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Eye Movement Desensitization and Reprocessing (EMDR) Practitioners' Beliefs About Memory

Sanne T.L. Houben
Universiteit Maastricht

Henry Otgaar
Universiteit Maastricht, henry.otgaar@maastrichtuniversity.nl

Jeffrey Roelofs
Universiteit Maastricht

Ineke Wessel
Rijksuniversiteit Groningen

Lawrence Patihis
University of Southern Mississippi, l.patihis@usm.edu

See next page for additional authors

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Sanne T. L. Houben[1,2], Henry Otgaar[1, 2], Jeffrey Roelofs[1], Ineke Wessel[3], Lawrence Patihis[4], and Harald Merckelbach[1]

[1]Maastricht University, the Netherlands

[2]Catholic University of Leuven, Belgium

[3]University of Groningen, the Netherlands

[4]University of Southern Mississippi, United States of America

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Corresponding Author:

Sanne Houben, Maastricht University, Clinical Psychological Science, Universiteitssingel 40, 6229 ER Maastricht, the Netherlands

Postal address: P.O. Box 616, 6200 MD Maastricht, the Netherlands

E-mail: sanne.houben@maastrichtuniversity.nl

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Abstract

Eye Movement Desensitization and Reprocessing (EMDR) is a widely used treatment for post-traumatic stress disorder. The idea behind EMDR is that lateral eye movements may mitigate the emotional impact of traumatic memories. Given the focus on changing patients' memories, it is important that EMDR practitioners have detailed knowledge about human memory. We explored beliefs and ideas about memory in samples of EMDR practitioners (Study 1: n = 12; Study 2: n = 41), students (Study 1: n = 35; Study 2: n = 24), and researchers (Study 2: n = 30). All groups seemed to be aware of the fallibility of memory. However, a majority of the surveyed EMDR practitioners (70–90%), students (around 90%), and researchers (66.7%) endorsed the controversial idea of repressed memories. Scepticism and endorsement of problematic ideas about memory-related topics may co-exist within one and the same group. In clinical settings, this might be problematic, because a strong belief in repressed memories might lead therapists to suggestively seek for such memories in patients.

Keywords: memory beliefs; repression; EMDR; repressed memory; recovered memory debate

EMDR Practitioners' Beliefs about Memory

In classical Eye Movement Desensitization and Reprocessing (EMDR; Shapiro, 1989), the therapist's index finger moves horizontally in front of the patient's visual field while the patient's eyes follow the therapist's finger. Simultaneously, the patient tries to recollect the most intrusive part of a traumatic memory. Meta-analytic research has suggested that the joint task of recalling the traumatic memory and following the therapist's finger mitigates the vividness and emotionality linked to the traumatic memory (Lee & Cuijpers, 2013; but see Devilly, Ono, & Lohr, 2014). Given these positive results, the World Health Organization (Born, Rasch, & Gais, 2013) has selected EMDR as a treatment of choice for post-traumatic stress disorder (PTSD). Originally developed as an intervention for people with PTSD, EMDR is nowadays applied to a wide range of (mental) health problems in which aversive memories or experiences play a role (de Jongh, Ernst, Marques, & Hornsveld, 2013; Rikkert, van Rood, de Roos, Ratter, & van den Hout, 2018). Research interest in EMDR has also increased. We searched the database PsycINFO using the entry terms 'emdr OR eye movement desensitization OR eye movement desensitization therapy OR eye movement desensitization and reprocessing' from the year of Shapiro's first publication (1989) until 2018. As can be seen in Figure 1, EMDR publications have increased over the years, which testify to the scientific interest in the intervention as well the mechanisms that may underlie its effect.

Studies examining the efficacy of treatments such as EMDR often focus on positive outcomes, thereby overlooking the potential of negative effects. To facilitate research on such potential negative effects, Rozental, Kottorp, Boettcher, Andersson, and Carlbring (2016) developed an instrument with which they surveyed participants (N = 653) who received smartphone delivered self-help treatment or individuals who in the past had undergone psychological treatment. One negative side effect of treatment that was relatively often

mentioned was the resurfacing of unpleasant memories. This finding is also relevant for EMDR practitioners, because there are reasons to assume that EMDR has the potential to elicit false memories (i.e., memories of non-existing events; Houben, Otgaar, Roelofs, & Merckelbach, 2018; Lohr, Tolin, & Lilienfeld, 1998; Muris & Merckelbach, 1999). For example, Houben and colleagues (2018) used the misinformation paradigm (Loftus, Miller, & Burns, 1978) to examine the susceptibility to suggestion-based false memories after performing eye movements. Participants viewed a video of a car crash and following this, performed eye movements or not while thinking about the video. Afterwards, they received misinformation and were tested on their memory. Participants in the eye movement condition reported more misinformation than participants in the control condition. Thus, eye movements, as used in EMDR, can undermine memory integrity. However, this finding should be interpreted with caution, as recent research did not replicate this effect (Cavillo & Emami, in press; van Schie & Leer, in press).

Given this potential side effect, the question arises how knowledgeable EMDR practitioners are about human memory. Practitioners' beliefs about how traumatic memory works has been an important topic in psychology over the past two decades (Loftus, 1993; Schacter, 1996). These beliefs were at the centre of a heated debate between researchers and clinicians about the accuracy of childhood sexual abuse memories that surface during psychotherapy (i.e., recovered memories), a debate also known as the memory wars (Crews, 1995). Some clinicians (e.g., Freyd, 1994) argued that individuals cope with traumatic experiences by blocking them out of consciousness into the unconscious (i.e., repression) or by dissociating (i.e., compartmentalization) them from consciousness. According to this view, repression or dissociation make traumatic memories temporarily inaccessible, but with the help of psychotherapy, these memories may re-emerge into patients' consciousness (Ceci & Loftus, 1994). This view has its roots in the psychoanalytic theory of Freud and it proposed

that repression operates unconsciously on threatening mental contents (Freud, 1910; however Freud also used the word repression to mean a conscious act, see Erdelyi, 2006). Whereas repression is usually considered an unconscious act, suppression is seen as a conscious act in which traumatic memories are forgotten due to conscious motivation to avoid such memories. It is believed that repressed memories of trauma will manifest themselves in the experience of mental and/or physical symptoms (Hornstein, 1992). To alleviate these symptoms, the unconscious trauma must become conscious again. This 'body keeps the score' hypothesis states that a narrative of the trauma is not formed, because the trauma is saved on an implicit level (i.e., in the body; van der Kolk & Fisler, 1995). Others argued that there is little evidence for repression (or dissociative amnesia; see Otgaar et al., 2019). Research generally indicates that traumatic memories are often well retained and easily retrievable (e.g., McNally, 2003). Many researchers also emphasized that certain therapeutic techniques (e.g., imagination, dream interpretation) might lead to the production of false memories, thereby referring to lab studies in which participants created false memories due to misinformation (Loftus, 1993; 2005).

