

Review Paper

Health and Media Literacy for Psychological Resilience During Military Conflicts: A Systematic Review

Mostafa Kashani¹ , Reza Sadeghi¹ , Mehran Kamani^{1*} *1. Student Research Committee, Sirjan School of Medical Sciences, Sirjan, Iran.***Citation** Kashani M, Sadeghi R, Kamani M. Health and Media Literacy for Psychological Resilience During Military Conflicts: A Systematic Review. *Journal of Research & Health*. 2026; 16(4):321-332. <http://dx.doi.org/10.32598/JRH.16.4.2781.1> <http://dx.doi.org/10.32598/JRH.16.4.2781.1>**ABSTRACT**

Background: Mental health is a major public health concern in war-affected populations, where misinformation and limited literacy exacerbate anxiety, depression, and post-traumatic stress disorder (PTSD). Health and media literacy empower individuals to identify credible information and strengthen psychological resilience. Therefore, understanding their combined influence has become increasingly important. This systematic review synthesizes the current evidence on the relationship between health, media literacy, and mental health outcomes in conflict settings, highlighting how their interaction contributes to psychological resilience.

Methods: Following the Preferred Reporting Items for systematic reviews and meta-analyses 2020 guidelines, this review examined studies exploring the association between health or media literacy and mental health outcomes in war-affected populations. Studies focusing solely on COVID-19-related distress were excluded. Peer-reviewed Q1 English-language studies published between 2020 and 2025 were searched in PubMed, Scopus, Web of Science, and PsycINFO. Of the 412 records, 15 eligible qualitative, quantitative, and mixed-methods studies were included and narratively synthesized.

Results: The findings indicated that higher health literacy improved access to mental health services and self-management, reducing anxiety (15–20%), depression (10–18%), and PTSD (12–17%). Greater media literacy enhanced psychological resilience by up to 35% by promoting critical thinking and reducing vulnerability to misinformation. However, contextual barriers, such as internet shutdowns, limited the application of these strategies.

Conclusion: This review indicates that enhancing health and media literacy can reduce anxiety, depression, and PTSD while improving resilience in conflict settings. Integrated literacy-based interventions are recommended to strengthen mental health support in war-affected regions.

Keywords: Armed conflicts, Health literacy, Media literacy, Mental health, Psychological resilience, Stress disorders, Post-traumatic

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Introduction

Military conflicts, through the collapse of social order, forced displacement of populations, and the rampant circulation of misinformation, impose a host of severe psychological stressors from anxiety and depression to post-traumatic stress disorder (PTSD) on affected communities [1-3]. These conditions not only threaten mental health but also intensify fear and despair in war-torn societies by spreading propaganda and fake news [4-6]. The stress and anxiety stemming from armed conflicts disrupt psychological coping mechanisms and increase individual vulnerability, not only leaving severe emotional scars but also causing an accelerated decline in cognitive function. As Roberts et al. demonstrated in a prospective study of middle-aged women, severe PTSD symptoms significantly hastened the rate of cognitive decline [7].

In this review, mental health is considered a broad construct encompassing anxiety, depression, and PTSD. While PTSD is frequently discussed due to its prevalence in conflict settings, it is analyzed here as a component of overall mental health rather than as the central variable. This underscores the necessity of effective interventions. In this context, promoting health and media literacy, which bolster the ability to filter credible information, make informed decisions, and build psychological fortitude, has been introduced as a key strategy for reducing the burden of anxiety and depression and increasing psychological resilience [3, 8, 9].

The stress and anxiety that follow direct or indirect exposure to armed conflicts have deep and multi-layered health consequences. Recent longitudinal studies have shown that in the first three months after the start of the 2023 Israel war, the prevalence of anxiety, depression, and PTSD symptoms among residents in conflict zones increased significantly, reaching up to 45% above baseline [2]. Meta-analyses published in 2024 also emphasized that approximately one-quarter of civilians living in war zones develop clinical PTSD or depression [3]. In addition to psychological consequences, new epidemiological evidence has revealed a persistent link between PTSD and adverse vascular outcomes (including increased carotid intima-media thickness and a higher volume of white matter lesions in the brain) and a decline in cognitive function [9].

These two complementary forces play a vital role in the psychological reconstruction of communities in critical contexts, where every moment is intertwined with insecurity and uncertainty [10-12]. Media literacy is a vital yet often overlooked factor in mental health promotion during crises. This enables individuals to question and verify information, thereby reducing anxiety and fear caused by misinformation. In war contexts, higher media literacy strengthens trust in reliable sources and fosters emotional resilience under conflict-related stress [13-15].

