oliveira, A. F. P., & Couto, M. T. (2006).	[Violence and health: recent scientific studies].	Not focused on mental health
29	Stein, D. J., Ipser, J. C., Seedat, S., Sager, C., & Amos, T. (2006).	Pharmacotherapy for post-traumatic stress disorder (PTSD)	Not focused on armed conflict
30	Bader, K., & Schäfer, V. (2007)	Sleep disturbances following traumatic experiences in childhood and adolescence: A review	Not focused on the population
31	Talbott, J. A. (2007).	Association Between Duration of Untreated Psychosis and Outcome in Cohorts of First-Episode Patients: A Systematic Review Marshall M, Lewis S, Lockwood A, et al (Univ of Manchester, England; Univ of Cambridge, England)	Not review
32	Dekel, R., & Goldblatt, H. (2008).	Is there intergenerational transmission of trauma? The case of combat veterans' children.	Not focused on the population
33	Peterson, A. L., Baker, M. T., & McCarthy, K. R. (2008).	Combat stress casualties in Iraq. Part 1: behavioral health consultation at an expeditionary medical group.	Not review
34	Allen, J., & Annells, M. (2009).	A literature review of the application of the Geriatric Depression Scale, Depression Anxiety Stress Scales and Post-traumatic Stress Disorder Checklist to community nursing cohorts.	Not review
35	Dausch, B. M., & Saliman, S. (2009).	Use of family focused therapy in rehabilitation for veterans with traumatic brain injury.	Not review
36	Belevitin, A. B., Nikitin, A. E., Shamre', V. K., & Kurasov, E. S. (2010).	[Mental disorders at hypertensive illness at military men of young age (analysis of a condition of a problem)].	Not focused on mental health
37	Benagiano, G., Carrara, S., & Filippi, V. (2010).	Social and ethical determinants of human sexuality: 2. Gender-based violence.	Not focused on mental health
38	Grzywa, A., Kucmin, A., & Kucmin, T. (2010).	[Suicide problems--epidemiology, factors, motives and prevention. Part II].	Not review
39	Lorber, W., & Garcia, H. A. (2010).	Not supposed to feel this: traditional masculinity in psychotherapy with male veterans returning from Afghanistan and Iraq.	Not review
40	Roberts, N. P., Kitchiner, N. J., Kenardy, J., & Bisson, J. I. (2010).	Early psychological interventions to treat acute traumatic stress symptoms	Not focused on armed conflict
41	Woon, F. L., Sood, S., & Hedges, D. W. (2010).	Hippocampal volume deficits associated with exposure to psychological trauma and posttraumatic stress disorder in adults: a meta-analysis.	Not focused on armed conflict.
42	Gómez-Sánchez, P. I., Urquijo-Velásquez, L. E., & Villarreal, C. (2011)	Estrategia FIGO para la prevención del aborto inseguro: experiencia en Colombia TT - Experience in Colombia regarding the FIGO strategy for preventing unsafe abortion	Not focused on mental health

Annex 2 (cont.) Studies excluded with reasons

43	Marasović Šušnjara, I., Definis Gojanović, M., Vodopija, D., Čapkun, V., & Smoljanović, A. (2011).	Influence of war on quantitative and qualitative changes in drug-induced mortality in Split-Dalmatia County, Croatia.	Not review
44	Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013).	Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults	Not focused on armed conflict
45	Gillies, D., Taylor, F., Gray, C., O'Brien, L., & D'Abrew, N. (2013)	Psychological therapies for the treatment of post-traumatic stress disorder in children and adolescents	Not focused on the population
46	López, B. E. A. (2013)	Salud mental y violencia política. Atender al enfermo psiquiátrico o reconocer al sujeto de la micropolítica TT - Mental Health and Political Violence. Care of Psychiatric Patient or Acknowledge of the Micropolitics of the Subject	Not focused on the population
47	Orlowski, H. V., Klauer, T., Freyberger, H. J., Seidler, G. H., & Kuwert, P. (2013).	[The psychology of being unaccounted for, based on the example of children of missing German soldiers from World War II].	Not found
48	Sijbrandij, M., Reitsma, J. B., Roberts, N. P., Engelhard, I. M., Olff, M., Sonneveld, L. P., & Bisson, J. I. (2013).	Self-report screening instruments for post-traumatic stress disorder (PTSD) in survivors of traumatic experiences	Not focused on armed conflict
49	Unwin, B. K., Goodie, J., Reamy, B. V., & Quinlan, J. D. (2013).	Care of the college student.	Not focused on armed conflict
50	Bormann, J. E., Weinrich, S., Allard, C. B., Beck, D., Johnson, B. D., & Holt, L. C. (2014).	Chapter 5 mantram repetition: an evidence-based complementary practice for military personnel and veterans in the 21st century.	Not review
51	Cowlishaw, S., Evans, L., Suomi, A., & Rodgers, B. (2014).	Couple and family therapies for post-traumatic stress disorder (PTSD)	Not review
52	Kelly, U., Boyd, M. A., Valente, S. M., & Czekanski, E. (2014).	Trauma-informed care: keeping mental health settings safe for veterans.	Not review
53	Uphold, C. R., Jordan, M., & Freytes, M. (2014).	Chapter 8 family caregivers of veterans: a critical review of the empirical literature and recommendations for future research.	Not focused on the population
54	Kantha, S. S. (2015).	Suicides of 84 newsworthy Japanese between 1912 and 2015	Not focused on mental health
55	Paslakis, G., Graap, H., & Erim, Y. (2015).	[Media Exposure and Posttraumatic Stress Disorder: Review and Implications for Psychotherapy].	Not focused on armed conflict
56	Pfefferbaum, B., Jacobs, A. K., Nitiéma, P., & Everly, G. S. (2015)	Child debriefing: a review of the evidence base.	Not focused on the population
57	Rousseau, C., Jamil, U., Bhui, K., & Boudjarane, M. (2015).	Consequences of 9/11 and the war on terror on children's and young adult's mental health: a systematic review of the past 10 years.	Not focused on the population
58	Sibai, A. M., Rizk, A., & Kronfol, N. M. (2015).	Aging in Lebanon: Perils and prospects	Not review

