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Threat-Related Attentional Bias in PTSD: A Systematic Review and Meta-Analysis of Free-Viewing Eye-Tracking Studies

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Abstract
Introduction: Cognitive and information processing theories of post-traumatic stress disorder (PTSD) posit that an attentional bias (AB) towards threat is a core mechanism of PTSD, contributing to the disorder's etiology and maintenance. Reaction time-based measures have been used to assess AB, but poor psychometric properties likely underlie their inconsistent findings. Utilization of eye-tracking technology during free-viewing paradigms overcomes these limitations. To date, eye-tracking evidence of an AB in PTSD is mixed and has not been quantitatively assessed. The objective of this meta-analysis is to clarify the presence of an AB towards general threat in PTSD.
Methods: The Ovid search tool was used to search PubMed, Embase, and APA PsycInfo databases. Studies were independently screened, and outcome data was extracted from included studies. Effect sizes were computed, and a random-effects linear model was used to pool effect sizes for both a PTSD vs. trauma-exposed healthy controls (TEHC) and PTSD vs. healthy controls (HC) comparison.
Results: After an outlier was removed from both comparisons, a small but statistically significant pooled effect emerged in the PTSD vs. TEHC comparison and heterogeneity was not statistically significant. In the PTSD vs. HC analysis, a moderate effect approaching significance was revealed with significant heterogeneity.
Discussion: Our results provide partial support for the presence of an AB towards general threat in PTSD. The majority of the variance in our analyses was due to variance in true effects, suggesting heterogeneous methodologies. The statistically significant PTSD vs. TEHC comparison suggests that an AB is characteristic of PTSD pathology rather than mere trauma exposure. Inconclusive results from the PTSD vs. HC comparison prompt further investigation.
Conclusion: This review provides additional context for cognitive models and information processing theories of PTSD. Longitudinal studies are needed to assess the role AB plays in the disorder's manifestation and maintenance. Eye-tracking studies should incorporate standardized methods and assess other components of AB.

Keywords: PTSD; eye-tracking; free-viewing; attentional bias

Introduction

Post-traumatic stress disorder (PTSD) is characterized by intrusive symptoms, efforts to avoid trauma-associated stimuli, negative alterations in cognitions and mood, and alterations in physiological arousal and reactivity following exposure to a traumatic event [1]. One influential cognitive model of PTSD proposed that the disorder persists due to maladaptive cognitions that create a sense of current threat [2]. Subsequent information processing theories have emphasized attentional bias (AB) toward threat as one of the cognitive mechanisms that contribute to this perceived threat, often experienced as hyperarousal and intrusive symptoms [3]. AB can be conceptualized as having three distinct components: facilitated attention to threat, difficulty in disengaging from threat, and attentional avoidance of threat [4]. AB is also theorized to play a role in other psychological disorders, such as generalized anxiety, phobias, obsessive-compulsive disorder, and depression [5, 6]. Substantial efforts have been made to reduce AB through attention bias modification (ABM) [7]. ABM paradigms for PTSD typically employ dot-probe tasks to train attention away from threatening stimuli [8]. Evidence for the efficacy of ABM interventions is mixed [8, 9].

Early research assessing AB in PTSD focused on reaction time-based measures, such as the Stroop task, dot-probe task, and visual search task [10]. However, these measures are limited in their ability to differentiate between the components of AB. For example, faster reaction times to probes appearing in the location of threat stimuli in the dot-probe paradigm could represent facilitated attention to threat through an initial fixation on the threatening stimulus, or difficulty disengaging from the threatening stimulus once detected. Moreover, studies using these methodologies have yielded inconsistent results regarding the presence of an AB in individuals with PTSD compared with controls. A review by Guerra et al. found that those with PTSD symptoms only showed an AB compared with controls in studies using Stroop-based tasks [11]. Conversely, a review by Kimble et al. found that while 44% of published articles found evidence for the modified Stroop effect in PTSD, only 8% of dissertations support this finding, suggesting a strong publication bias [12]. To clarify the presence of an AB in individuals with clinical anxiety and PTSD, Kruijt et al. meta-analyzed baseline data from dot-probe ABM randomized controlled trials [13]. To assess AB without controls, they calculated a bias index of reaction time differences between threatening and neutral stimuli, which revealed no evidence for an AB in clinical anxiety or PTSD. Reaction time-based measures of assessing AB have been criticized for their poor reliability and validity, which likely contributes to these inconsistent results [14]. To address this issue, the use of eye-tracking technology during free-viewing paradigms has emerged as an alternative method of measuring AB and has demonstrated superior psychometric properties [15]. In such paradigms, participants are presented with stimuli that contrast in valence, such as threatening stimuli alongside neutral stimuli, and are instructed to freely view the screen while their visual attention is tracked. Although words and images are both commonly used stimuli, the natural salience of images is argued to provoke stronger emotional reactions than words [16]. Common outcomes of eye-tracking paradigms include proportion of first fixations on threat, dwell time (DT) on threat, and latency to first fixation on threat.