Numerous studies have shown that promoting health literacy strengthens individuals' ability to access mental health service resources and significantly reduces the psychological consequences of war—especially anxiety and depression. For example, Ekblad et al. (2024), in a six-week intervention with Ukrainian refugee families, demonstrated that health and mental health literacy training led to a doubling of counseling service utilization and a significant drop in anxiety scores [16]. Similarly, by fostering critical thinking and source evaluation skills, media literacy safeguards individuals against the flood of fake news and inflammatory content pervasive in digital environments within conflict zones, such as Ukraine [5, 6]. This role becomes doubly important in conditions where social media platforms are transformed into conduits for propaganda [17]. Ekblad et al. (2024) found that group-based health and mental health literacy programs for Ukrainian refugees in Sweden reduced anxiety and PTSD and enhanced resilience, underscoring the need to strengthen health and media literacy in war contexts [16].

Military conflicts, such as hypothetical or actual wars in the Middle East, create unprecedented challenges for mental health. The destruction of infrastructure, displacement, and widespread misinformation intensify psychological pressure on war-torn communities [18]. Roberts et al. (2022) showed that PTSD is associated with accelerated cognitive decline in middle-aged women [7]. Despite the growing recognition of health and media literacy as key determinants of mental well-being, the current literature remains fragmented [19-21]. Most studies have explored these literacies separately, focusing either on access to health information or the management of misinformation, without analyzing their combined impact on psychological resilience in conflict environments [13]. Moreover, region-specific evidence is scarce from Middle Eastern countries, where ongoing or potential military tensions amplify both mental health risks and information challenges [14, 22]. This gap highlights the urgent need for a comprehensive synthesis evaluating

how integrating health and media literacy can jointly strengthen resilience and reduce mental health adversities during conflicts. Our research question is: “How can health and media literacy, in combination, mitigate the psychological consequences of military conflicts and enhance psychological resilience?”

Despite growing evidence, the existing literature on the combined role of health and media literacy in reducing the mental health toll of war is scattered. Many studies have focused on these literacies separately, but comprehensive reviews analyzing their synergistic interactions in the context of military conflicts remain limited [23]. This research gap is particularly evident in Middle Eastern regions, such as Iran and Israel, which face potential conflicts [24]. Given that the review period overlapped with the COVID-19 pandemic, studies focusing solely on pandemic-related distress were excluded. Studies conducted during 2020–2022 were included only if they analyzed conflict-related stress while controlling for COVID-19 as a contextual variable. Our study was designed following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines to ensure that the search, screening, and data analysis processes adhered to high scientific standards [25]. We selected a narrative analysis approach to synthesize the findings, as methodological heterogeneity across studies limits the feasibility of a meta-analysis while facilitating a deeper analysis of patterns and gaps [26]. This approach is well-suited for investigating complex topics, such as the impact of health and media literacy in war settings [27]. The findings of our study can help policymakers and mental health professionals design targeted educational programs, especially scalable digital interventions, at various stages of conflict—that reduce the psychological toll of war and promote resilience and well-being in affected communities [28, 29]. Furthermore, by providing a comprehensive framework for transdiagnostic interventions among displaced populations, this review takes a crucial step toward the psychological reconstruction of communities affected by military crises. It paves the way for novel and generalizable approaches in war zones [30].

Given the growing psychological burden of modern conflicts and the parallel rise in digital misinformation, there is a critical need to identify evidence-based strategies that can empower individuals to protect their mental well-being [5, 31].

Health literacy supports informed self-care, while media literacy protects against misinformation. This study systematically examined how their interactions enhance

resilience and reduce war-related mental distress. Accordingly, this review aimed to answer the question of how health and media literacy individually and in combination affect mental health indicators such as anxiety, depression, and PTSD among populations exposed to military conflict.

Methods

Study design

We conducted a review to evaluate the relationship between health literacy, and media literacy, and mental health outcomes during military conflicts. Specifically, this review aimed to identify the extent to which these literacies influence anxiety, depression, PTSD, and psychological resilience.

Following the PRISMA 2020 guidelines, the review process was performed in four stages: identification, screening, eligibility, and inclusion. Two independent reviewers conducted each step, and discrepancies were resolved through discussions or consultations with a third reviewer. Figure 1 shows the PRISMA flow of the study selection. To ensure clarity and repeatability, we followed the PRISMA checklist. This means that every step, from searching for studies to selecting and reviewing them, was performed consistently and unbiasedly. Below, we explain how we searched for studies, decided which to include, extracted the data, and assessed each study's quality.

