

Examining the effects of acute stress on memory in eyewitness settings

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Valorisation Addendum

Relevance of the Research

Witness testimony is critically important to the justice system, yet decades of research has unearthed the challenges of being primarily reliant on eyewitness memory. As reported by the Innocence Project, eyewitness misidentifications are the foremost cause of wrongful convictions, with 63% of DNA exonerations in the United States involving eyewitness misidentifications (2021). Because eyewitnesses are often stressed when witnessing a crime, it is imperative to understand how such acute stress may impact their memory reports and later testimony. Understanding the impact of stress at encoding as an estimator variable would allow for better reliability judgments to be made regarding eyewitness memory reports. In addition, eyewitnesses may also experience stress during police interviews or court trials. Considering acute stress as a system variable is also vital, as stress experienced during retrieval could have significant implications for obtaining reliable information from eyewitnesses. The current thesis examined both of these relevant research questions by investigating the effects of acute stress at encoding and retrieval on memory in eyewitness settings.

Target Group and Services

The theoretical implications of this thesis are useful for other academic researchers, as this thesis critiques past work on stress and memory and offers recommendations for future research on this topic. The applied implications of these findings could be of interest to police and a range of legal practitioners, including lawyers, judges, and expert witnesses. These groups would benefit from understanding contemporary research on the stress-memory relationship and how it may apply to eyewitness memory. For example, results from my survey show that eyewitness and fundamental memory experts do not generally show high levels of consensus on statements about the stress-memory relationship. Expert witnesses testifying in court on the effects of acute stress on memory performance should a) be aware of research that exists across the wider research domain and b) present a comprehensive report to judges and juries, indicating the complexity of the topic and the multitude of factors that influence the relationship. Findings from this thesis cast doubt on the strength and generalizability of previous research findings, indicating that police and legal practitioners should use caution when applying previous findings in eyewitness settings. The research findings presented in this thesis highlight the need for further research using contemporary and robust methodology. Such work would continue to

enhance our understanding of the stress-memory relationship, ideally offering police and legal practitioners more definitive conclusions and allowing for applications to the real world.

Innovation of the Research

Understanding the relationship between acute stress and memory in eyewitness settings has been a topic of interest for decennia. In this thesis, I first highlighted the critical limitations of past work and used these criticisms to form more robust and rigorous methodology. Specifically, this thesis uniquely combines strengths from the eyewitness and fundamental memory research fields to better investigate the stress-memory relationship. In addition, in this thesis, I examined both encoding and retrieval stress, a distinction often overlooked or ignored by past eyewitness memory research. Each experiment in this thesis represents an important and novel step in understanding the acute stress effects on memory: from understanding contemporary beliefs about this relationship, to specifically investigating these effects for face recognition memory, to testing an arousal reappraisal intervention in a new setting. Finally, I hope the explicit recommendations embedded in this thesis will allow for further innovation in the field to better understand the stress-memory relationship in eyewitness settings.

Implementation and Dissemination

The findings of this thesis have been shared in several ways. All experiments have already been published or have been submitted for publication in international peer-reviewed academic journals. In addition, I have written and submitted a review article with recommendations for future research aimed at memory researchers. To ensure a broad reach, all published articles are open-access and are thus accessible to anyone. I have also presented this research at international academic conferences in Finland and the United States. In hopes of communicating my research to a layperson audience, I have additionally published an article in *In Mind*, an online magazine that aims to share psychological science with the broader public. The current findings have also been presented informally, including online (e.g., on Twitter, ResearchGate, etc.) and at department and laboratory meetings at Maastricht University (Netherlands), the University of Portsmouth (U.K.), and the University of Sydney (Australia). Communicating academic research to practitioners and the general public is essential for real world impact and I hope to carry on communicating science and helping translate research to practice throughout my career.