Recently, Clauss et al. conducted a systematic review and meta-analysis of threat-related AB in fear and anxiety-related disorders, as measured by eye-tracking paradigms [17]. In their correlational analyses of data combining anxiety disorders and PTSD, a small AB to threat was observed in reflexive orienting and DT. One key remaining question is whether such an AB is present in PTSD relative to controls. Furthermore, given the reclassification of PTSD as a trauma- and stressor-related disorder rather than an anxiety disorder in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders*, it is critical to evaluate the presence of an AB in PTSD itself. A systematic review focused specifically on PTSD and free-viewing eye-tracking indices found that those with PTSD dwelled longer on threat than controls, particularly when using trauma-related stimuli, but did not find a consistent bias towards general threat [14]. Since its publication, additional articles on free-viewing eye-tracking paradigms in PTSD have been published, allowing for quantitative synthesis. A better understanding of the attentional processes in PTSD may help to inform the development of interventions such as ABM and improve our understanding of the disorder's etiology and maintenance. Thus, the objective of this meta-analysis is to clarify the presence of a threat-related AB in PTSD relative to controls using free-viewing eye-tracking paradigms.

Methods

Search Strategy

A systematic literature search was conducted using the Ovid search tool, PubMed, Embase, and APA PsycInfo databases in accordance with PRISMA 2020 guidelines. On June 11, 2025, the following search strategy was employed: (PTSD or post traumatic or posttraumatic or exp ptsd/) and (eye tracking or attention* bias* or gaze or eye movement/ of exp eye tracking/).

Inclusion/Exclusion Criteria

Articles were retained if they were full-text and peer-reviewed, included adult participants (age > 18), featured a healthy control group, employed a psychometrically valid PTSD scale, assessed AB using a free-viewing and eye-tracking paradigm, and compared threatening and neutral facial or image stimuli. Negatively valenced stimuli were considered to be threatening. Articles were excluded if they used words as stimuli or did not designate a high and low PTSD symptom group.

Screening/Data Acquisition

Article screening and data extraction were carried out by two independent reviewers (MO and JE). A consensus was reached between reviewers on article conflicts and extracted data. Authors were contacted if the necessary outcome data were not available. When data was available for multiple negatively valenced stimuli (e.g. fear, disgust, violence, dysphoria, general threat, trauma-related threat), general threat, violence, or fear was selected in this order. The mean proportion of DT spent on threatening stimuli relative to all other stimuli was extracted as the primary outcome variable of interest. When unavailable, DT on threat in milliseconds (ms) was extracted instead. Hedges' g effect sizes were computed from the extracted data using the Campbell Collaboration effect size calculator [18].

Data Analysis

RStudio and R 4.5.1 were used to conduct the meta-analysis. Two comparisons were conducted to evaluate PTSD-specific AB: PTSD vs. Trauma-exposed healthy controls (TEHC) and PTSD vs. healthy controls (HC). A random-effects linear model was used to pool effect sizes for both comparisons. Positive effect sizes indicate bias towards threat in PTSD. Between-study heterogeneity, evaluated using the Tau-squared statistic, was calculated using the restricted maximum likelihood estimator. The Knapp-Hartung adjustment was applied due to the small number of studies included in the analyses. Studies were weighted using the inverse variance method. All code used for data analysis and forest plots was derived from open-source material [19–22]. ChatGPT was consulted to troubleshoot coding errors.

Quality Assessment

Quality assessment was carried out independently by both reviewers, and a consensus was reached. A version of the Standard Quality Assessment Criteria for Evaluating Primary research papers in a Variety of Fields: A Manual for Quality Scoring of Quantitative studies adapted by Akram et al. was used [23, 24].

Results

Search Strategy

The search strategy captured 1880 results, of which 607 were automatically removed as duplicates by Covidence. Subsequently, 1273 articles proceeded to title and abstract screening, of which 15 were manually removed as duplicates. Sixty-eight articles were included for full-text screening. Fifteen studies met inclusion criteria and moved on to data extraction. Four studies used participants from the same sample, of which one was included in the final analysis [15, 25–27]. The authors of three studies were contacted for outcome data, but the necessary information was not obtained by the time of analyses, resulting in their exclusion [28–30]. In total, nine studies were meta-analyzed [27, 31–38]. Eight studies contained outcome data for the PTSD vs. TEHC comparison, and six studies included data for the PTSD vs. HC comparison. Search strategy results are displayed in Figure 1.