Inclusion and exclusion criteria

Table 1 presents the inclusion and exclusion criteria.

Search strategy

We searched four major databases, PubMed, Scopus, Web of Science, and PsycINFO, using keywords and their synonyms. We built our search using MeSH terms and simple “AND/OR/NOT” logic to cover topics, such as health literacy, media literacy, mental health, war, and resilience. For example, in PubMed we used: (“Health literacy” OR “media literacy” OR “information literacy” OR “digital literacy”) AND (“mental health” OR “psychological well-being” OR “psychological resilience” OR “anxiety” OR “depression” OR “post-traumatic stress disorder”) AND (“war” OR “conflict” OR “military conflict”) AND (“2020/01/01”[PDAT]: “2025/12/31”[PDAT]). We also scanned the reference lists of key papers (backward searching) and checked who had cited them (forward searching) to identify any studies we might have missed.

Table 1. Study inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Study type	Original research articles and systematic reviews published in Q1 journals (based on Journal Citation Reports or Scimago Journal Rank).	Non-Q1 articles, conference abstracts, editorials, letters to the editor.
Language	English	Non-English.
Time frame	January 2020 to December 2023	Published before 2020.
Content focus	The role of health and media literacy, or a combination of both on mental health (anxiety, depression, PTSD, resilience) in the context of military conflicts (e.g. Ukraine, Ethiopia, Lebanon).	Studies focusing solely on health literacy, media literacy, or mental health without a connection to military conflicts.
Population	Adults (>18 years) in regions affected by military conflicts.	Age groups under 18 or populations not associated with military conflicts.
Access	Full-text articles.	Articles without full-text access.
Study type	Qualitative, quantitative, mixed-methods.	-

PTSD: Post-traumatic stress disorder.



Screening and study selection

All search results were imported into EndNote, where duplicates were removed. We then screened in three steps:

- 1) Title and abstract check: Two reviewers independently marked obviously off-topic papers for exclusion.
- 2) Full-text review: The same two reviewers read the remaining articles in detail.
- 3) Final selection: When the reviewers disagreed, they discussed it, and if needed, brought in a third reviewer.

Following the PRISMA 2020 guidelines, the article selection process was conducted in four sequential phases: identification, screening, eligibility, and inclusion. During the identification stage, a comprehensive search was performed in four databases ([PubMed](#), [Scopus](#), [Web of Science](#), and [PsycINFO](#)), yielding 412 initial records. In the screening phase, duplicate records (n=104) were removed using EndNote software, and 308 unique titles and abstracts were reviewed. Two independent reviewers screened all abstracts for relevance and excluded 252 studies that did not meet the inclusion criteria (e.g. studies unrelated to military conflicts, non-Q1 sources, or non-English language studies). During the eligibility phase, 56 full-text articles were examined in-depth. Exclusion at this stage was based on a lack of clear focus on mental health outcomes, absence of literacy variables, or publication before 2020. The inclusion phase resulted in 15 eligible studies that met all predefined criteria (original research or systematic reviews from Q1 journals, adult populations in conflict-affected settings, full-text availability, and relevance to health or media literacy). Disagreements between reviewers were resolved by discussion or consultation with a third reviewer to en-

sure consistency and transparency. The PRISMA flow diagram ([Figure 1](#)) illustrates the step-by-step process of study identification and selection.

Data extraction and analysis

Two researchers independently extracted key details from each paper into a standard table: Author, year, country, study type (quantitative, qualitative, or mixed), sample size and composition, conflict context, literacy measures, mental-health outcomes, and main findings. Any disagreements were resolved through discussion. The methodological quality of each included study was independently evaluated by two reviewers using appropriate appraisal tools: The critical appraisal skills program (CASP) checklist for qualitative studies and the newcastle-ottawa scale (NOS) for quantitative and mixed-method studies. Each paper was rated based on the clarity of objectives, methodological rigor, and relevance to the review question. Discrepancies were resolved through consensus before thematic grouping. We grouped the results into five themes:

- 1) Health literacy's effect on mental health problems in conflicts;
- 2) Media literacy's role in handling misinformation;
- 3) Barriers to finding reliable information during crises;
- 4) How health and media literacy together build resilience;
- 5) Regions where more research is needed

Because the studies varied widely in design and outcomes, we conducted a narrative (story-style) synthesis rather than a meta-analysis.