The debate about repressed or dissociated memories inspired surveys that tried to gauge what clinicians think about human memory. One of the earliest examples is the study of Yapko (1994), who found that around 516 therapists (60%) indicated a belief in the existence of repressed memories (see also Dammeyer, Nunez Nightingale, & McCoy, 1997; Golding, Sanchez, & Sego, 1996). Recent surveys suggests that some therapists continue to hold controversial beliefs about memory. Ost, Wright, Easton, Hope, and French (2013) conducted an online survey among chartered clinical psychologists and hypnotherapists. Overall, 66 respondents (27.8%) indicated they had seen a patient with a recovered memory in their clinical setting. Fifty-three respondents (22.5%) thought that such reports are usually or always accurate. Seventy-two respondents (32.4%) indicated they had treated a patient who

reported satanic/ritualistic abuse. Eighty respondents (38.2%) believed that such reports could usually or always be seen as accurate. Interestingly, 53 respondents (34.6%) also said they had seen cases of patients with potential false memories. Thus, this survey suggests that at least a minority of therapists still hold beliefs about memory that are controversial.

Patihis, Ho, Tingen, Lilienfeld, and Loftus (2014; Study 1) surveyed undergraduate students' beliefs about memory. Participants responded to each memory statement (e.g., "traumatic memories are often repressed") on a 6-point scale (1 = strongly disagree; 6 = strongly agree). A large proportion (n = 316, 81%) of students "slightly agreed" with this statement, thus expressing at least some belief in the existence of repressed memories. In their second study, the authors conducted an online survey among researchers, clinicians, undergraduate students, and the general public. Thirty-five clinicians (60.3%) agreed that traumatic memories can be repressed compared with 12 researchers (19.4%). In addition, 25 clinicians (43.1%) believed that repressed memories can be retrieved during therapy compared to ten researchers (16.1%). These findings should be interpreted with caution, because the way survey items are formulated might lead to inflated proportions of controversial memory beliefs (see for a discussion Brewin, Li, Ntarantana, Unsworth, & McNeilis, in press; Otgaar et al., under review). Still, controversial beliefs that are held firmly by clinicians (e.g., believing in repressed memories without reservation) may be problematic in a treatment setting (Lilienfeld, Lynn, & Beyerstein, 2010). Specifically, such beliefs could spawn clinicians to develop a flawed treatment plan and/or use suggestive techniques leading to false memories in patients (Loftus, 1993). With this in mind, the current studies surveyed samples of EMDR practitioners, students, and researchers about their understanding of how memory operates. In doing so, we not only employed simple survey statements but also a case vignette. In Study 1, we attempted to examine memory beliefs in a small number of EMDR

practitioners and students. In Study 2, we explored beliefs in a larger sample, which included students, EMDR practitioners, and researchers.

Study 1

Method

Participants

We recruited 47 participants: 35 Master's students and 12 EMDR practitioners. The student subsample consisted of students in a clinically oriented Master's program at Maastricht University (M_{age} = 23.97, *SD* = 2.90, range 21 - 32, 34 women). These students are taught about various mental healthcare issues, they gain practical skills necessary to manage such issues, and are introduced to basic knowledge of EMDR (i.e., EMDR as a treatment option for PTSD). They had no practical experience with EMDR. They were recruited before the start of a tutorial meeting. Seventeen EMDR practitioners were recruited via the chair of a special interest group or word of mouth. Five EMDR practitioners failed to complete the survey. They did not differ on demographic variables from practitioners who did complete the survey. Hence, 12 EMDR practitioners were included (M_{age} = 44.33, *SD* = 9.26, range 29 - 56, all 12 were women). The study was approved by the standing ethical committee of the Faculty of Psychology and Neuroscience, Maastricht University.

Materials and Procedure

All data and materials are available at the Open Science Framework at https://osf.io/4ug9t/. The survey took about 20 minutes to complete and was conducted on paper (students) or online at a time and place of participants' choosing (EMDR practitioners).

Case Vignette. Participants were presented with a case vignette of a 29-year-old patient (https://osf.io/t9d4j/). The patient experienced a range of symptoms that are also stipulated in the DSM-5 criteria for PTSD (e.g., anxiety, nightmares, difficulty sleeping). However, the patient had no specific trauma memory at the beginning of therapy. After one EMDR therapy

session targeting a childhood memory of being abandoned by her mother, the patient recovered a memory of childhood sexual abuse. The patient attributed the complaints and symptoms to this memory. After several EMDR sessions, the treatment ended. Participants indicated how likely it is that the patient described a memory of an authentic event on a 4-point scale (*1 = very likely; 2 = likely; 3 = unlikely; 4 = very unlikely*). Participants could elaborate their answer.

Memory Beliefs Questionnaire. The Memory Beliefs Questionnaire was based on earlier work (derived from Ost et al., 2013, and Patihis et al., 2014; https://osf.io/vaq35/) and consisted of 15 Dutch statements about the functioning of memory. The questionnaire included two correct statements (e.g., "memory can be inaccurate") and 13 controversial statements (e.g., "memory is not influenced by suggestion"; "repressed memories of events that did happen can be retrieved in therapy accurately"). Participants indicated to what extent they agreed with the statements on a 4-point scale (*1 = totally disagree; 2 = disagree; 3 = agree; 4 = totally agree*). In line with Ost et al. (2013) and Patihis et al. (2014), a "do not know" option was not provided. Participants were also asked to rate how often they read technical literature on memory on a 3-point scale (*1 = below average: e.g., I rarely read scientific articles about memory; 2 = average: e.g., I occasionally read journal articles about memory; 3 = above average: e.g., I regularly read a scientific article about memory*).

Therapy Experience Questionnaire. The therapy questionnaire (https://osf.io/qygnf/) consisted of 14 questions that were derived from Ost and colleagues (2013). The questions covered topics on, for example, vague memories during a therapy session, unexpected events during a therapy session, and sexual/ritualistic abuse (e.g., "how often have you seen spontaneous memories of trauma were revealed by the patient during a therapy session?"). The EMDR practitioners completed the therapy questionnaire and they indicated on a 5-point scale (*1 = never; 2 = rarely; 3 = sometimes; 4 = most of the time; 5 = always*) how often

over the last 15 years they had encountered such events in their practice. The EMDR practitioners could elaborate upon their answer. As the sample size was limited, we do not address the results here, but they can be found on the OSF (https://osf.io/3prg4/).

