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Forensic Psychiatry and Psychology

Realistic guidelines on expert witness work concerning memory<sup>☆</sup>Henry Otgaar<sup>a,b,\*</sup>, Mark L. Howe<sup>b,c</sup>, Olivier Dodier<sup>d</sup><sup>a</sup> Faculty of Law and Criminology, KU Leuven, Belgium<sup>b</sup> Faculty of Psychology and Neuroscience, Maastricht University, the Netherlands<sup>c</sup> City, University of London, UK<sup>d</sup> APSY-v Laboratory, Université de Nîmes, France

In criminal cases, reliance is frequently placed on the interpretation of evidence such as eyewitness testimony. Memory scientists working as expert witnesses in court play an imperative role in assisting in this interpretation. They are sometimes consulted by triers of fact to evaluate the validity of testimony. What such memory scientists do is examine whether any factors exist that might have supported or jeopardized the validity of testimony (e.g., Otgaar et al., 2017). For example, when working on a case concerning alleged sexual abuse, memory scientists might observe that memories concerning abuse were recovered during suggestive therapeutic interventions rendering a scenario that these memories are likely false. Or memory scientists might find that a witness was interviewed by the police using evidence-based interview principles thereby supporting the validity of testimony.

When memory scientists write reports and/or appear in court, they will need to discuss these factors and explain how they might have influenced or supported the validity of testimony. Ideally, factors are mentioned that are grounded in science. However, here is the catch. Memory scientists have plenty of flexibility in discussing which factors should or should not be discussed. Consider for example the following. A memory scientist might be working on a case in which the question is whether a certain type of drug (e.g., MDMA) might lead to memories of non-experienced events (i.e., false memories). The memory scientist then reviews the literature and finds that empirical work in this area is extremely limited with some suggesting that MDMA does not reliably lead to false memory formation (Kloft et al., 2022) while other work suggests that MDMA increases false memory creation (Doss et al., 2022). The question is whether the memory scientist will disclose this uncertainty to triers of fact or will (unconsciously) put emphasis on only part of the limited literature.

In a previous manuscript, we advocated that memory science can only provide a meaningful contribution to the courtroom when it minimally possesses the following three conditions: replicability,

generalizability, and practical relevance (Otgaar, Riesthuis, et al., 2022). We argued that memory scientists working as expert witnesses should be transparent about the strengths and limits of the literature that they discuss in their expert testimony. Chin and Neal (2023; hereafter Chin and Neal) commented on our recommendations and agreed with our “open and transparent approach to using psychological evidence as responsibly as possible in legal settings” (p. 1). Chin and Neal also noted that further care should be exerted when investigating whether psychological science is replicable, generalizable, and practically relevant. In this reply, we will further reflect on their considerations.

First, Chin and Neal agreed that evaluating whether research has been replicated or is generalizable is a good step. However, they also added that researchers should prioritize preregistered studies over meta-analyses as meta-analyses might overestimate effects because of, for example, publication bias. Also, they noted that because of publication bias, studies containing null findings but with high levels of generalizability might not be published thereby casting doubt on published studies that also contain high levels of generalizability. We completely agree with these assertions. In fact, in our manuscript, we also noted the pervasive problem of publication bias potentially leading to low replication rates (see p. 3). Nonetheless, we appreciate Chin and Neal’s additional critical reflection on whether certain types of empirical work (e.g., preregistration, meta-analysis) should receive confidence by memory scholars and legal professionals.

Second, Chin and Neal stipulated that, as with the conditions “replicability and generalizability”, published effect sizes should be treated with caution as they might be an overrepresentation of the true effect. Here again, we are in harmony with Chin and Neal. However, we do want to stress that in our paper, we argued that memory scientists working as expert witnesses should first reflect on which effect sizes are practically relevant. In other words, memory scientists should decide on the smallest effect size of interest in their area of research.

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We recently demonstrated the importance of establishing the smallest effect size of interest in the field on the effects of alcohol on eyewitness testimony (Otgaar, Riesthuis, et al., 2022). We argued that a gain or loss of 1 detail could be seen as the smallest effect size of interest. Taking this approach, we re-analyzed a meta-analysis on alcohol and eyewitness testimony (Jores et al., 2019). Based on our smallest effect size of interest, we showed that alcohol undermines the validity of eyewitness testimony in a practically relevant fashion. Thus, before relying on effect sizes in the published literature (with their limitations), we suggest that memory scientists should first concentrate on determining the smallest effect size of interest in their field (see also Riesthuis et al., 2022). When providing expert testimony, expert witnesses might, for example, come up with a certain smallest effect size of interest for a given area based on well-founded arguments and justifications (e.g., see for example Otgaar, Riesthuis, et al., 2022).

We want to conclude with Chin and Neal's statement that our recommendation of looking at generalizability is "overly optimistic in many circumstances" (p. 1). We agree that it is wise not being too optimistic, but it is equally wise to not be too pessimistic. Instead, we argue that expert witness should be *realistic* when looking at the replicability, generalizability, and practical relevance of psychological research. A prime example is the topic of false memory. Our paper was specifically engineered to evaluate the replicability, generalizability, and practical relevance of false memory research (Otgaar, Riesthuis, et al., 2022).