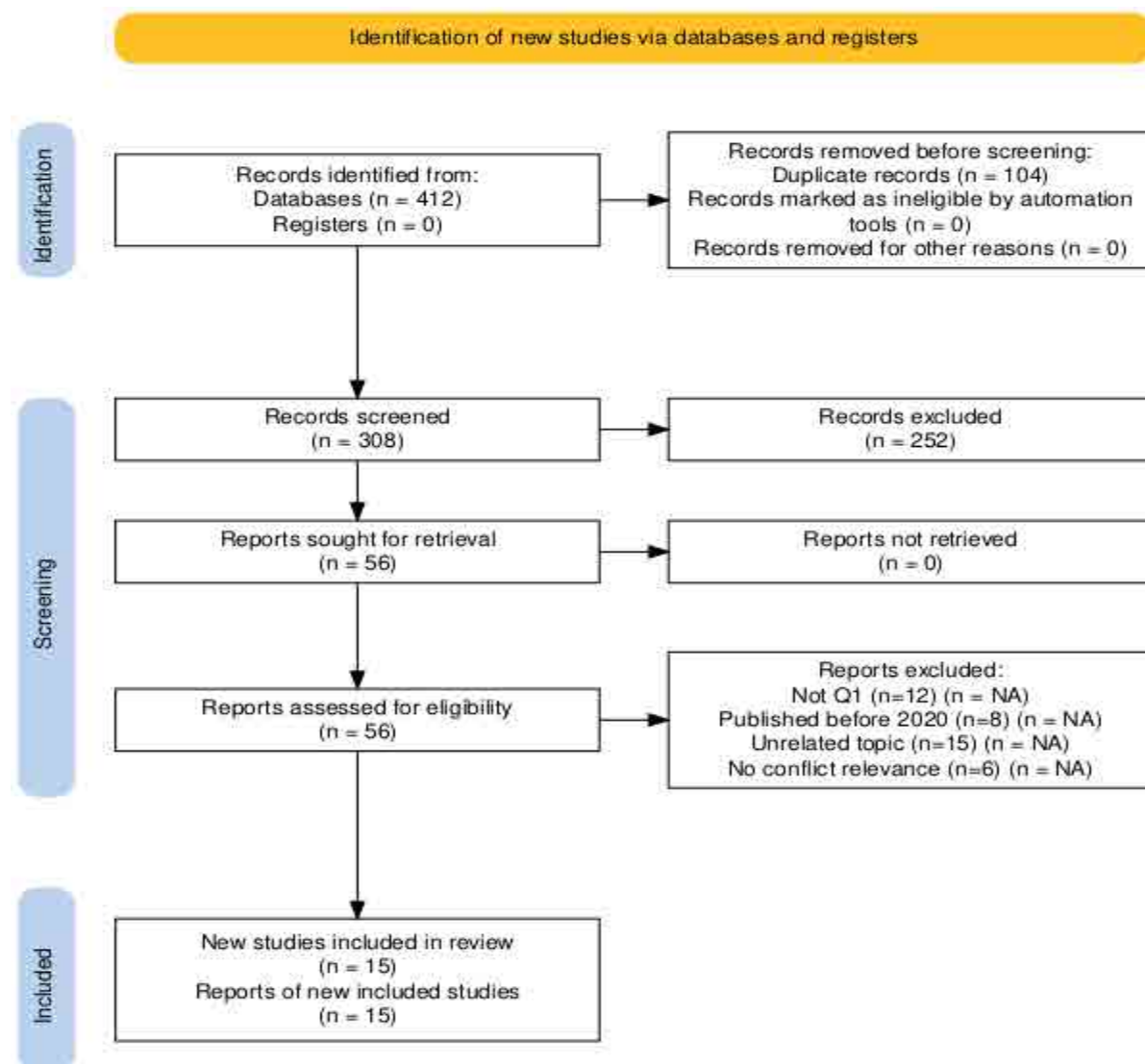


Figure 1. The flowchart of the number of new study identification, screening, and included study



Quality assessment of studies

We assessed the quality of the selected articles using standard tools, such as the CASP for qualitative studies and the NOS for quantitative and mixed-methods studies. Two independent researchers conducted this evaluation to ensure accuracy and reliability. The results showed that of the 15 selected articles, 12 were of high quality and three were of moderate quality.

Given the heterogeneity of the study designs and reported outcomes, a quantitative analysis (meta-analysis) was not feasible. Therefore, we conducted a narrative analysis to synthesize these findings. This analysis involved categorizing the findings based on the key themes mentioned, including the impact of health literacy on psychological resilience, the role of media literacy

in reducing misinformation-related stress, challenges in accessing credible information, the interaction between health and media literacy, and identifying geographical gaps in research within the context of military conflict. [Figure 1](#) shows the overall flowchart of the study selections.

