

The Potential for False Memories is Bigger than What Brewin and Andrews Suggest

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Summary: Brewin and Andrews (2016) reviewed the literature on false memory propensity for childhood events. In this commentary, we critically evaluate their basic claim that proneness to false memories of childhood experiences is more limited than has been articulated in the literature. We show that Brewin and Andrews were selective in their inclusion of false memory studies, thereby ignoring relevant research related to autobiographical false memories. Equally important, and in contrast to what Brewin and Andrews claim, we show that implanted false memories elicited by misinformation are characterized by high confidence.
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Brewin and Andrews (B&A; 2016) have taken up the challenge to provide a review on false memory susceptibility for childhood events. This is a daunting task, as the psychological literature is replete with studies on false memories using different paradigms, different populations, and different ways of defining false memory. Although B&A are to be commended with executing such an arduous exercise, we disagree with their central message that ‘susceptibility to false memories of childhood events appears more limited than has been suggested’ (p.1).

First, B&A’s review is selective in that it only focusses on a subset of studies employing imagination inflation, false feedback, and memory implantation to elicit false childhood memories. Moreover, B&A did not include literature on other false memory paradigms (e.g. misinformation and doctored video) that relate to autobiographical false memories and that have been informative regarding false memory propensity for childhood events. A case in point is their omission of several important imagination inflation studies—studies that have, for instance, looked at imagination inflation for *action events* (e.g. Goff & Roediger, 1998; Otgaar, Scoboria, Howe, Moldoveanu, & Smeets, in press). In contrast to what B&A argue, these studies did find that false memories were accompanied by high confidence. For example, Goff and Roediger (1998) stated that ‘[t]he more errors [false memories] the subjects made, the higher their mean confidence ratings’ (p.29).

One could argue that these studies did not tap into childhood events. However, imagination inflation studies on memory for actions typically involve multiple *events* that the participant either has to perform or imagine, and these self-generated actions are—like childhood events—autobiographical in nature. If B&A had solely wanted to focus on studies concerning false memories for childhood events, then why did they include literature on the crashing memory paradigm (e.g. Smeets, Telgen, Ost, Jelicic, & Merckelbach, 2009)? This paradigm focusses on ‘false memories’ for highly media-exposed, public events rather than childhood events. Likewise, B&A did not address studies on evidently wrong childhood memories, such as those of past lives

(Peters, Horselenberg, Jelicic, & Merckelbach, 2007). Thus, it appears that B&A were rather selective in their inclusion of the extant literature, which makes their estimate of false memory vulnerability for childhood events provisional.

Second, a problematic selectivity also invaded B&A’s evaluation of studies that were included in their review. B&A argued that a *full false memory* is a memory that encompasses a belief in the occurrence of the event, recollective details, and high confidence that these details are accurate. They correctly showed that many false memory implantation studies did not measure confidence but then omitted such studies when they calculated their percentage of full false memory (15%). It would have been more balanced to explain to the reader—and potential judges and juries—that depending on the criteria that one uses, full false memory creation can range from 15% up to 46%. Clearly, this range provides a more reliable estimate of the potential to implant false memories for entire events than the lower bound percentage.

Third, it is remarkable that B&A did not examine false memories induced by misinformation (Loftus, 2005)—a type of false memory that has also been regarded as an *implanted* false memory (Brainerd, Reyna, & Ceci, 2008). Of course, false memories induced by misinformation are often about small details and do not pertain to entire events. Yet, and in contrast to B&A’s central message, the general picture seems to be that these implanted false memories are articulated with high confidence. Some researchers even observed that people are more confident in these implanted false memories than in true memories (Takarangi, Parker, & Garry, 2006).

To examine whether implanted false memories induced by misinformation are indeed reported with high confidence, we conducted a small-scale review on misinformation studies that measured confidence (Table 1). A search was performed on the Web of Science database using the search terms ‘misinformation’, ‘false memory’, and ‘confidence’. To be included in the review, studies were required to have used the misinformation paradigm and to have measured confidence in false memories. Of the 36 potential articles, nine papers (=12 studies) fulfilled our criteria. When reading the papers, an additional of two papers (=three studies; total=15 studies) were identified that met our criteria (i.e. Assefi & Garry, 2003; Loftus, Donders, Hoffman, & Schooler, 1989).

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Table 1. Implanted false memory studies elicited by the misinformation paradigm measuring confidence

Authors	Participants (adults)	Confidence	Rating scale
Loftus et al. (1989); Exp. 1	204	3.5	1–5
Loftus et al. (1989); Exp. 2	338	4.1	1–5
Pickel (1999)	86	5.13	1–10
Assefi and Garry (2003)	148	3.3 and 3.6	1–5
Mitchell, Johnson, and Mather (2003)	51	1.49 and 2.20 (from figure)	1–3
Takarangi et al. (2006); Exp. 1	40	4.04	1–5
Takarangi et al. (2006); Exp. 2	40	3.74	1–5
Paz-Alonso and Goodman (2008)	232	3.76	1–5
Foster, Huthwaite, Yesberg, Garry, and Loftus (2012); Exp. 1	64	3.81	1–5
Foster et al. (2012); Exp. 2	96	3.80 and 4.40	1–5
Van Damme and Seynaeve (2013)	300	3.49	1–5
Fenn, Griffin, Uitvlugt, and Ravizza (2014)	107	3.61	1–8
Jack, Zydervelt, and Zajac (2014)	48	3.9 (from figure)	1–5
Dodson, Powers, and Lytell (2015); Exp. 1	59	76% and 84%	50–100%
Dodson et al. (2015); Exp. 2	96	75.3% and 76.3%	50–100%

Although our review is by no means exhaustive, it does give a rough estimate of the relation between implanted false memories and confidence. Thus, in 93% ($n=14$) of the studies, implanted false memories were associated with confidence ratings exceeding the midpoint of the scale. A weighted percentage of the data revealed a mean confidence rating of 74% [unweighted 95% CI (0.66, 0.78)]. Clearly then, confidence is often high in implanted false memories resulting from misinformation, a finding that runs counter to B&A’s idea that participants are often not very sure about their implanted false memories.

Thus, the picture is much more complex than what B&A want the reader to believe on the basis of their selective review of the extant literature. Another issue is that B&A ignore courtroom realities, a point that we address in Smeets, Merckelbach, Jelicic, and Otgaar (in press).

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