Emerging Treatment Solutions for PTSD Among PSPs

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PTSD

Limitations of Current Treatments: *Psychotropic Drugs*

(Bisson, 2007; Fournier et al., 2010; Ipser et al., 2011; NICE, 2018).

- International Guidelines: SSRIs antidepressants remain recommended but are no longer the *first-line* treatment for PTSD.

- The SSRIs: For traumatic stress, *paroxetine* is superior (d = 2.4) to the placebo (d = 2.0), and emerges as the most recommended Rx.

- However, SSRIs induce withdrawal syndromes and side-effects (e.g., weight gain, nausea, & sexual difficulties): 33% of patients abandon them early, reducing their efficiency.

PTSD Limitations of Current Treatments:

Psychotherapy *Bradley et al., 2006; Wampold et al., 2017*

- Treatment may take years.
- Practitioners are few .
- Treatments are expensive, time-consuming and slow.
- Withdrawal from treatment is frequent.
- Relapse is common. CBT: 50% a year

The Discovery of *Re*consolidation…

Could we erase PTSD?

ELSEVIER

Behavioural Brain Research 84 (1997) 241–246

BEHAVIOURAL BRAIN RESEARCH

Research report

Reconsolidation of memory after its reactivation

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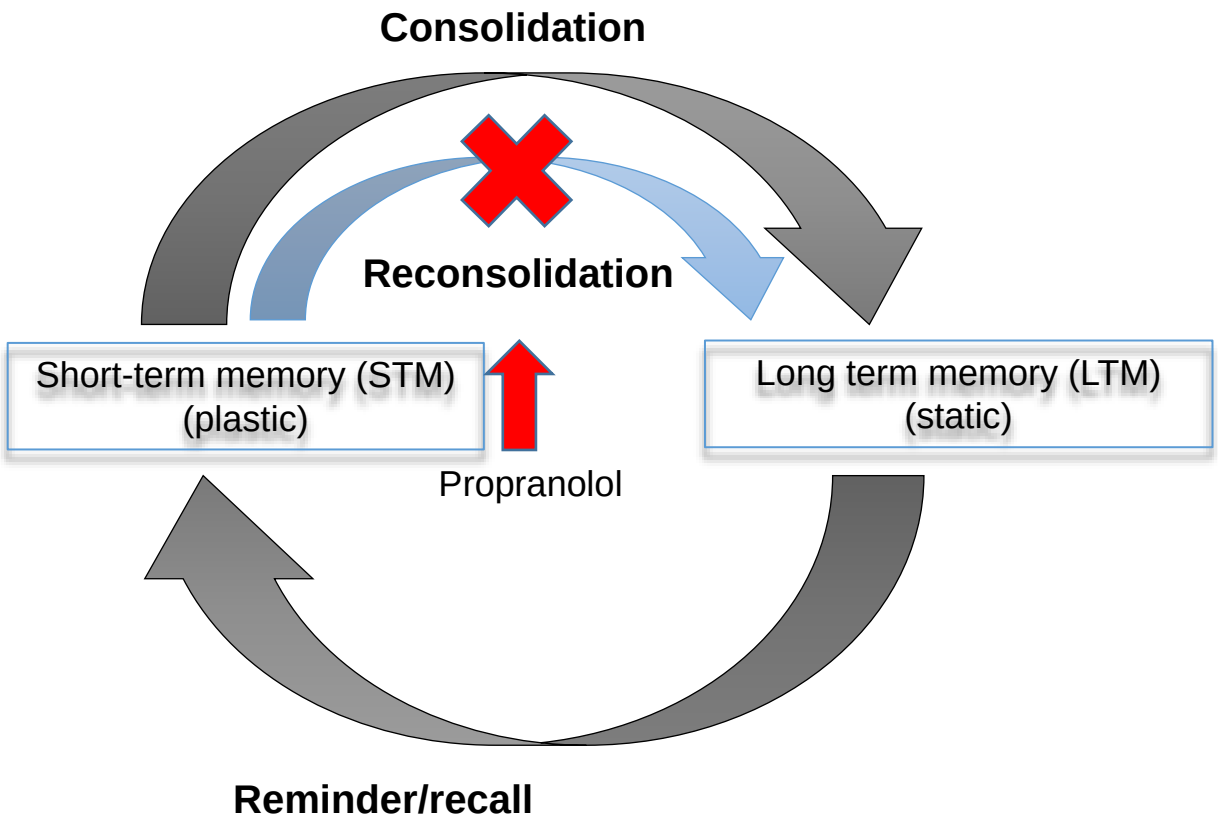
Abstract