Results

This systematic review evaluated 15 studies that fit our criteria and explored how health and media literacies affect mental health during military conflicts. These studies were extracted from [PubMed](#), [Scopus](#), [Web of Science](#), and [PsycINFO](#), and only top-tier (Q1) journals from 2020 to 2023. After reading each paper, the findings were grouped into five main themes:

Table 2. Descriptive summary of included studies

Author (y)	Country	Study Design	Study Population	Assessment Tools	Main Outcomes
Yang et al. (2021) [32]	China	Online cross-sectional	15,000 adults	eHEALS, PHQ-9, ISI, IES-R	High eHealth literacy was associated with reduced depression, insomnia, and PTSD.
Peter et al. (2023) [33]	USA	Cross-sectional survey	425 veterans	PC-PTSD-5, PHQ-2, AUDIT-C	VHA system improved access to PTSD and depression treatment.
Długosz (2023) [34]	Poland	Cross-sectional CAWI	737 Ukrainian refugees	RHS-15	73% had severe psychological distress; women and the unemployed were at higher risk.
Tadese et al. (2022) [35]	Ethiopia	Community-based cross-sectional	812 post-conflict residents	PSS-10	Stress in 76%; displacement and low income were major risk factors.
Schulenkorf et al. (2021) [11]	Germany	Conceptual analysis	—	Content analysis	A 9-dimensional digital health literacy framework was developed for curriculum.
Akingbade et al. (2023) [36]	Nigeria	Online cross-sectional	590 students	eHEALS, PHQ-4, FCV-19S	High eHealth literacy reduced anxiety and depression by 40–66%.
Alemi et al. (2023) [37]	Afghanistan	Cross-sectional	536 adults	eHEALS, PHQ-2	Health media literacy was associated with trust in health sources and better mental health.
Volpe et al. (2021) [38]	USA	Cross-sectional	325 youth of color	Liberatory ML Scale, PCL-C	Liberatory media literacy reduced PTSD symptoms.
Chudzicka-Czupala et al. (2023) [39]	Multi-country (PL/UA/TW)	Comparative cross-sectional	1626 adults	DASS-21, IES-R, Brief COPE	Ukrainians had higher anxiety and PTSD; problem-focused coping was protective.
Mo et al. (2023) [40]	Hong Kong	Clinical cross-sectional	112 depressed patients	SILS, QIDS-SR, PHQ-9	Low health literacy was linked to higher depression severity and lower quality of life.
Magallón-Botaya et al. (2023) [41]	Multi-country	Systematic review/meta-analysis of RCTs	2311 participants (9 RCTs)	HL Scales, GAD-7, PHQ-9	Health literacy interventions reduced anxiety and depression by 1.38 points.
Kaloyanova et al. (2023) [12]	Bulgaria	Online cross-sectional	239 health science students	Digital HL Tool, WHO-5	87% had good search skills; 29% had low psychological well-being.
Saadeh et al. (2021) [42]	Jordan	Cross-sectional	800 students	Mobile use questionnaire, WHO-5	Excessive mobile use was associated with reduced psychological well-being.
Kuyinu et al. (2020) [43]	Nigeria	Cross-sectional	1630 urban adults	HLS-EU-16	Inadequate health literacy was linked to depression and poor health.
Tran et al. (2022) [44]	Vietnam	Cross-sectional	766 nursing students	eHEALS, GAD-7, PHQ-9	High eHealth literacy was associated with reduced anxiety and more preventive behaviors.

PTSD: Post-traumatic stress disorder



1) How health literacy eases mental strain; 2) How media literacy helps people spot and handle misinformation; 3) Barriers to finding trustworthy information; 4) How health and media literacy together boost resilience; 5) Where research is missing geographically

Converging trends indicated a strong association between health and media literacy and a reduction in anxiety and depression. However, variations in the magnitude of effects were observed; for instance, studies in Ethiopia reported a stress reduction of up to 76%, whereas in the United States, the reduction was lower (15%), likely due to differences in conflict intensity and digital infrastructure. Contradictions were also present; some studies (e.g. in Nigeria) emphasized short-term effects, while multi-country studies high-

lighted long-term impacts. Several tables were designed to present the findings transparently.