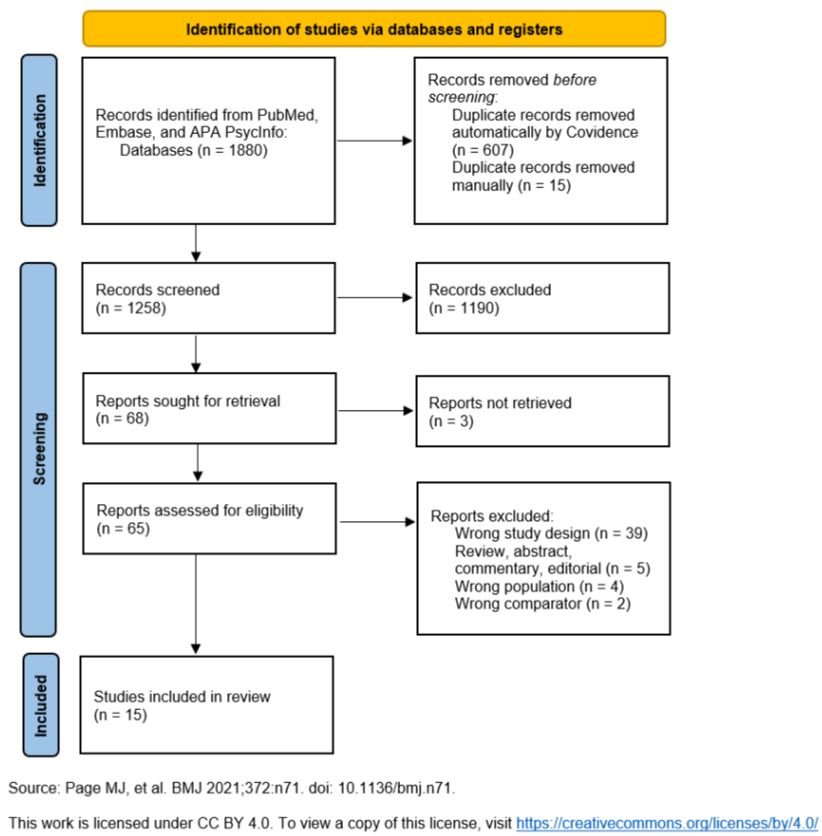

Figure 1. Search strategy flowchart. Adapted from template by Page et al. [39].

Study Characteristics

PTSD vs. TEHC: Six of the eight studies analyzed featured clinical samples [27, 31, 34–36, 38]. The analysis included data from a total of 402 participants. Two studies did not report sex [34, 37], while the remaining sample comprised of 57.79% females in the PTSD group and 57.63% females in the TEHC group. DT on images was extracted for four studies [31, 34, 35, 37] and from faces for four studies [27, 33, 36, 38]. Stimulus presentation duration varied between 3000 and 30000 ms, with seven studies using a presentation time of 10000 ms or less [27, 31, 33, 34, 36–38].

PTSD vs. HC: Four of the six studies analyzed featured clinical samples [27, 33, 34, 36]. A total of 297 participants were included in the analysis. Two studies did not report sex [32, 34]. The remaining sample was comprised of 32.26% females in the PTSD group and 38.03% females in the HC group. DT on images was extracted for three studies [31, 32, 34], and from faces for three studies [27, 33, 36]. Stimulus presentation duration varied between 3000 ms and 10000 ms. Study characteristics are summarized in Table 1.

Table 1. Study Characteristics.

