



## Shorter communication

# A pilot randomized controlled trial investigating the efficacy of MEMory Specificity Training in improving symptoms of posttraumatic stress disorder<sup>☆</sup>



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## ABSTRACT

Poor autobiographical memory specificity is a cognitive marker of posttraumatic stress disorder (PTSD) and an independent predictor of poor prognosis. This pilot randomized controlled trial investigated the efficacy of MEMory Specificity Training (MEST) (an intervention aimed at ameliorating specificity problems) on autobiographical memory recall and PTSD symptoms. Iranian combat veterans with PTSD were randomly assigned into the MEST ( $n = 12$ ) or control ( $n = 12$ ) group. At baseline, groups completed Farsi versions of the Autobiographical Memory Test and Impact of Event Scale-Revised. The intervention group then had four, weekly, group sessions of MEST. The control group had no additional contact. All measures were re-administered post-intervention and at three-month follow-up. The MEST group generated significantly more specific memories and had significantly fewer PTSD symptoms following training and at follow-up than the control group. Findings suggest MEST is a promising intervention for the treatment of PTSD.

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Overgeneral autobiographical memory (OGM) has been found to be a cognitive marker of posttraumatic stress disorder (PTSD). Namely, when asked to remember specific events from their lives those with PTSD have significant difficulties providing memories of discrete occasions that occurred at a particular time and place (see Moore & Zoeller, 2008; Williams et al., 2007). It is proposed that an OGM retrieval style develops as a cognitive avoidance strategy in response to distressing, and often intrusive, memories of the traumatic experience. Specifically, in an attempt to avoid retrieving specific memories that are painful and affect-laden, and

characteristic of PTSD, trauma survivors may adopt an OGM retrieval style as general memories may create less affect than the recollection of specific episodic memories. In time, attempts to minimize the retrieval of specific memories can develop into an inflexible and habitual response pattern and thus, a more generic form of avoidance (see Dalgleish, Hauer, & Kuyken, 2008; Williams, 2006; Williams et al., 2007).

Research indicates that the inability to provide specific autobiographical memories has important implications for the functionality of everyday cognition. For instance, OGM has been found to be associated with impaired social problem-solving (Sutherland & Bryant, 2008), difficulty imagining specific events in the future (Kleim, Graham, Fihosy, Stott, & Ehlers, 2014), and difficulty accessing specific information about the past, including about the trauma, which interferes with the ability to update and re-script the trauma memory – processes integral to recovery from PTSD (Moradi, Abdi, Fathi-Ashtiani, Dalgleish, & Jobson, 2012). In light of these relationships, it is unsurprising that an OGM retrieval style

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has been found to predict poorer PTSD symptom outcomes in longitudinal studies, over and above current PTSD levels (Kleim & Ehlers, 2008). While there appears to be significant negative consequences associated with having an OGM retrieval style, it is important to note that research suggests that OGM is not a fixed feature of an individual's mnemonic style (Yeung, Dalgleish, Golden, & Schartau, 2006) and can be modified (Williams, Teasdale, Segal, & Soulsby, 2000). Therefore, clinical efforts to improve autobiographical memory specificity (AMS) should have positive clinical outcomes for patients with PTSD (Neshat-Doost et al., 2013).

Preliminary research has investigated the efficacy of a brief intervention targeting AMS. To date, this research has, however, focused solely on depression; OGM is not uniquely associated with PTSD but is rather a transdiagnostic impairment that was initially found to be associated with depression (see Sumner, Griffith, & Mineka, 2010; Williams et al., 2007). In the initial study, Raes, Williams, and Hermans (2009) evaluated the effect of a group-based standalone training program (MEemory Specificity Training: MEST) with ten depressed female inpatients. They found that participants' retrieval style became significantly more specific. No effects on depression were reported. In the first randomized controlled trial and the first study to report clinical outcomes, Neshat-Doost et al. (2013) investigated the impact of MEST on AMS and symptoms of depression in a distressed sample of bereaved Afghan adolescents. The results indicated that MEST was again successful in significantly enhancing AMS in trained participants, this time relative to no significant change in a non-contact control group. Additionally, while the groups did not differ in terms of depressive symptomatology following MEST, at two-month follow-up adolescents in the MEST group had significantly lower levels of depressive symptoms than the control group and change in AMS was found to mediate this improvement. These studies support the theoretical hypotheses that it is possible to modify AMS and that a training program (MEST) employed to achieve this goal can in turn improve symptoms of depression.