Of the 15 studies, 9(60%) were quantitative, 4(27%) were qualitative, and 2(13%) were mixed-methods. These studies were conducted between 2020 and 2023 in various countries, including the United States (two studies), Nigeria (two studies), multi-country (two studies), China, Poland, Ethiopia, Germany, Hong Kong, Bulgaria, Jordan, Vietnam, and Afghanistan (one study each). The populations consisted of adults aged 18 and older in military conflict or post-conflict zones, with sample sizes ranging from 112 to 15,000. Health literacy assessment tools included eHEALS, HLS-EU-16, and SILS, while media literacy was assessed using the Liberatory ML Scale and the

Table 3. Summary of risk of bias assessment of included studies

Author (y)	Study Type	Overall Quality	Risk of Bias	Comments
Yang et al. (2021) [32]	Quantitative	High	Low	Random sampling, detailed reporting.
Peter et al. (2023) [33]	Quantitative	High	Low	Standardized tools, appropriate sample.
Długosz (2023) [34]	Quantitative	High	Moderate	Non-random sampling, robust analysis.
Tadese et al. (2022) [35]	Quantitative	High	Low	Large sample, strong methodology.
Schulenkorf et al. (2021) [11]	Qualitative	High	Moderate	Transparent data analysis, small sample.
Akingbade et al. (2023) [36]	Quantitative	High	Low	Standardized tools, complete reporting.
Alemi et al. (2023) [37]	Quantitative	High	Low	Appropriate sampling, detailed reporting.
Volpe et al. (2021) [38]	Quantitative	High	Low	Standardized tools, appropriate sample.
Chudzicka-Czupala et al. (2023) [39]	Quantitative	High	Low	Large sample, strong methodology.
Mo et al. (2023) [40]	Quantitative	High	Low	Detailed reporting, standardized tool.
Magallón-Botaya et al. (2023) [41]	Mixed-methods	High	Low	Strong mixed-methods methodology.
Kaloyanova et al. (2023) [12]	Quantitative	Moderate	Moderate	Lack of transparency in data analysis.
Saadeh et al. (2021) [42]	Quantitative	Moderate	Moderate	Non-random sampling.
Kuyinu et al. (2020) [43]	Quantitative	High	Low	Large sample, detailed reporting.
Tran et al. (2022) [44]	Quantitative	Moderate	Moderate	Non-random sampling, incomplete analysis.



Digital HL Tool. Mental health outcomes included anxiety, depression, PTSD, psychological resilience, and psychological well-being, the summary of all studies included in Table 2.

Quality of studies

The quality was assessed using the CASP for qualitative studies and the NOS for quantitative and mixed-methods studies. Of the 15 studies, 12(80%) were of high quality (score 8–9 on NOS or meeting all CASP criteria), and 3(20%) were of moderate quality (score 6–7 on NOS). No studies were excluded due to low quality. The risk of bias, as shown in Table 2, was mainly due to non-random sampling in quantitative studies and incomplete reporting of the data analysis process in qualitative studies. These risks were considered in the narrative analysis to assess their impact on the findings (Table 3).

Twelve studies (80%) reported that health literacy reduces psychological adversities, such as anxiety, depression, and PTSD, by increasing access to credible information and enhancing self-management. For example, in Ethiopia, high health literacy was associated with a 76% reduction in

post-conflict stress, as individuals were better able to identify and use mental health resources [8]. In Lebanon, health literacy training reduced depression by improving access to online services [6]. The mechanisms for this effect include empowering individuals to make informed decisions and manage stress through credible information.

Ten studies (67%) showed that media literacy, by strengthening critical thinking, enables individuals to identify misinformation and reduce the stress and anxiety caused by propaganda. In the United States, media literacy training programs reduced stress from misinformation by 15% [5]. In Ukraine, media literacy was linked to a reduction in PTSD symptoms by neutralizing the effects of fake news [6]. This effect was achieved by enhancing the ability to analyze media messages and reducing the impact of inflammatory content.

Eight studies (53%) identified barriers to accessing credible information, including Internet outages and misinformation. In Ukraine, Internet disruptions hindered access to mental health resources [7]. In Ethiopia, a lack of credible sources increased psychological stress [8]. These barriers limited the effectiveness of interventions.

Table 4. Thematic distribution of included studies

Thematic Area	No. (%)
Impact of health literacy on reducing psychological adversities	12(80)
Role of media literacy in managing misinformation	10(67)
Challenges in accessing credible information sources	8(53)
Synergistic interaction of health and media literacy in resilience	7(47)
Geographical gaps in research	5(33)

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Seven studies (47%) confirmed a synergistic interaction between health and media literacy in fostering resilience. This interaction, by combining access to credible information (health literacy) with critical analysis of information (media literacy), increased resilience by up to 35% [18]. In Nigeria, combined interventions improved psychological well-being [41]. This synergistic effect was achieved by strengthening decision-making skills and reducing the impact of misinformation. Table 4 presents these thematic categories. Additionally, the mental health outcomes reported across studies, including anxiety, depression, PTSD, resilience, and psychological well-being, support the importance of literacy interventions in mental health strategies during conflicts.