Characteristics	Alon et al., 2023 [27]	Armstrong et al., 2013 [36]	Kimble et al., 2010 [37]	Kuester et al., 2022 [34]	Lee & Lee, 2012 [31]	Lev et al., 2025 [33]	Music et al., 2023 [35]	Thomas et al., 2013 [32]	Weidmann et al., 2020 [38]
Stimuli	Faces	Faces	Images	Images/Faces	Images	Faces	Images	Images	Faces
Stimulus duration (ms)	6000	3000	10000	4000	10000	6000	30000	6000	3000
Sample	Clinical	Clinical/Veteran	Veteran	Veteran/Clinical	Undergraduate	Clinical	Clinical/Resettled refugees	Undergraduate	Clinical
Array	4×4 matrix (8 neutral, 8 negative)	Paired faces (disgusted, fearful, or happy paired with neutral)	Threat-neutral pairs (motor vehicle accident vs neutral; war-related image vs neutral)	Threat-Neutral Pairs (General Threat vs neutral, Combat vs neutral, negatively valenced faces vs neutral)	4-image array (violent, dysphoric, happy, and neutral)	4×4 matrix (8 angry, 8 neutral)	4-image array (neutral, dysphoric, general threat, positive)	4-image array (neutral, positive, negative, and general threat)	Threat-neutral pairs (disgusted, fearful, happy, and neutral)
PTSD measure	CAPS-5	MINI, PCL-C	CAPS, PSS	CAPS-5, MINI	PDS	PCL-5, CAPS-5	CAPS, MINI	PCL-C	CAPS-5
PTSD+ % female	48.65	9.5	N/A	N/A	100	39.02	86.67	N/A	100
PTSD+ n	37	21	9	24	14	41	15	18	26
PTSD+ age	40.94	32.62	26.56	38.26	22.5	38.29	48.73	21.2	33
PTSD+ age SD	14.23	7.03	6.75	10.86	1.91	12.35	13.18	5.1	9.61
TEHC % female	47.06	6.2	N/A	N/A	100	53.52	43.75	N/A	100
TEHC n	34	16	10	28	14	71	16	N/A	26
TEHC age	38.97	34.69	31.7	38.93	22.71	26.52	32.06	N/A	31.96
TEHC age SD	12.8	7.69	9.41	8.08	1.38	6.9	3.59	N/A	10.49
HC % female	60	9.5	N/A	N/A	100	50	N/A	N/A	100
HC n	30	21	N/A	18	15	38	N/A	20	N/A
HC age	37.33	32.81	N/A	25.78	22.2	27.71	N/A	22.4	N/A
HC age SD	12.43	6.51	N/A	4.52	1.21	8.73	N/A	6.5	N/A

Abbreviations: CAPS-5: Clinician-Administered PTSD Scale for DSM-5; MINI: Mini International Neuropsychiatric Interview; PCL-C: PTSD Checklist – Civilian version; PCL-5: PTSD Checklist for DSM-5; PDS: Post-Traumatic Diagnostic Scale; PSS: PTSD Symptom Scale; SD: standard deviation

Study Heterogeneity

There was significant between-study heterogeneity in the initial PTSD vs. TEHC (I^2 = 77.6%, 95% confidence interval [CI] [55.6%, 88.7%], τ^2 = 0.7440, 95% CI [0.2525, 5.0062], Q = 31.20, d.f. = 7, p < 0.0001) and PTSD vs. HC (I^2 = 90.8%, 95% CI [82.7%, 95.1%], τ^2 = 4.5140, 95% CI [1.5594, 33.5646], Q = 54.14, d.f. = 5, p < 0.0001) comparisons, with the majority of variance estimated to be attributable to differences in true effects rather than sampling error. The results of Lee & Lee [31] were determined to be statistical outliers for both comparisons based on the lower bound of the CI being higher than the upper bound of the pooled effect CI. Both analyses were conducted again without the data from Lee & Lee [31]. Results showed that between-study heterogeneity was not significant for the PTSD vs. TEHC (I^2 = 0.0%, 95% CI [0.0%, 70.8%], τ^2 = 0, 95% CI [0.0000, 0.1682], Q = 3.52, d.f. = 6, p = 0.7415), but remained significant for the PTSD vs. HC comparison (I^2 = 70.1%, 95% CI [23.6%, 88.3%], τ^2 = 0.1688, 95% CI [0.0130, 1.8383], Q = 13.36, d.f. = 4, p = 0.0096).

Dwell Time on Threat-Related Stimuli: PTSD vs. TEHC

Based on Cohen's conventional interpretation [19], the initial analysis of DT on threat-related stimuli in PTSD vs. TEHC participants revealed a moderate-to-large effect size that approached significance (Pooled Hedges' g = 0.7396, 95% CI [-0.1179, 1.5971], t = 2.04, p = 0.0808) (Figure 2). In the analysis without data from Lee & Lee [31], a significant small effect was found (Pooled Hedges' g = 0.3628, 95% CI [0.1674, 0.5582], t = 4.54, p = 0.0039) (Figure 3).