Results

Due to the small sample size and constraints on generality, no inferential statistics are reported. Confidence intervals are reported to represent population estimates.

Case Vignette

Participants who chose *likely* or *very likely* were counted as finding the memory likely to be authentic. Twenty-one students (60.0%, 95% CI [42.2 – 75.7%]) and nine EMDR practitioners (75.0%, 95% CI [42.8 – 93.3%]) indicated that the recovered memory of the patient was (very) likely to be authentic. For elaborations, see OSF (https://osf.io/3prg4/).

Memory Beliefs Questionnaire

Participants who chose *agree* or *strongly agree* were counted as agreeing with a statement, but see Table 1 for an overview including all answer categories. EMDR practitioners (n = 12, 100%, 95% CI [69.9 – 100%]) agreed more often than students (n = 25, 71.4%, 95% CI [53.5 – 84.8%]) with the statement that memory can be inaccurate. Students (n = 20, 57.1%, 95% CI [39.5 – 73.2%]) agreed more often than EMDR practitioners (n = 3, 27.3%, 95% CI [7.3 – 60.7%]) that suggestibility is a problem for young children. A majority of students (n = 32, 91.4%, 95% CI [75.8 – 97.8%]) and EMDR practitioners (n = 11, 91.7%, 95% CI [59.8 – 99.6%]) agreed that an individual may develop false memories for non-traumatic events. A minority of students and EMDR practitioners agreed with the statements that memory is like a video camera (n = 1, 2.9%, 95% CI [0.15 – 16.6%] and n = 1, 8.3%, 95% CI [0.4 – 40.2%] respectively), that early memories are accurately stored (n = 2, 5.7%, 95% CI [1.0 – 20.5%] and n = 0, 0.0%, 95% CI [0.0 – 30.1%] respectively), and that a poor

memory of childhood events is indicative of a traumatic childhood (*n* = 7, 20.0%, 95% CI [9.1 – 37.5%] and *n* = 2, 16.7%, 95% CI [2.9 – 49.1%] respectively).

A large majority of students and EMDR practitioners agreed with the controversial statement that the mind is capable of unconsciously blocking out memories of traumatic events (*n* = 31, 88.6%, 95% CI [72.3 – 96.3%] and *n* = 11, 91.7%, 95% CI [59.8 – 99.6%] respectively), and that repressed memories of events can be accurately retrieved in therapy (*n* = 31, 88.6% 95% CI [72.3 – 96.3%] and *n* = 11, 91.7%, 95% CI [59.8 – 99.6%] respectively). Furthermore, 17 students (48.6%, 95% CI [31.7 – 65.7%]) and four EMDR practitioners (33.3%, 95% CI [11.3 – 64.6%]) agreed that very vivid memories are more likely to be accurate than vague memories. Nontrivial proportions of students and EMDR practitioners also agreed with the controversial idea that hypnosis can accurately retrieve inaccessible memories of events that did happen (*n* = 25, 71.4%, 95% CI [53.5 – 84.8%] and *n* = 7, 58.3%, 95% CI [28.6 – 83.5%] respectively). About half of the students (*n* = 20, 57.1%, 95% CI [39.5 – 73.2%]) and EMDR practitioners (*n* = 6, 50.0%, 95% CI [22.3 – 77.7%]) believed in the existence of photographic memory.

Discussion

Our samples of EMDR practitioners and students rarely endorsed scientifically unsupported statements (e.g., "early memories are accurately stored"). Nevertheless, a majority in both groups seemed to believe in repressed memories. In addition, a majority in both groups indicated that the recovered memory of the vignette was likely to be authentic.

Study 1 suffered from three limitations. First, the sample size of EMDR practitioners was small. Second, in line with previous studies (Akhtar, Justice, Knott, Kibowski, & Conway, 2018; Ost et al., 2013; Patihis et al., 2014) a 'do not know' option was not provided. This might have restricted respondents' option to indicate when they had no opinion on a certain statement. The consequence is that respondents are forced to answer, when in fact they

would be willing to admit that they have no knowledge concerning a particular statement (see also Brewin et al., in press). Third, for some concepts (e.g., repressed memories), no additional explanation was provided in the questionnaire. This is problematic as participants may have their own interpretations on what, for example, repressed memory entails and this might not be in line with how the concept is viewed within the survey (McNally, 2016; Brewin et al., in press). Study 2 relied on a larger sample of EMDR practitioners. In the questionnaire, a 'no opinion' option was included and concepts (e.g., repression) were not explicitly mentioned.

Study 2

Method

Participants

Ninety-five participants were recruited for the current study. The sample consisted of 24 students in a clinically forensic oriented Master's program at the University of Groningen (M_{age} = 23.75, *SD* = 3.01, range 20 - 35, 21 women). These Master's students all had one week of information on PTSD and EMDR. During courses, EMDR was presented as a therapeutic intervention. The students were recruited within the context of a lecture. Forty-five EMDR practitioners were recruited on a training day organized by their mental health care facility. Four EMDR practitioners did not provide consent to use their answers for scientific purposes (see below), hence, 41 EMDR practitioners (M_{age} = 40.39, *SD* = 11.18, range 22 - 61, 33 women) were included. Thirty-five academics (including PhD students, post-docs and lecturers/professors, no adjuncts were approached) with a research appointment at a clinically oriented department of the University of Groningen (hereafter: 'researchers') were recruited during a lab meeting. Five researchers did not provide their consent, hence, 30 academics (M_{age} = 31.14, *SD* = 6.64, range 22 - 45, 25 women; mostly junior researchers, such as PhD students and post-docs) were included. Half of the researchers had some clinical

experience (e.g., internship of two years), but they were not experienced enough to be counted as EMDR practitioners. The standing ethical committee of the Psychology department of the University of Groningen approved the study.