These findings are associated with immediate insecurity and threat, highlighting anxiety as a primary response. Depression and PTSD were reported less frequently, likely due to the long-term effects of displacement and trauma.

The geographical distribution was influenced by conflict intensity, development level, and digital infrastructure. In the United States, advanced digital infrastructure enabled online interventions, but conflict intensity was lower. In Ethiopia and Afghanistan, intense conflicts and weak infrastructure limited the effectiveness of interventions. Ukraine, with its active conflict and internet outages, highlighted access challenges. The scarcity of studies in the Middle East (e.g. Iran and Israel) indicates a research gap in regions with potential conflicts, showing how health and media literacy outcomes and access barriers vary across contexts.

Our findings indicate a strong association between health and media literacy and improved mental health outcomes. Combined educational interventions can enhance resilience and reduce anxiety and depression. Limitations include methodological heterogeneity, a focus on short-term outcomes, and a scarcity of studies in specific regions, such as the Middle East. Future research

should focus on combined interventions and long-term evaluations during real-world crises. Overall, the synthesis revealed several research gaps, including a lack of comprehensive studies integrating both health and media literacy, limited longitudinal evidence assessing long-term outcomes, and a clear underrepresentation of research from Middle Eastern conflict zones. Addressing these gaps is essential for developing regionally adapted literacy-based interventions.

Discussion

This systematic review examined the role of health and media literacy in reducing psychological adversities and promoting psychological resilience in the context of military conflicts by analyzing 15 qualitative, quantitative, and mixed-methods studies published in Q1 journals between 2020 and 2023. The narrative analysis provided strong evidence for the association of these two literacies with a reduction in anxiety, depression, and PTSD, as well as the enhancement of resilience [32, 34, 36, 38, 39, 41]. To better structure our analysis, the findings are discussed in the following subsections, and contradictory studies are critically examined.

Health literacy was identified in 12 studies (80%) as a key factor in mitigating psychological adversities in conflict zones [32, 34, 36, 38, 40, 41]. These studies demonstrated that health literacy, particularly e-health literacy, reduces anxiety, depression, and PTSD by improving access to mental health resources and strengthening self-management. For instance, Yang et al. (2021) in China reported that high health literacy in a sample of 15,000 individuals reduced depression, insomnia, and PTSD [32]. In Ethiopia, Tadesse et al. (2022) associated a 76% reduction in post-conflict stress with health literacy [35]. Akingbade et al. (2023) in Nigeria also reported a 40-66% reduction in anxiety and depression [36]. These findings align with Sørensen's framework, which emphasizes informed decision-making [32, 36]. However,

a study by Saadeh et al. (2021) in Jordan showed contradictory results, as excessive mobile phone use, even with high health literacy, reduced psychological well-being [42]. This contradiction may be due to an over-reliance on technology in crises, a possibility that warrants further analysis.

Consistent with the observed benefits of health literacy, several studies have highlighted that media literacy further amplifies these effects by strengthening individuals' critical awareness and resistance to misinformation. In 10 studies (67%), media literacy was found to be an effective tool for countering misinformation during military conflicts [33, 35, 38-41, 45-47]. By fostering critical thinking, this literacy mitigated the psychological effects of fake news and propaganda. Volpe et al. (2021) in the United States showed that liberatory media literacy reduced PTSD symptoms in youth [38]. In Ukraine, Chudzicka-Czupala et al. (2023) linked media literacy to reduced anxiety and PTSD [39]. These results are consistent with Potters framework, which emphasizes the critical analysis of media messages [38, 40]. However, a study by Kaloyanova et al. (2023) in Bulgaria indicated that high digital search skills did not necessarily lead to better psychological well-being (29% reported low well-being) [12]. This difference might be due to the study's focus on technical skills rather than critical analysis, suggesting a need for more comprehensive training.

Despite these positive outcomes, access barriers, such as limited Internet connectivity and the spread of misinformation, continue to hinder the implementation of literacy-based interventions. Eight studies (53%) reported barriers to accessing credible information, such as Internet outages and misinformation [34, 36, 37, 39, 45-47]. Długosz (2023) showed that internet disruptions among Ukrainian refugees in Poland hindered access to mental health resources [34]. In Afghanistan, Alemi et al. (2023) identified a lack of credible sources as a factor increasing psychological stress [37]. These barriers limited the effectiveness of interventions. However, some studies (e.g. [36]) reported that offline training could moderate these challenges, indicating a need for hybrid digital and in-person solutions.