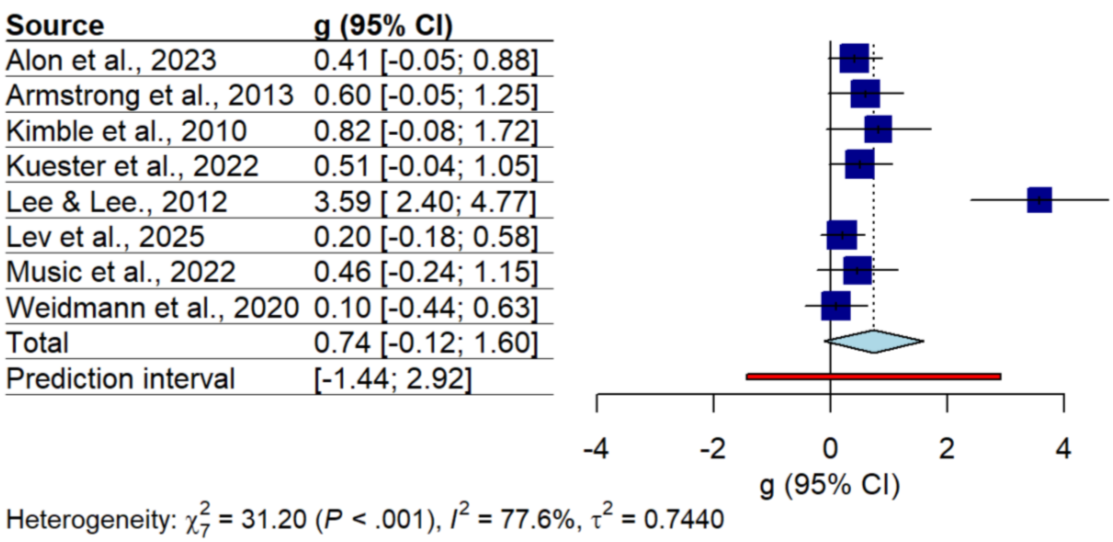

Figure 2. Forest plot of Hedges' g effect sizes for PTSD vs. TEHC, with outlier data.

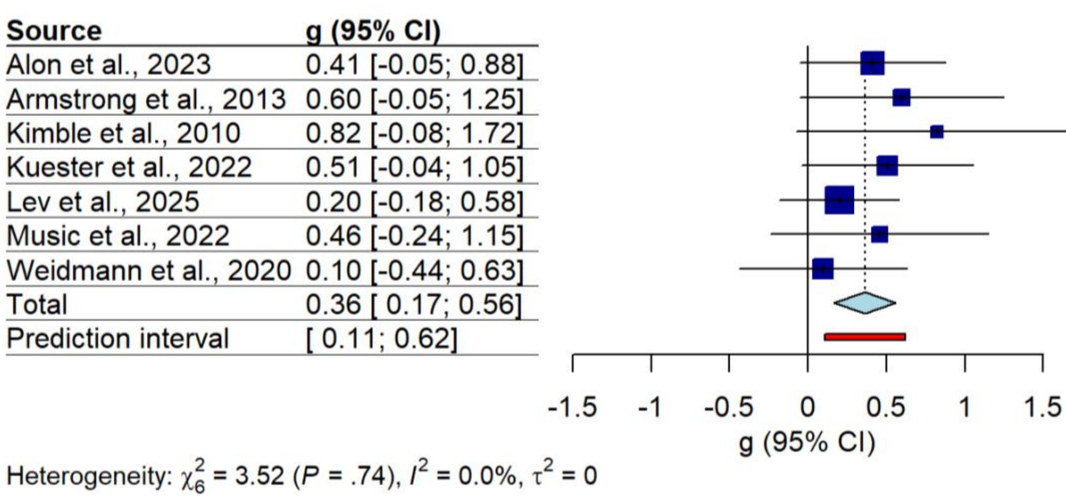

Figure 3. Forest plot of Hedges' g effect sizes for PTSD vs. TEHC, without outlier data.

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Dwell Time on Threat-Related Stimuli: PTSD vs. HC

In the initial analysis, no significant effect emerged in the PTSD vs. HC comparison (Pooled Hedges' g = 1.3595, 95% CI [-1.0268, 3.7458], t = 1.46, p = 0.2029) (Figure 4). However, a moderate effect approached significance in the analysis without outlier data (Pooled Hedges' g = 0.5048, 95% CI [-0.1032, 1.1127], t = 2.31, p = 0.0825) (Figure 5).

Quality Assessment

Overall, the quality of the included studies was good. Scores ranged from 17–21, with a mean score of 18.22/22. Only two studies provided a calculation or indication of power. Results of the quality assessment are displayed in Table 2.