Materials and Procedure

All data and materials are available at the Open Science Framework at https://osf.io/4ug9t//. The survey took about 15 minutes to complete online, before participants' respective meetings. Prospective participants received the link to the questionnaire by email and completed it at their own convenience. The researchers and students completed an English version and the EMDR practitioners completed the questionnaire in Dutch. They were asked to give their opinion on statements about memory as input for a talk/lecture on memory, and students filled out the questionnaire before reading the relevant literature on the topic. Afterwards, participants were asked to provide their consent to use their answers for scientific purposes. The "agree" option contained an explanation of participants' rights and it was stated that additional questions about the participants' background would follow (e.g., biographical and educational information). The "disagree" option stated that choosing this option would terminate the questionnaire without any consequences. Respondents were assured that in that case, their answers would only be used on a group level in the talk/lecture for purpose of demonstration. After reading the information, prospective participants were given the choice either to participate and carry on or to decline and terminate the questionnaire.

Statements about Memory. The questionnaire (https://osf.io/5kc72/) was constructed using Qualtrics (Provo, Utah, USA) software. It consisted of 18 statements about memory and was in part inspired by those used in previous studies (Magnussen & Melinder, 2011; Ost et al., 2013; Odinot, Boon, & Wolters, 2015). New statements on bodily memories and preverbal trauma were constructed using various sources (e.g., Went, 2016;

http://www.larrysroadmap.com/memory/body-memory/). The questionnaire included six correct statements (e.g., "memory of trauma can be influenced by suggestion"), six scientifically controversial statements (e.g., the human mind is able to unconsciously block access to traumatic memories), and six statements for which empirical evidence is lacking or indecisive (e.g., "it is possible that traumatic memories are stored in the body"). Participants had to indicate their opinion (1 = agree; 2 = disagree; 3 = no opinion) and the statements were randomly presented. This questionnaire differed from the Memory Beliefs Questionnaire used in Study 1 in the following ways: it contained more topics (e.g., statements on preverbal trauma that are relevant for EMDR practitioners) and statements were formulated by describing the meaning of a concept rather than using the label.

Results

Due to the small sample size and constraints on generality, no inferential statistics are reported. Confidence intervals are reported to represent population estimates. Table 2 gives an overview of all scores and effect sizes. Here, we will highlight some of the most important results reported in Table 2.

We found that 22 students (91.7%, 95% CI [71.5 – 98.5%]), 38 EMDR practitioners (92.7%, 95% CI [79.0 – 98.1%]), and 29 researchers (96.7%, 95% CI [81.0 – 99.3%]) agreed that even very vivid memories can be false. Twenty-one students (87.5%, 95% CI [66.5 – 96.7%]), 40 EMDR practitioners (97.6%, 95% CI [85.6 – 99.9%]), and 29 researchers (96.7%, 95% CI [81.0 – 99.3%]) agreed that memory cannot be compared to a video recording and that the images in our mind do not always correspond with what was actually seen. Twenty students (83.3%, 95% CI [61.8 – 94.5%]), 33 EMDR practitioners (80.5%, 95% CI [64.6 – 90.6%]), and 25 researchers (83.3%, 95% CI [64.6 – 93.7%]) also agreed that memory for traumatic experiences is reconstructive.

A majority of participants within all groups also believed that it is possible for a patient to become convinced that he/she was sexually abused as a child, when in reality this did not happen (*n* = 22 (91.7%, 95% CI [71.5 – 98.5%]), *n* = 40 (97.6%, 95% CI [85.6 – 99.9%]), and *n* = 30 (100%, 95% CI [85.9 – 100%]), respectively). Twenty-two students (91.7%, 95% CI [71.5 – 98.5%]) and 34 EMDR practitioners (82.9%, 95% CI [67.4 – 92.3%]) agreed that it is possible for an individual to suddenly remember an abuse experience while not having thought about it for years, whereas 20 researchers (66.7%, 95% CI [47.1 – 82.1%]) agreed. On the other hand, 21 students (87.5%, 95% CI [66.5 – 96.7%]), 29 EMDR practitioners (70.7%, 95% CI [54.3 – 83.4%]) and 20 researchers (66.7%, 95% CI [47.1 – 82.1%] agreed that the human mind is capable of unconsciously blocking out memories of traumatic events.

There was little consensus with regard to topics such as body memories and preverbal trauma. For example, 12 students (50.0%, 95% CI [29.7 – 70.4%]), 14 EMDR practitioners (34.1%, 95% CI [20.6 – 510.7%]) and 17 researchers (56.7%, 95% CI [37.7 – 74.0%]) agreed that if a traumatic experience is not consciously processed, it will continue to express itself indirectly as psychopathological symptoms or bodily reactions. Regarding statements on preverbal trauma, 16 students (66.7%, 95% CI [44.7 – 83.6%]), 15 EMDR practitioners (36.6%, 95% CI [22.6 – 53.1%]) and 15 researchers (50.0%, 95% CI [31.7 – 68.3%]) agreed that when an adult patient in addition to PTSD has a history of preverbal trauma, the preverbal trauma must be treated.

Discussion

Many students, EMDR practitioners, and researchers in our sample had a nuanced view on several issues about memory. For example, many endorsed ideas that very vivid memories can be incorrect, that trauma memories are reconstructive, and that memory does not operate as a video camera. A majority of all groups believed that an individual could suddenly remember or become convinced of an abusive experience. However, we still observed

considerable proportions of students (87%) and EMDR practitioners (70%) who agreed with controversial claims about the existence of repression-like phenomena. A somewhat lower level of endorsement was found for researchers (around 66%). Little consensus in these groups was found regarding topics such as the body keeps the score, and preverbal trauma. This could be due to the fact that empirical evidence is either lacking or weak. To conclude, Study 2 replicated the findings of Study 1 and indicated that scepticism and problematic ideas about memory may co-exist within one group.

General Discussion

In the 1990s, creating false memories during therapy has been the topic of an intense debate. At the heart of this debate was the question whether memories that surface during or after therapeutic instructions are veridical. Clinicians believed that traumatic memories were blocked out of consciousness into the unconscious. By means of psychotherapy, such memories could re-emerge into patients' consciousness. However, scientific findings do not prove the existence of repression and allocate the emergence of memories to suggestive therapeutic instructions (Ceci & Bruck, 1994).

Because EMDR addresses traumatic autobiographical memories, it is important that EMDR practitioners are sensitive to controversial ideas about the functioning of human memory. We examined memory beliefs in samples of EMDR practitioners, because of the increasing popularity of EMDR as a therapeutic technique (Herbert et al., 2000; Gielkens, Sobczak, & Van Alphen, 2016).