We report here data suggesting that reactivation of a well-established memory by a retention test triggers cellular events which depend upon *N*-methyl-D-aspartate (NMDA) receptors for up to 2 h after reactivation. Rats were overtrained on a maze task requiring integration of distal spatial information contained in cues strategically placed around the maze. Previous experiments showed that pretrial injection of the noncompetitive NMDA receptor antagonist, MK-801, at a dose which had no effect on overt behavior (0.05 mg/kg), markedly disrupted the well-trained performance of the task. Surprisingly, the behavioral deficit persisted on subsequent, drug-free trials, 24 h later. The present experiments showed that post-trial injections produced the same effects on performance on one or two subsequent daily trials. A temporal gradient for this amnestic effect of the drug treatment was established by injecting rats at 5, 30, 60, 90, 120 or 180 min after the performance trial. Only those rats whose MK-801 treatment was delayed for 120 min or more after the trial were able to perform the task normally 24 h later. All other treatment times induced significant amnesia for the task, when the rats were tested 24 h later. A subsequent experiment, using a more difficult version of the task, showed a longer amnesia gradient, but the predrug performance level could be reinstated within one multiple trial test session. Thus, it appears that activation of a well-established memory circuit renders the trace labile, requiring its reconsolidation. To what extent the entire post-acquisition cascade of NMDA receptor-dependent intracellular events is recapitulated each time a memory is activated and reorganised is probably a function of the age and complexity of the memory and the amount of new information to be integrated into the circuit. These results provide physiological evidence for the notion that memory is a

Reconsolidation



http://www.hfsp.org/frontier-science/awardees-articles/function-memory-reconsolidation-function-time

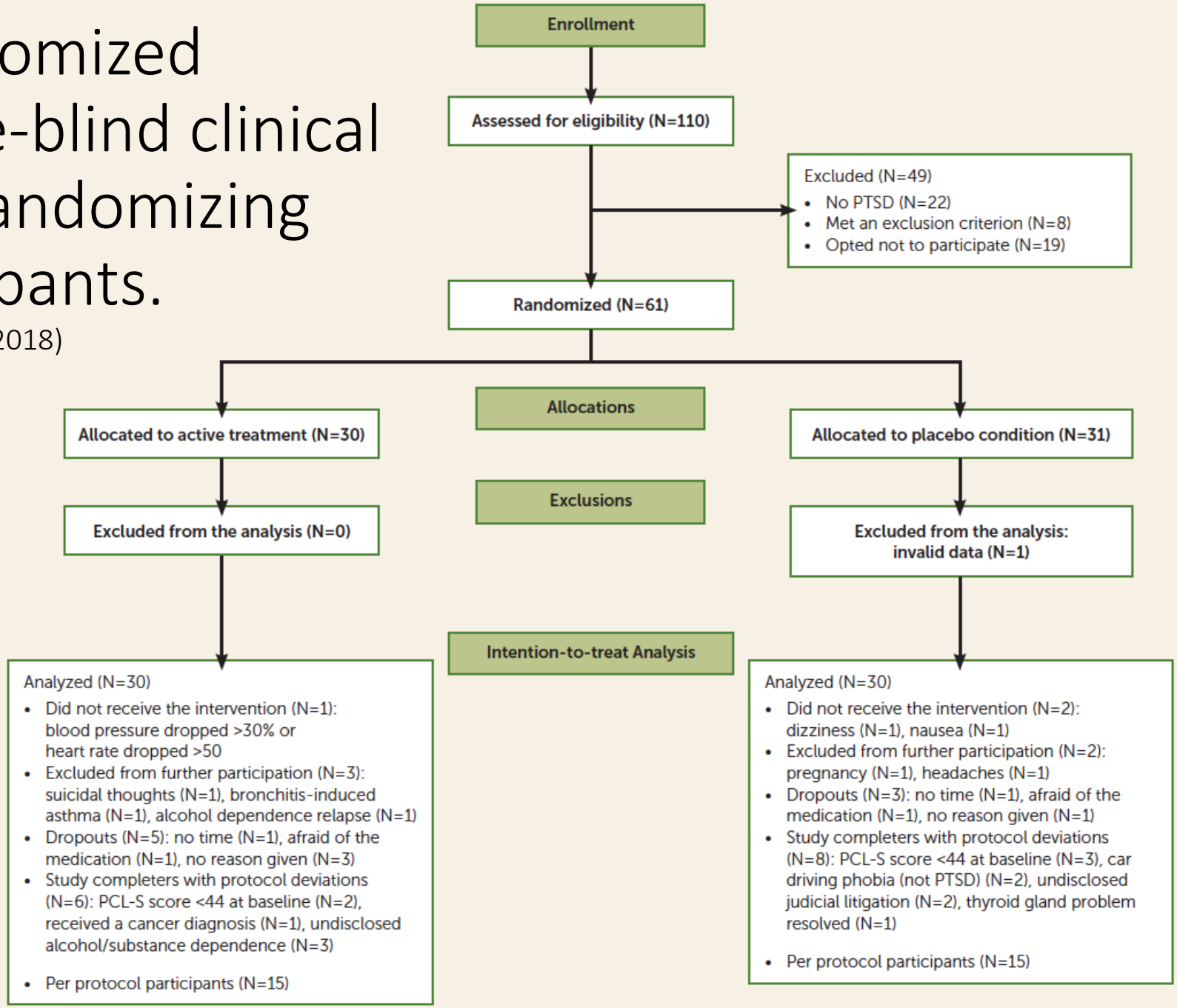
Randomized Trials …

The Development of the Treatment Protocol

A randomized double-blind clinical trial: randomizing participants.