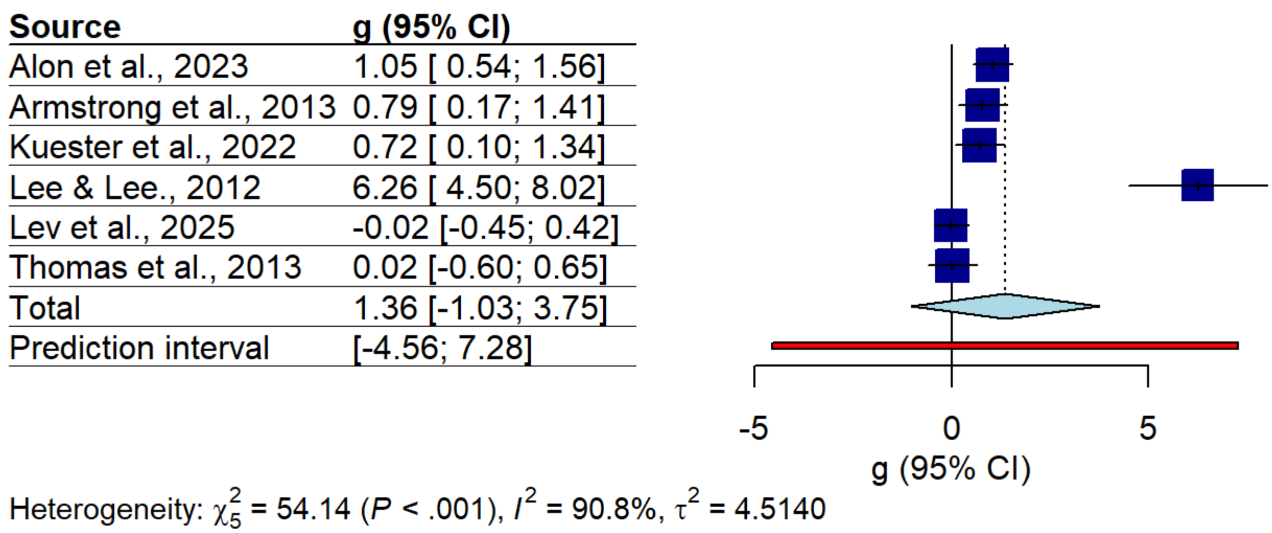

Figure 4. Forest plot of Hedges' g effect sizes for PTSD vs. HC, with outlier data.

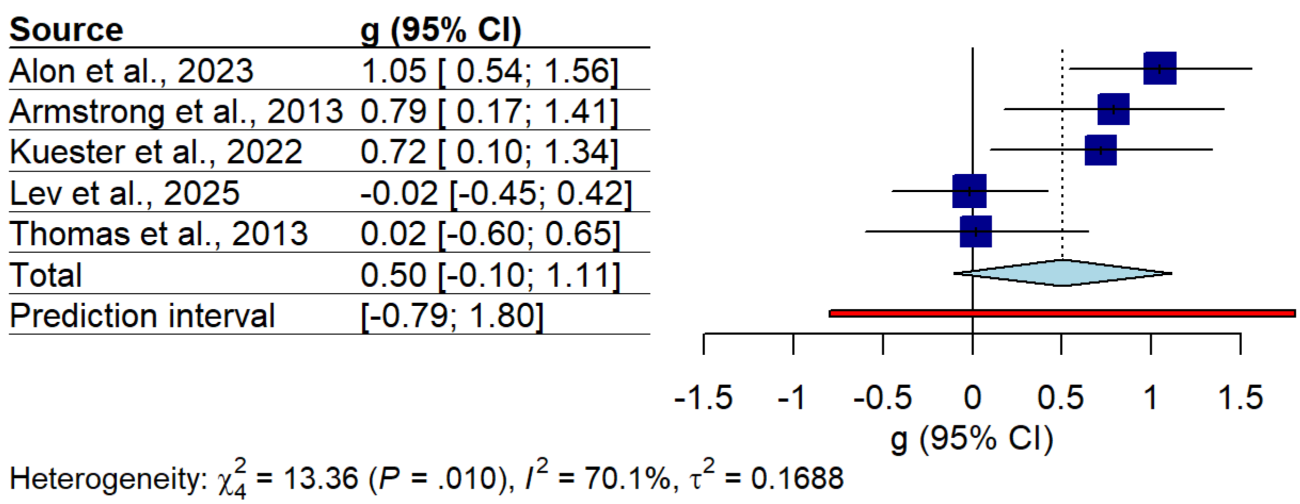

Figure 5. Forest plot of Hedges' g effect sizes for PTSD vs. HC, without outlier data.

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Table 2. Quality Assessment Results.

