

Examining the effects of acute stress on memory in eyewitness settings

Citation for published version (APA):

Marr, C. (2021). *Examining the effects of acute stress on memory in eyewitness settings*. [Doctoral Thesis, Maastricht University, University of Portsmouth]. The House of Legal Psychology. <https://doi.org/10.26481/dis.20211110cm>

Document status and date:

Published: 01/01/2021

DOI:

[10.26481/dis.20211110cm](https://doi.org/10.26481/dis.20211110cm)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Summary

Understanding how acute stress affects eyewitness memory performance is critical for legal settings. Though this topic has been studied for decennia, several gaps in knowledge still remain. The overarching aim of this thesis was to combine the distinct theoretical and methodological strengths of the eyewitness and fundamental memory fields to enhance understanding of this topic. Across one exploratory survey and three laboratory experiments, I examined the effects of acute stress on both encoding and retrieval memory performance.

First, I asked current memory experts ($n = 73$) and laypeople ($n = 109$) to provide their level of agreement on several statements regarding the stress-memory relationship (**Chapter 2**). Results showed that a large proportion of both eyewitness and fundamental memory researchers agreed that retrieval stress impairs memory performance. However, most fundamental memory experts also agreed that encoding stress enhances memory, whereas most eyewitness experts disagreed with this statement. Additionally, laypeople differed from experts on some factors and endorsed some ideas that are not supported by empirical research, for example, that trained professionals such as police are less affected by stress and that stress causes repressed memories.

Next, I presented two experiments ($N = 240$) investigating acute encoding and retrieval stress on face recognition memory (**Chapter 3**). Across experiments, the stress manipulation successfully raised participants' subjective negative affect, blood pressure, and cortisol levels (Experiment 3). However, results from both experiments showed no statistically significant effects of acute stress on memory performance. Specifically, in Experiment 2, no statistically significant differences in face recognition performance between groups emerged either for encoding or retrieval stress. In Experiment 3, acute encoding stress neither affected face recognition nor an added assessment of word recognition.

Turning to retrieval stress, my final experiment ($N = 177$) examined the effects of retrieval stress on recognition and free recall performance and investigated an arousal reappraisal intervention to mitigate potential negative effects of stress on memory (**Chapter 4**). Though the stress manipulation was again confirmed, results showed no effects of retrieval stress on either type of memory performance and no effect of the intervention on memory performance, affect, task demands, or coping resources.

As discussed in the final chapter (**Chapter 5**), findings from this thesis highlight the lack of consensus between experts regarding the stress-memory relationship and raise questions about the generalizability and reliability of past findings. Additionally, the results emphasize the ongoing need for methodologically-sound research on this topic, ideally through experiments combining the distinct strengths of the eyewitness and fundamental memory fields.