The most important findings can be summarized as follows. First, in both studies, students, a small sample of EMDR practitioners, and researchers demonstrated adequate knowledge on various memory-related issues (see also Brewin et al., in press). That these groups were generally reluctant to endorse some controversial beliefs about memories is encouraging and shows that, to some extent, they are able to differentiate between well-

supported and problematic ideas about memory functioning. Nevertheless, we observed in our samples that many EMDR practitioners (70–90%) and students (around 90%) believed in the existence of repression. Similar percentages (around 80%) were found among the general public (Patihis et al., 2014, Study 2). A majority of the researchers (Study 2; 66.7%) also agreed with repression statements, although they agreed to a lesser extent to this than students did. Hence, in one and the same group, scepticism about problematic memory notions may co-exist with endorsement of other controversial ideas about memory-related topics. In addition, in Study 2 we included statements referring to 'the body keeps the score' hypothesis (van der Kolk & Fisler, 1995). During the memory wars, it was believed that the unconsciously blocked memory would express itself as mental and/or physical symptoms. Though empirical evidence for this is weak or absent (Vervaeke, Bogaerts, & Heylen, 2002), only a minority of participants disagreed or had no opinion about such statements. Hence, a proportion of our sample beliefs that a traumatic memory must become conscious to treat physical symptoms that, allegedly, occur because of the traumatic memory.

Second, memory attitudes were similar in this sample of EMDR practitioners and researchers. This seems not to be in line with the findings of Patihis and colleagues (2014), who observed a practitioner-researcher gap in their study. However, it is vital to acknowledge that the subsample of researchers in Study 2 were research experts in the field of cognitive/clinical psychology and not necessarily experts in the field of memory. Memory experts are generally sceptical towards the existence of repression (Patihis, Ho, Loftus, & Herrera, 2018).

Third, memory attitudes of students and this sample of EMDR practitioners were, in many respects, similar. Although experience does not guarantee expertise (see e.g., Kahneman & Klein, 2009), this raises the question of what role expertise plays in therapy (Tracey, Wampold, Lichtenberg, & Goodyear, 2014). Given their expertise, one would have

expected lower levels of endorsement of controversial memory ideas in practitioners. However, the question remains whether therapists act upon their knowledge regarding memory findings. More specifically, Gore-Felton and colleagues (2000) have shown that therapists' personal beliefs influenced their professional judgments. This might be problematic when a therapist personally beliefs in the concept of repression and clinical judgments are based on this belief.

If these results would generalize to EMDR therapists in general, then some of our results might be seen as worrisome for clinical settings. Believing in the concept of repression might fuel the idea that having vague symptoms or suspicions of sexual abuse might be a sign of a repressed memory, something that is highly controversial in memory literature (Rofé, 2008). In the worst-case scenario, therapists might suggestively search for the existence of repressed memories, thereby increasing the likelihood of inducing a false memories and/or beliefs during a therapy session. In practice, if an EMDR practitioner decides to opt for EMDR when the patient has a vague memory, the patient could form new images because of subtle suggestions by a therapist and may conclude that the alleged event might have happened. Such false memories might be devastating when they go beyond the therapeutic context and affect relationships and/or enter the legal arena. Precisely because there is no general false memory trait (Patihis, 2018), clinicians should be aware that every patient could be susceptible to false memories (Bernstein, Scoboria, Desjarlais, & Soucie, 2018; Patihis, Frenda, & Loftus, 2018). Therefore, it is imperative for EMDR practitioners to refrain from suggesting the possibility of repressed memories of abuse to their patients, particularly in cases where patients have vague memories (de Jongh & Wessel, 2018).

Patihis and Pendergrast (2018) found that some of the U.S. public who reported undergoing EMDR indicated that their therapist discussed repressed and recovered memories with them (Tables S6, S7). This is reinforced by previous related work that showed beliefs

about repression are common (e.g., Ost et al., 2013; Patihis et al., 2014). A side note is that concepts such as repression are engrained in our culture and are casually used without being aware of possible implications (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2010). As a result, it remains difficult to capture the belief in repression in single statements.

The present studies have some limitations. Although the EMDR sample was small, our sample of EMDR are members of a specialized facility and the Dutch association of EMDR (around 4000 members in April, 2019[1]) and work at a specialized facility in which EMDR is a core activity. Hence, the question remains whether the results based on this sample of EMDR practitioners can be generalized to the majority of Dutch EMDR practitioners. Our results are certainly not generalizable to EMDR practitioners around the world. Also, the sample in Study 2 consisted mainly of junior researchers (i.e., PhD students), and these results might not be generalizable to all (senior) academics of other universities. A direct replication should include a larger sample in all participants groups. However, we have no reason to believe that our results depend on other characteristics of the participants, materials, or context. In addition, in both Study 1 and 2, although a question assessing reading of the literature was included, the memory belief items did not include a question assessing the participants' self-assessed knowledge of the topic. Such self-assessments of knowledge would be an interesting addition to a future study.

EMDR decreases the vividness and emotionality of negative autobiographical memories (but see van Schie, van Veen, & Hagenaars, 2019), but its long-term clinical value needs to be determined. However, our findings underscore the need for specialized education of clinicians about the functioning of memory and potential side effects of therapies that rely on changing the quality of autobiographical memories. In addition, it is important that memory scholars and clinicians continue to talk about these issues in academic and clinical settings in order to

[1] This was checked with the board of the Dutch EMDR association.

prevent false memory production in therapy, as happened in the past. Such recovery of purportedly repressed memories could perilous for both patients who have to deal with traumatic experiences and for individuals who start to believe to have experienced a traumatic event.