Study	Question/ objective sufficiently described (/2)	Study design evident and appropriate (/2)	Method of subject/ comparison group selection or source of information/input variables described and appropriate? (/2)	Subject (and comparison group, if applicable) characteristics sufficiently described? (/2)	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported? (/2)	Sample size appropriate? (/2)	Analytic methods described/justified and appropriate? (/2)	Some estimate of variance is reported for the main results? (/2)	Controlled for confounding (e.g., controlled group differences)? (/2)	Results reported in sufficient detail? (/2)	Conclusions supported by the results? (/2)	Total (/22)
Alon et al., 2023 [27]	2	2	2	2	1	2	2	2	2	2	2	21
Armstrong et al., 2013 [36]	2	2	2	2	2	0	2	2	2	2	2	20
Kimble et al., 2010 [37]	2	2	2	1	1	0	2	2	1	2	2	17
Kuester et al., 2022 [34]	2	2	2	1	1	0	2	2	1	2	2	17
Lee & Lee. 2012 [31]	2	2	1	2	2	0	2	2	1	2	2	18
Lev et al., 2025 [33]	2	1	2	2	1	1	2	2	0	2	2	17
Music et al., 2023 [35]	2	2	2	2	2	0	2	2	0	2	2	18
Thomas et al., 2013 [32]	2	2	1	1	2	0	2	2	1	2	2	17
Weidmann et al., 2020 [38]	2	1	2	2	2	0	2	2	2	2	2	19

Discussion

The objective of the current meta-analysis was to assess the presence of an AB toward threat in PTSD using eye-tracking of free-viewing paradigms containing threat vs. neutral stimuli. Analyses support the presence of an AB in individuals with clinical and subclinical PTSD compared with TEHC, while such an AB in PTSD relative to HC only trended towards significance.

Attentional Bias Toward Threat in PTSD vs. TEHC

The analysis comparing PTSD vs. TEHC is evidently sensitive to the influence of the study by Lee & Lee [31], which is thought to be caused by their use of trauma-related stimuli. Female survivors of dating violence were shown violent images of women being abused by men, which meaningfully distinguishes this sample from all others that used general threat stimuli. In line with this idea, Thomas et al. found a significant effect of PTSD diagnosis and symptomology on DT towards trauma-related but not general threat stimuli [32]. Similarly, research on emotional stroop, visual search, and picture identification tasks found elevated AB for trauma-relevant threat, but not general threat stimuli in those with PTSD [40–43].

Given the significant small effect size observed after removing the statistical outlier, alongside the moderate effect size that approached significance when the outlier was included, we conclude that the results can reasonably be interpreted as indicating the presence of an AB in PTSD relative to TEHC, with a small effect size. This interpretation contrasts with the conclusion reached by Lazarov et al., who qualitatively reported that an AB in PTSD vs. TEHC only emerged when trauma-related stimuli were used, while general threat stimuli alone did not produce this bias [14]. Of the five studies described in their systematic review, three were included in our analysis, along with five more recent studies. Our results therefore update this question and show that after removing the outlier that used trauma-related stimuli, an AB in PTSD vs. TEHC exists towards general threat stimuli. The study by Lee & Lee [28] was not included in our analysis due to unavailable data and found an AB in PTSD vs. TEHC for trauma-related stimuli only, as noted by Lazarov et al. [14]. Of note, Lazarov et al. included null findings by Thomas et al. in their comparison [14, 32]. However, we did not use data from the subthreshold PTSD group as TEHC due to the higher severity of PTSD symptoms compared with HC. Our results add context to the findings of the meta-analysis conducted by Kruijt et al., who found no AB towards threat in a subgroup analysis of clinical PTSD measured by a dot-probe bias index [13]. Taken together, our findings suggest that either the AB in PTSD exists relative to TEHC rather than representing a general bias toward threat, or that the AB observed in free-viewing eye-tracking paradigms is not captured by the dot-probe task. Further research comparing free-viewing DT on threat vs. neutral stimuli in PTSD is needed to clarify this point.

Attentional Bias Toward Threat in PTSD vs. HC

After removing the outlying study, the PTSD vs. HC comparison approached significance ($p = 0.0825$) with a medium effect size. Study heterogeneity was not fully accounted for by the outlier as heterogeneity remained significant, with true effects ranging from no between-group difference to an AB towards threat in PTSD vs. HC.