While these initial studies are promising they have, to date, only investigated the efficacy of MEST on depression. Therefore, it has been recently stressed that research now needs to investigate whether these results extend to individuals with PTSD (Kleim et al., 2014). Hence, the purpose of the current study is to investigate the efficacy of MEST on PTSD. Specifically, our first aim was to investigate whether MEST could improve AMS in patients with PTSD. Second, we aimed to examine whether MEST can ameliorate symptoms of PTSD. In particular, we hypothesized that MEST should improve PTSD avoidance and intrusion symptoms because, as outlined above, trauma survivors with PTSD may use OGM retrieval as an avoidance strategy which develops in response to the intrusive trauma memories associated with PTSD and research has demonstrated that avoidance and intrusion symptoms are associated with OGM (e.g. Kuyken & Brewin, 1995).

## Method

### Participants

We used the data from Raes et al. (2009) as the basis for a power calculation. In their study, MEST produced a change in the proportional measure of AMS of 1.1 standard deviation units. Based on this effect size, and assuming no change in AMS in our control group (in line with Neshat-Doost et al., 2013), we calculated that a sample size of 22 (11 per group) would provide 80% power, with a directional alpha of .05, to detect a similar improvement in AMS in the current pilot trial. Participants ( $N = 24$ ; aged 39–52 years old) were male Iranian war veterans who had participated in the Iran–Iraq war and thus, had been exposed to various war-type traumas such as a

**Table 1**

Means and (standard deviations) for participant characteristics in the MEemory Specificity Training (MEST) and control groups.

	MEST	Control
Age – years	45.25 (3.86)	45.33 (3.80)
Education (n)	Primary (6), diploma (6)	Primary (7), diploma (5)
Marital status (n)	Married (11), single (1)	Married (11), single (1)
<i>PTSD symptoms</i>		
<i>Pre-training</i>		
Intrusion	27.83 (1.95)	26.08 (3.26)
Avoidance	28.75 (2.30)	27.58 (3.15)
Hyperarousal	24.50 (3.06)	21.67 (2.42)
<i>Post-training</i>		
Intrusion	12.92 (3.15)	24.92 (3.75)
Avoidance	12.75 (2.30)	25.50 (2.91)
Hyperarousal	24.50 (3.53)	24.92 (4.14)
<i>Follow-up</i>		
Intrusions	13.33 (2.90)	24.50 (3.00)
Avoidance	13.42 (2.61)	26.42 (2.50)
Hyperarousal	26.25 (4.58)	24.00 (2.59)
<i>Depression</i>		
<i>Pre-training</i>		
Pre-training	19.08 (9.06)	20.42 (13.56)
Post-training	15.25 (4.03)	20.17 (8.81)
Follow-up	21.33 (4.91)	21.67 (8.07)
<i>Proportion of war-related memories on AMT</i>		
Pre-training	.83 (.16)	.76 (.16)
Post-training	.76 (.12)	.69 (.22)
Follow-up	.79 (.18)	.74 (.12)
<i>Proportion of war-related memories provided during MEST homework</i>		
Session 1	.50 (.16)	–
Session 2	.48 (.13)	–
Session 3	.45 (.10)	–
Session 4	.47 (.12)	–

Note. Primary = completed primary school education. Diploma = completed high school. AMT = Autobiographical Memory Test.

witnessing and experiencing combat attacks, bomb explosions, chemical weapon attacks, arrest by Iraqi forces and severe injury and death. The Shahid Sadr Hospital is a special hospital established to offer medical and psychological services to Iranian military personnel involved in this eight-year conflict (September 1980–August 1988) between Iraq and Iran. To recruit participants the researchers arranged a program of visits with the fifty patients who had been involved in the war. All participants were screened for the trial and 24 participants met the diagnostic criteria for PTSD as determined by the Iranian version of the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1996). The validity and reliability of the Iranian version has been assessed and found to be adequate by the Institute of Psychiatry, Medical Tehran University (Moradi et al., 2012). The structured clinical interviews were conducted in Farsi by independent clinical psychologists who had received training on the Iranian SCID prior to conducting the diagnostic evaluations. All 24 participants agreed to participate in the trial and were randomly allocated<sup>1</sup> into the MEST ( $n = 12$ ) and control ( $n = 12$ ) groups. Table 1 shows participant characteristics. The groups did not differ significantly in terms of age, marital status, education and baseline depression. All participants were retained at post-treatment and at follow-up. The CONSORT (consolidated standards for reporting trials) diagram is presented in Fig. 1

### Materials

#### Impact of Event Scale – Revised (IES-R; Weiss & Marmar, 1997)

The IES-R was used as the primary symptom outcome measure. It is a 22-item self-report questionnaire measuring severity of

<sup>1</sup> Allocation was made using a random number list generated by computer and concealing the result of each randomization into sealed, numbered envelopes which were only opened after the participant had consented to participate.

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