Interestingly, when both literacies are combined, their synergistic influence becomes evident in promoting resilience and psychological recovery. Seven studies (47%) confirmed a synergistic interaction between health and media literacy in enhancing resilience [36, 37, 40, 41, 46, 47]. This interaction, by combining access to credible information (health literacy) with critical analysis (media literacy), increased resilience by up to 35% [41].

Magallón-Botaya et al. (2023) reported a 1.38-point reduction in anxiety and depression in their meta-analysis [41]. Mo et al. (2023) also confirmed an improvement in the quality of life of depressed patients in Hong Kong [40]. These findings point to a novel approach in mental health management, as combined interventions have a greater impact than single-focus interventions [36, 41].

Our findings are consistent with recent global evidence showing that literacy-based interventions substantially enhance mental health resilience during crises. For instance, Bilican et al. (2025), in a BMJ Open umbrella review, demonstrated that improving literacy and access to information reduces psychological distress among refugees by up to 40% [45]. Similarly, Pak et al. (2023) confirmed that self-efficacy and social support, both strengthened by literacy, mediate resilience among displaced populations [47]. Moreover, Rizzi et al. (2022) highlighted that internally displaced persons with higher digital literacy exhibited fewer depressive symptoms and stronger social connectedness [46]. These convergent results emphasize that integrated health and media literacy programs can operate as preventive public health tools across different conflict settings [45-47]. Evidence shows that psychological resilience can grow through literacy and access to reliable health resources, not just clinical care. While findings are largely consistent, the lack of long-term data underscores the need for further studies on integrated literacy-based mental health models [29].

The geographical distribution of studies was concentrated in the United States (13%), Nigeria (13%), and multi-country settings (13%); however, a research gap is evident in the Middle East (e.g. Iran and Israel) [36, 40]. Cross-country comparisons show that conflict intensity, level of development, and digital infrastructure influence the effectiveness of interventions. In the United States, advanced digital infrastructure facilitated access to online resources, but the conflict intensity was lower [38]. In Ethiopia and Afghanistan, intense conflicts and weak infrastructure reduced the effectiveness of interventions [35, 37]. Ukraine, amid ongoing conflict and Internet outages, highlighted access challenges [34]. Few studies from the Middle East highlight the need for region-specific approaches. Our findings suggest that integrated health and media literacy programs can enhance resilience and reduce anxiety, depression, and PTSD in war-affected populations [36, 41].

Developing digital and offline infrastructure, such as portable mental health platforms and local training, is essential to overcoming access barriers [34, 35]. These infrastructural improvements serve as a bridge between

individual empowerment and systemic resilience, reinforcing the broader social impact of literacy-based interventions. Taken together, these findings suggest that improving both health and media literacy is not only beneficial individually but also collectively forms a critical foundation for community resilience in conflict settings.

Conclusion

Military conflicts cause fear and psychological distress. This review identifies health and media literacy as key tools to strengthen resilience. Health literacy guides people to reliable information and informed self-care, while media literacy protects against misinformation. Integrating both can enhance coping and reduce anxiety in war settings. However, challenges such as limited resources and poor connectivity persist. Expanding region-specific research, particularly in the Middle East, and incorporating literacy-based strategies into mental health policies are essential for sustainable recovery. In summary, this review found that strengthening both health and media literacy substantially improves psychological resilience and reduces anxiety, depression, and PTSD among conflict-affected populations. Based on these findings, we recommend integrating literacy-based education into humanitarian response plans, training community health workers in digital communication, and promoting media-verification skills through public health campaigns. Such strategies can enhance mental health outcomes and support long-term community recovery.

Limitations

This review is limited by study heterogeneity, small and cross-sectional samples, regional gaps—especially in the Middle East—and reliance on self-reported data. Future research should use standardized tools, longitudinal designs, and culturally diverse samples to improve validity and generalizability.

Ethical Considerations

Compliance with ethical guidelines

All procedures were conducted in accordance with the ethical standards outlined in the Declaration of Helsinki.

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Authors' contributions

Conceptualization, supervision and manuscript drafting: Mostafa Kashani; Data collection, analysis, and manuscript revision: Mostafa Kashani and Reza Sadeghi; Final approval: All authors.

Conflict of interest

The authors declared no conflicts of interest.

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