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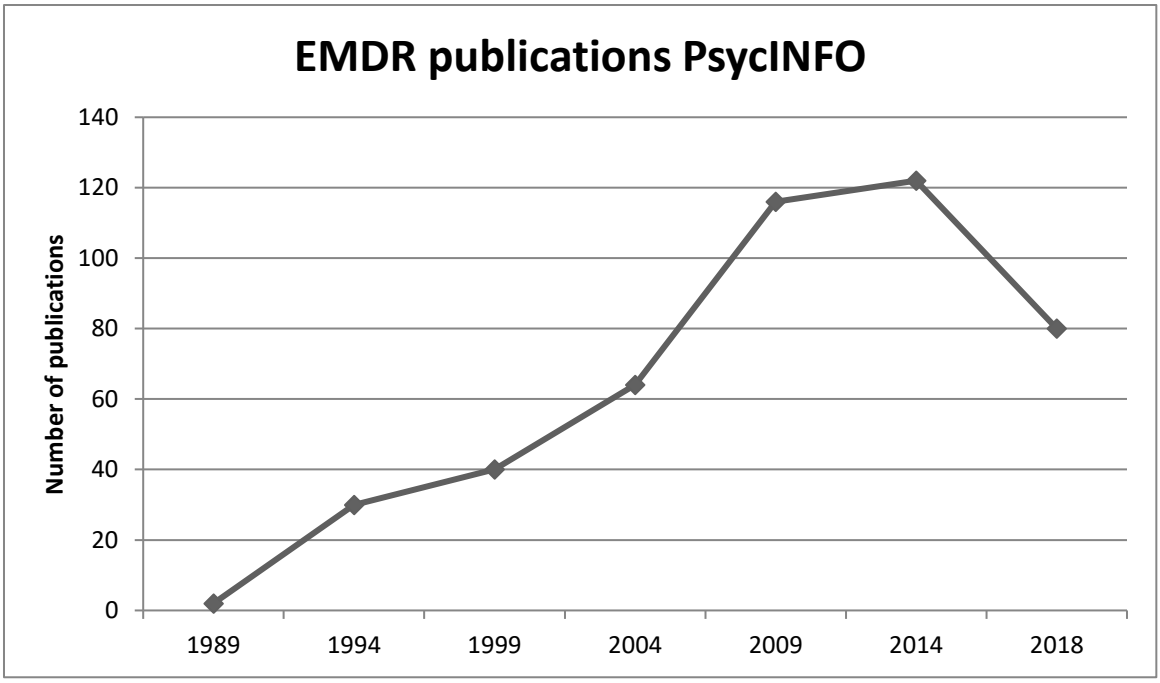

Figure 1. Number of (international) publications on EMDR. Search terms included 'emdr OR eye movement desensitization OR eye movement desensitization therapy OR eye movement desensitization and reprocessing' per year.

Table 1

Number, Percentages and Confidence Intervals of Participants Endorsing Memory Statements in Study 1

Statement		Strongly agree	95% CI	Agree	95% CI	Disagree	95% CI	Strongly disagree	95% CI
The mind is capable of unconsciously blocking out memories of traumatic events	Students	13 (37.1%)	22.0 – 55.1	18 (51.4%)	34.3 – 68.3	2 (5.7%)	0.9 – 20.5	2 (5.7%)	0.9 – 20.5
	EMDR	4 (33.3%)	11.3 – 64.5	7 (58.3%)	28.6 – 83.5	1 (8.3%)	0.4 – 40.2	0 (0.0%)	0.0 – 30.1
Memory is like a computer/tape recorder/video camera, accurately recording events as they actually occurred	Students	0 (0.0%)	0.0 – 12.3	1 (2.9%)	0.2 – 17	26 (74.3%)	56.4 – 86.9	8 (22.9%)	11.1 – 40.6
	EMDR	1 (8.3%)	0.4 – 40.2	0 (0.0%)	0.0 – 30.1	9 (75.0%)	42.8 – 93.3	2 (16.7%)	2.3 – 49.1
It is possible for an individual to develop false memories for non-traumatic events	Students	3 (8.6%)	2.2 – 24.2	29 (82.9%)	65.7 – 92.8	3 (8.6%)	2.2 – 24.2	0 (0.0%)	0.0 – 12.3
	EMDR	1 (8.3%)	0.4 – 40.2	10 (83.3%)	50.9 – 97.1	1 (8.3%)	0.4 – 40.2	0 (0.0%)	0.0 – 30.1
Very vivid memories are more likely to be accurate than vague memories	Students	2 (5.7%)	0.9 – 20.5	15 (42.9%)	26.7 – 60.5	16 (45.7%)	29.2 – 63.1	2 (5.7%)	0.9 – 20.5
	EMDR	0 (0.0%)	0.0 – 30.1	4 (33.3%)	11.3 – 64.6	8 (66.7%)	35.4 – 88.7	0 (0.0%)	0.0 – 30.1
A poor memory for childhood events is indicative of a traumatic childhood	Students	0 (0.0%)	0.0 – 12.3	7 (20.0%)	9.1 – 37.5	21 (60.0%)	42.2 – 75.7	7 (20.0%)	9.1 – 37.5
	EMDR	0 (0.0%)	0.0 – 30.1	2 (16.7%)	2.3 – 49.1	7 (58.3%)	28.6 – 83.5	3 (25.0%)	6.7 – 57.2
Early memories, from the first year of life, are accurately stored and retrievable	Students	0 (0.0%)	0.0 – 12.3	2 (5.7%)	0.9 – 20.5	23 (65.7%)	47.7 – 80.3	10 (28.6%)	15.2 – 46.5
	EMDR	0 (0.0%)	0.0 – 30.1	0 (0.0%)	0.0 – 30.1	5 (41.7%)	16.5 – 71.1	7 (58.3%)	28.6 – 83.5
Memory is not influenced by suggestion	Students	3 (8.6%)	2.2 – 24.2	3 (8.6%)	2.2 – 24.2	17 (48.6%)	31.7 – 65.7	12 (34.3%)	19.7 – 52.3
	EMDR	0 (0.0%)	0.0 – 30.1	1 (8.3%)	0.4 – 40.2	4 (33.3%)	11.3 – 64.6	7 (58.3%)	28.6 – 83.5
It is possible for a patient to distinguish between true and false memories	Students	0 (0.0%)	0.0 – 12.3	3 (8.6%)	2.2 – 24.2	30 (85.7%)	69.0 – 94.6	2 (5.7%)	0.9 – 20.5
	EMDR	0 (0.0%)	0.0 – 30.1	5 (41.7%)	16.5 – 71.4	6 (50.0%)	22.3 – 77.7	1 (8.3%)	0.4 – 40.2
Repressed memories of events that did happen can be retrieved in therapy accurately[†]	Students	11 (32.4%)	18.0 – 50.6	20 (58.8%)	40.8 – 74.9	3 (8.8%)	2.3 – 24.8	0 (0.0%)	0 – 12.6
	EMDR	1 (8.3%)	0.4 – 40.2	10 (83.3%)	50.9 – 97.1	1 (8.3%)	0.4 – 40.2	0 (0.0%)	0.0 – 30.1
Memory can be inaccurate	Students	5 (14.3%)	5.4 – 31.1	20 (57.1%)	39.5 – 73.2	10 (28.6%)	15.2 – 46.5	0 (0.0%)	0.0 – 12.3
	EMDR	4 (33.3%)	11.3 – 64.6	8 (66.7)	35.4 – 88.7	0 (0.0%)	0.0 – 30.1	0 (0.0%)	0.0 – 30.1
Hypnosis can accurately retrieve memories of events that did happen, but were previously not known to the patient	Students	2 (5.7%)	0.9 – 20.5	23 (65.7%)	47.7 – 80.3	10 (28.6%)	15.2 – 46.5	0 (0.0%)	0.0 – 12.3
	EMDR	0 (0.0%)	0.0 – 30.1	7 (58.3%)	28.6 – 83.5	4 (33.3%)	11.3 – 64.6	1 (8.3%)	0.4 – 40.2