In the past years, researchers have invested in conducting preregistered replications and even a preregistered meta-analysis in the topic of false memory and succeeded to replicate the effect and support its reliability (e.g., Riesthuis et al., 2022; Zwaan et al., 2018). Also, researchers have discussed generalizability issues related to translating lab-induced false memories to false memories in legal cases (e.g., Wade et al., 2007). Finally, recent discussions are ongoing on the smallest effect size of interest in the area of false memory (Otgaar, Riesthuis, et al., 2022; Riesthuis et al., 2021). What this means is that for many areas in the field of false memory, expert witnesses can be confident when providing expert testimony on false memory. Of course, some areas in false memory research are still underexplored, such as false memory creation in non-Western societies (Vredevelde & de Bruïne, 2022). Hence, expert witnesses should be realistic about the conditions of replicability, generalizability, and practical relevance of these issues in their expert testimony.

We offer a working model on how to look at the conditions of replicability, generalizability, and practical relevance in expert witness work (see Fig. 1). Concerning replicability, our contention is that when expert witnesses refer to literature in their testimony which is based on single studies, less confidence should be placed on the reliability of a certain key finding than when expert witnesses rely on literature based on preregistered studies replicated across different sites (e.g., labs, universities). The same holds for generalizability. When expert witnesses discuss research that differs on many levels from a case at hand, it can be assumed that this research possesses low generalizability. For example, if a case is about whether MDMA might lead to the forgetting of autobiographical experiences, but research has only examined whether MDMA might undermine memory for words, then this research is less generalizable to this specific case. If so, expert witnesses should place less confidence that this work can be generalized to a specific case than when research contains a high degree of generalizability. Finally, concerning practical relevance, expert witnesses might discuss effect sizes of past research and use benchmarks (small, medium, large) when discussing its relevance in court. We posit that confidence in discussing the practical relevance of research will be increased when describing smallest effect sizes of interest.

Of course, our recommendations stem from an incomplete working model and is certainly not finalized. Hence, we invite researchers to study our conditions (replicability, generalizability, and practical relevance) in light of expert witness work. For example, will legal

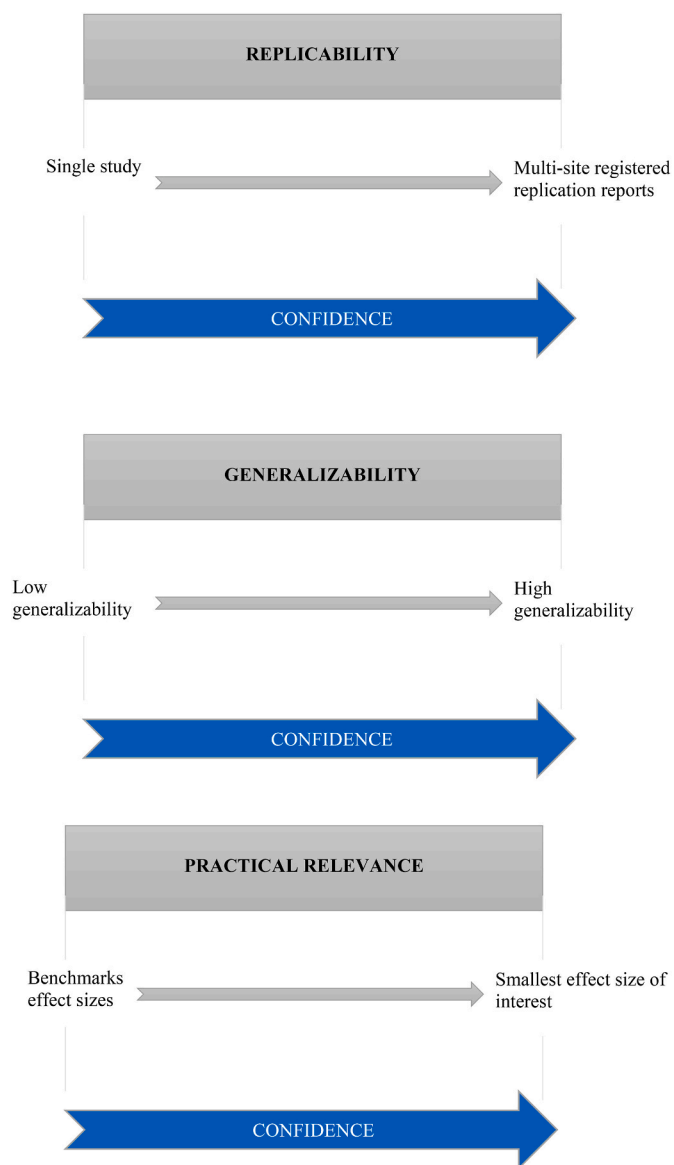


Fig. 1. Working model on replicability, generalizability, and practical relevance in expert witness work.

professionals also have more confidence in expert testimony when expert witnesses clearly explain whether research has been replicated and has a high degree of generalizability? And will confidence be increased when expert witnesses mention one condition (e.g., replicability) or will confidence only be elevated when more conditions are discussed?

To conclude, Chin and Neal provided an important additional reflection on expert witness work regarding memory. We fully embrace their suggestions and together with our recommendations call for research on realistic guidelines on expert witness work in the area of memory.

#### Declaration of competing interest

The authors declare to have no conflicts of interest.

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