Annex 2 (cont.)	Studies excluded with reasons		
59	Silva, R. S., de Vargas, F., Hoffmeister, F. X., Prates, P. F., & Vasconcellos, S. J. L. (2015)	Adolescentes em conflito com a lei no Brasil: pesquisar para intervir TT - Teenagers in Conflict with the Law in Brazil: Research to Intervene	Not focused on the population
60	Terasaki, G., Ahrenholz, N. C., & Haider, M. Z. (2015)	Care of Adult Refugees with Chronic Conditions.	Not review
61	Abou-Abbass, H., Bahmad, H., Ghandour, H., Fares, J., Wazzi-Mkahal, R., Yacoub, B., ... & Tamim, H. (2016)	Epidemiology and clinical characteristics of traumatic brain injury in Lebanon: A systematic review.	Not focused on mental health
62	Jeschke, E. A. (2016).	Postdeployment Reintegration: The Ethics of Embodied Personal Presence and the Formation of Military Meaning.	Not review
63	Purgato, M., Gastaldon, C., Papola, D., van Ommeren, M., Barbui, C., & Tol, W. A. (2016).	Psychological and social interventions for the prevention of mental disorders in people living in low- and middle-income countries affected by humanitarian crises	Not review
64	Stein, J. Y., Crompton, L., Ohry, A., & Solomon, Z. (2016)	Attachment in detachment: The positive role of caregivers in POWs' dissociative hallucinations.	Not review
65	Amoroso, T., & Iverson, K. M. (2017).	Acknowledging the Risk for Traumatic Brain Injury in Women Veterans.	Not focused on mental health
66	Gopalan, S. S., Das, A., & Howard, N. (2017).	Maternal and neonatal service usage and determinants in fragile and conflict-affected situations: a systematic review of Asia and the Middle East.	Not focused on mental health
67	Hendin, H. (2017).	Psychodynamic Treatment of Combat Veterans with PTSD at Risk for Suicide.	Not review
68	Slack, M. (2017).	Women as victims of war	Not focused on mental health
69	Lewis, C., Roberts, N. P., Bethell, A., Robertson, L., & Bisson, J. I. (2018)	Internet-based cognitive and behavioural therapies for post-traumatic stress disorder (PTSD) in adults	Not focused on armed conflict
70	Romeu-Bordas, A. (2018).	History of American military nursing during world war II	Not focused on the population
71	Doody, C. B., Robertson, L., Uphoff, N., Bogue, J., Egan, J., & Sarma, K. M. (2019).	Pre-deployment programmes for building resilience in military and frontline emergency service personnel	Not focused on mental health
72	Belsher, B. E., Beech, E., Evatt, D., Smolenski, D. J., Shea, M. T., Otto, J. L., ... & Schnurr, P. P. (2019).	Present-centered therapy (PCT) for post-traumatic stress disorder (PTSD) in adults	Not focused on armed conflict
73	Canan, F., & North, C. S. (2019).	Dissociation and disasters: A systematic review.	Not focused on armed conflict
74	Gondek, D., Bann, D., Ning, K., Grundy, E., & Ploubidis, G. B. (2019).	Post-war (1946-2017) population health change in the United Kingdom: A systematic review.	Not focused on mental health
75	Guerra, J. V. V., Alves, V. H., Rachedi, L., Pereira, A. V., Branco, M. B. L. R., Santos, M. V. D., ... & Carvalho, B. F. (2019).	Forced international migration for refugee food: a scoping review.	Not focused on mental health