Memory of everything experienced is stored permanently in the brain, even if we cannot access all of it	Students	1 (2.9%)	0.2 – 16.6	11 (31.4%)	17.4 – 49.4	20 (57.1%)	39.5 – 73.2	3 (8.6%)	2.2 – 24.2
	EMDR	0 (0.0%)	0.0 – 30.1	3 (25.0%)	6.7 – 57.2	7 (58.3%)	28.6 – 83.5	2 (16.7%)	2.9 – 49.1
Some people have true photographic memories	Students	1 (2.9%)	0.2 – 16.6	19 (54.3%)	36.9 – 70.8	15 (42.9%)	26.8 – 60.5	0 (0.0%)	0.0 – 12.3
	EMDR	0 (0.0%)	0.0 – 30.1	6 (50.0%)	22.3 – 77.7	5 (41.7%)	16.5 – 71.4	1 (8.3%)	0.4 – 40.2
When someone has a memory of a trauma while in hypnosis, it objectively must have occurred	Students	0 (0.0%)	0.0 – 12.3	5 (14.3%)	5.4 – 31.1	30 (85.7%)	69.0 – 94.6	0 (0.0%)	0.0 – 12.3
	EMDR	0 (0.0%)	0.0 – 30.1	1 (8.3%)	0.4 – 40.2	7 (58.3%)	28.6 – 83.5	4 (33.3%)	11.3 – 64.6
The suggestibility of memory is a problem for young children‡	Students	1 (2.9%)	0.2 – 16.6	19 (54.3%)	36.9 – 70.8	15 (42.9%)	26.8 – 60.5	0 (0.0%)	0.0 – 12.3
	EMDR	0 (0.0%)	0.0 – 32.1	3 (27.3%)	7.3 – 60.7	6 (54.5%)	24.6 – 81.9	2 (18.2%)	3.2 – 52.2

Notes. $N = 47$ (Students $n = 35$; EMDR = EMDR practitioners, $n = 12$). CI = Confidence Intervals including continuity correction. † = 34 students answered this statement; ‡ = 11 EMDR practitioners answered this statement.

Table 2

Number, Percentages and Confidence Intervals of Participants Endorsing Memory Statements in Study 2

Statement		Agree	95% CI	Disagree	95% CI	No opinion	95% CI	Cramer's *V*
Even very vivid memories can be false	Students	22 (91.7%)	71.5 – 98.5	0 (0.0%)	0.0 – 17.2	2 (8.3%)	14.6 – 28.5	0.10
	EMDR	38 (92.7%)	79.0 – 98.1	1 (2.4%)	0.1 – 14.4	2 (4.9%)	0.9 – 17.8	
	Researchers	29 (96.7%)	81.0 – 99.3	0 (0.0%)	0.0 – 14.1	1 (3.3%)	0.2 – 19.1	
The more intense the emotion in response to a memory, the more likely it is to be accurate	Students	1 (4.2%)	0.2 – 23.1	20 (83.3%)	61.8 – 94.5	3 (12.5%)	3.3 – 33.5	0.10
	EMDR	5 (12.2%)	4.6 – 27.0	32 (78.0%)	62.0 – 88.9	4 (9.8%)	3.2 – 24.1	
	Researchers	2 (6.7%)	11.6 – 23.5	23 (76.7%)	57.3 – 89.4	5 (16.7%)	6.3 – 35.5	
It is possible that someone suddenly remembers an abuse experience that they haven't thought about for years	Students	22 (91.7%)	71.5 – 98.5	1 (4.2%)	0.2 – 23.1	1 (4.2%)	0.2 – 23.1	0.20
	EMDR	34 (82.9%)	67.4 – 92.3	5 (12.2%)	4.6 – 27.0	2 (4.9%)	0.9 – 17.8	
	Researchers	20 (66.7%)	47.1 – 82.1	4 (13.3%)	43.6 – 31.6	6 (20.0%)	8.4 – 39.1	
The human mind is capable of unconsciously blocking out memories of traumatic events	Students	21 (87.5%)	66.5 – 96.7	1 (4.2%)	0.2 – 23.1	2 (8.3%)	14.6 – 28.5	0.19
	EMDR	29 (70.7%)	54.3 – 83.4	10 (24.4%)	12.9 – 40.6	2 (4.9%)	0.9 – 17.8	
	Researchers	20 (66.7%)	47.1 – 82.1	5 (16.7%)	6.3 – 35.5	5 (16.7%)	6.3 – 35.5	
Comparing memory with a video recording does not work: Images in the mind's eye do not always correspond with what was actually seen	Students	21 (87.5%)	66.5 – 96.7	2 (8.3%)	14.6 – 28.5	1 (4.2%)	0.2 – 23.1	0.16
	EMDR	40 (97.6%)	85.6 – 99.9	1 (2.4%)	0.1 – 14.4	0 (0.0%)	0.0 – 14.1	
	Researchers	29 (96.7%)	81.0 – 99.3	0 (0.0%)	0.0 – 14.1	1 (3.3%)	0.2 – 19.1	
Just like memory for everyday experiences, memory for traumatic experiences is reconstructive	Students	20 (83.3%)	61.8 – 94.5	2 (8.3%)	14.6 – 28.5	2 (8.3%)	14.6 – 28.5	0.07
	EMDR	33 (80.5%)	64.6 – 90.6	2 (4.9%)	0.9 – 17.8	6 (14.6%)	6.1 – 29.9	
	Researchers	25 (83.3%)	64.6 – 93.7	2 (6.7%)	1.2 – 23.5	3 (10.0%)	2.6 – 27.7	
Memories of trauma can be influenced by suggestion	Students	24 (100%)	82.3 – 100	0 (0.0%)	0.0 – 17.2	0 (0.0%)	0.0 – 17.2	0.19
	EMDR	40 (97.6%)	85.6 – 99.9	1 (2.4%)	0.1 – 14.4	0 (0.0%)	0.0 – 10.7	
	Researchers	30 (100%)	85.9 – 100	0 (0.0%)	0.0 – 14.1	0 (0.0%)	0.0 – 14.1	
	Students	22 (91.7%)	71.5 – 98.5	0 (0.0%)	0.0 – 17.2	2 (8.3%)	14.6 – 28.5	0.20