Thomas et al. featured the only non-clinical sample within this comparison and were the only study to use self-report rather than clinician-administered measures of PTSD [32]. The sample also consisted of undergraduate students whose mean age (21.2 years) was more than ten years younger than the next youngest sample (32.62 years). In consequence, it is plausible that the PTSD group in this study was representative of a meaningfully different population with less PTSD symptomology. This may have led to the null AB findings in those with PTSD vs. HC. The cause of heterogeneity regarding the true effect measured by Lev et al. relative to others is more difficult to speculate on [33]. The study featured a dot-probe task in conjunction with the free-viewing paradigm, and the order or use of counterbalancing of these tasks was unspecified. Therefore, the inclusion of a reaction-based measure is a possible source of heterogeneity. Specifically, performing a dot-probe task before a free-viewing paradigm could habituate participants to threatening stimuli [44]. The attentional patterns adopted to facilitate fast reaction time could also theoretically carry over into the free-viewing paradigm, altering gaze behaviour.

Lazarov et al. highlighted a consistent AB in PTSD vs. HC for trauma-related stimuli but mixed findings regarding this AB for general threat stimuli [14]. As described by Lazarov et al., Lee & Lee [28] found that the high PTSD group dwelled longer on angry and fearful faces compared to HC, but was omitted from our analysis due to data unavailability [14]. Another study described in the aforementioned review found increased DT on negative compared to neutral images in those with PTSD [45]. This article was excluded from our analysis due to the absence of a control group.

Without the outlier, a mixed pattern of effects also emerged in our results, with three studies contributing to a moderate effect and two studies yielding null results. The degree to which the omission of data by Lee & Lee [28] influenced the results remains unknown. Given the mixed results and persistent heterogeneity, the presence of an AB towards general threat in PTSD vs. HC remains inconclusive.

Implications for Theoretical Conceptualizations and the Treatment of PTSD

Our results provide partial support for the claims of AB being a cognitive mechanism of PTSD. They also highlight AB toward general threat as a characteristic of PTSD specific pathology, rather than emerging from trauma exposure. In line with the cognitive model by Ehlers & Clark and information processing theories, this suggests an AB that generalizes to all sources of potential threat (hypervigilance), resulting in a

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sense of current threat that could contribute to symptoms of PTSD [2]. Despite this, the degree to which an AB contributes to the disorder's etiology and maintenance remains unclear and requires longitudinal research to evaluate.

The current analysis does not provide clear implications for PTSD treatment, largely because the clinical importance of the statistically significant effect size found is unknown. However, with the findings by Lazarov et al. in mind, free-viewing eye-tracking results may reflect a more consistent AB toward trauma-related threat stimuli than toward general threat stimuli [14]. Consequently, ABM protocols that incorporate trauma-related stimuli may produce stronger treatment effects.

Limitations

The present meta-analysis has several limitations. First, data from three included studies could not be obtained, contributing to the small sample size and constraining the robustness of our results. The substantial between-study heterogeneity in the majority of our analyses also limits the confidence of our findings. Whether the AB in PTSD constitutes a bias towards threat or a general bias towards emotionally valenced stimuli was also not assessed. Additionally, no subgroup analyses were conducted and publication bias was not assessed. Finally, our findings solely addressed sustained attention towards threat stimuli. Investigating measures of facilitated attention towards threat, such as the proportion of first fixations or duration of first fixation, may provide deeper insights into the orienting processes triggered by the stimuli. Clarifying these processes has key implications for understanding how different components of AB contribute to PTSD. Other measures, such as attention bias variability, may also aid in capturing PTSD-specific attention dysregulation, potentially representing a more sensitive cognitive marker of PTSD pathology [27, 33].

Conclusions

Our study provides new insight into the presence of an AB towards general threat in PTSD, supplying additional context for cognitive and information processing theories of PTSD. Analyses support a threat-related AB in PTSD vs. TEHC, but such an AB in PTSD vs. HC remains equivocal. To evaluate the causal influence of AB in PTSD, longitudinal research is needed. Future eye-tracking research should also focus on standardizing methodologies and assessing multiple components of attention.

List of Abbreviations

AB: attentional bias
ABM: attention bias modification
CI: confidence interval
DT: dwell time
HC: healthy controls
ms: milliseconds
PTSD: post-traumatic stress disorder
TEHC: trauma-exposed healthy controls

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Ethics Approval and/or Participant Consent

This article did not require ethical approval as it did not involve primary data collection.

Authors' Contributions

MO: made substantial contributions to the study's design and execution, data analysis, drafting of the final manuscript, gave final approval for the version to be published, and is accountable for all aspects of the work.
JE: made substantial contributions to the study's design and execution, data analysis, drafting of the final manuscript, gave final approval for the version to be published, and is accountable for all aspects of the work.

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