It is possible for a patient to come to believe that (s)he was sexually abused as a child, if no abuse had actually occurred	EMDR	40 (97.6%)	85.6 – 99.9	1 (2.4%)	0.1 – 14.4	0 (0.0%)	0.0 – 10.7	
	Researchers	30 (100%)	85.9 – 100	0 (0.0%)	0.0 – 14.1	0 (0.0%)	0.0 – 14.1	
The more gruesome the content of a traumatic memory is, the less likely it is to be a false memory	Students	1 (4.2%)	0.2 – 23.1	20 (83.3%)	61.8 – 94.5	3 (12.5%)	3.3 – 33.5	0.14
	EMDR	2 (4.9%)	0.9 – 17.8	37 (90.2%)	75.9 – 96.8	2 (4.9%)	0.9 – 17.8	
	Researchers	0 (0.0%)	0.0 – 14.1	29 (96.7%)	81.0 – 99.8	1 (3.3%)	0.2 – 19.1	
Having no memory for childhood events before the age of eight years old is indicative of a traumatic childhood	Students	3 (12.5%)	3.3 – 33.5	15 (62.5%)	40.8 – 80.5	6 (25.0%)	10.6 – 47.1	0.18
	EMDR	1 (2.4%)	0.1 – 14.4	36 (87.8%)	73.0 – 95.4	4 (9.8%)	3.2 – 24.1	
	Researchers	2 (6.7%)	1.2 – 23.5	22 (73.3%)	53.8 – 87.0	6 (20.0%)	8.4 – 39.1	
If a traumatic experience is not consciously processed, it will continue to express itself indirectly as psychopathological symptoms or bodily reactions	Students	12 (50.0%)	29.7 – 70.4	7 (29.2%)	13.4 – 51.3	5 (20.8%)	7.9 – 42.7	0.20
	EMDR	14 (34.1%)	20.6 – 50.7	23 (56.1%)	39.9 – 71.2	4 (9.8%)	3.2 – 24.1	
	Researchers	17 (56.7%)	37.7 – 74.0	9 (30.0%)	15.4 – 49.6	4 (13.3%)	4.4 – 31.6	
The higher the number of indirect indicators (e.g., symptoms or bodily reactions), the more convincing it is that a patient was sexually abused, even if they deny that this is the case	Students	5 (20.8%)	7.9 – 42.7	15 (62.5%)	40.8 – 80.5	4 (16.7%)	5.5 – 38.2	0.16
	EMDR	4 (9.8%)	3.2 – 24.1	35 (85.4%)	70.1 – 93.9	2 (4.9%)	0.9 – 17.8	
	Researchers	5 (16.7%)	6.3 – 35.5	21 (70.0%)	50.4 – 84.6	4 (13.3%)	4.4 – 31.6	
Traumatic memories can be stored in the body	Students	14 (58.3%)	36.9 – 77.2	4 (16.7%)	5.5 – 38.2	6 (25.0%)	10.6 – 47.1	0.20
	EMDR	32 (78.1%)	62.0 – 88.9	6 (14.6%)	6.1 – 29.9	3 (7.3%)	1.9 – 21.0	
	Researchers	19 (63.3%)	43.9 – 79.5	2 (6.7%)	1.2 – 23.5	9 (30.0%)	15.4 – 49.6	
The body may remember trauma outside of the mind's awareness	Students	16 (66.7%)	44.7 – 83.6	4 (16.7%)	5.5 – 38.2	4 (16.7%)	5.5 – 38.2	0.11
	EMDR	26 (63.4%)	46.9 – 77.4	9 (22.0%)	11.1 – 38.0	6 (14.6%)	6.1 – 29.9	
	Researchers	20 (66.7%)	47.1 – 82.1	3 (10.0%)	2.6 – 27.7	7 (23.3%)	10.6 – 42.7	
If an adult patient has a history of preverbal trauma next to PTSD for recent trauma, and the trauma treatment does not progress, the preverbal trauma should be treated	Students	16 (66.7%)	44.7 – 83.6	2 (8.3%)	14.6 – 28.5	6 (25.0%)	10.6 – 47.1	0.22
	EMDR	15 (36.6%)	22.6 – 53.1	14 (34.1%)	20.6 – 50.7	12 (29.3%)	16.7 – 45.7	
	Researchers	15 (50.0%)	31.7 – 68.3	4 (13.3%)	4.4 – 31.6	11 (36.7%)	20.6 – 56.1	

Preverbal trauma is not consciously accessible and can cause symptoms during adulthood	Students	13 (54.1%)	33.2 – 73.8	4 (16.7%)	5.5 – 38.2	7 (29.2%)	13.4 – 51.3	0.14
	EMDR	25 (61.0%)	44.6 – 75.4	8 (19.5%)	9.4 – 35.4	8 (19.5%)	9.4 – 35.4	
	Researchers	15 (50.0%)	31.7 – 68.3	3 (10.0%)	2.6 – 27.7	12 (40.0%)	23.2 – 59.3	
It is important to activate preverbal trauma with a narrative for it to be adequately processed[†]	Students	9 (37.5%)	19.6 – 59.2	4 (16.7%)	5.5 – 38.2	11 (45.8%)	2.26 – 66.8	0.36
	EMDR	7 (17.5%)	7.9 – 33.4	24 (60.0%)	43.4 – 74.7	9 (22.5%)	11.4 – 38.9	
	Researchers	5 (16.7%)	6.3 – 35.5	11 (36.7%)	20.6 – 56.1	14 (46.7%)	28.8 – 65.4	
At least a subset of reports on satanic ritual abuse is based on actual experiences	Students	15 (62.5%)	40.8 – 80.5	4 (16.7%)	5.5 – 38.2	5 (20.8%)	7.9 – 42.7	0.27
	EMDR	17 (41.5%)	26.7 – 57.8	13 (31.7%)	18.6 – 48.2	11 (26.8%)	14.8 – 43.1	
	Researchers	6 (20.0%)	8.4 – 39.1	7 (23.3%)	10.6 – 42.7	17 (56.7%)	37.7 – 74.0	

Notes. $N = 95$ (Students $n = 24$; EMDR = EMDR practitioners, $n = 41$; Researchers $n = 30$. CI = Confidence Intervals including continuity correction. [†] = 40 EMDR practitioners answered this statement.