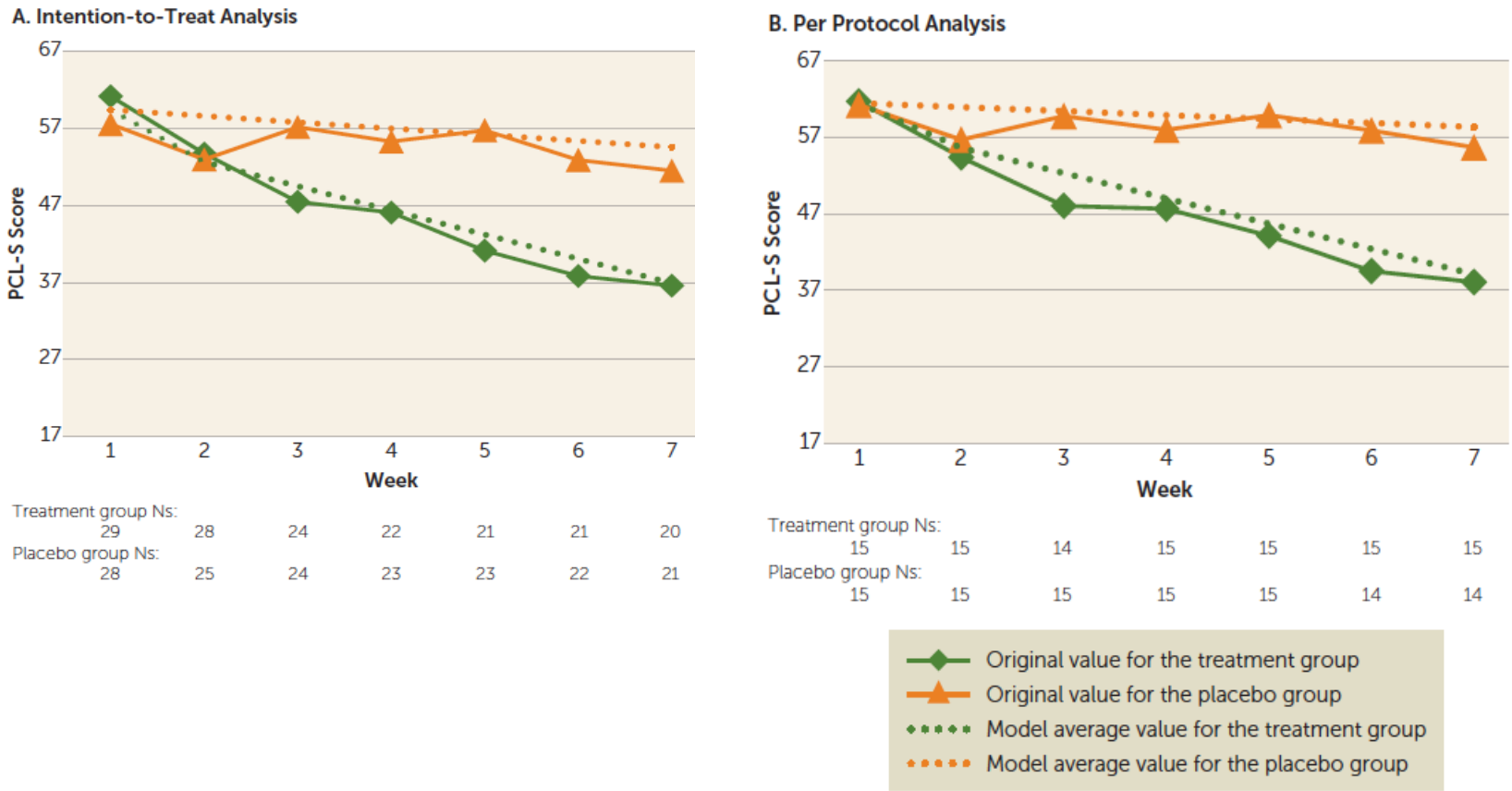
(Brunet et al., 2018)

FIGURE 1. Participant Flow Diagram for a Study of Pre-Reactivation Propranolol Therapy for PTSD[a]



Randomized double-blind clinical trial*(n = 60)*

FIGURE 2. Self-Reported PTSD Symptom Scores Across Treatment Sessions in a Study of Pre-Reactivation Propranolol Therapy for PTSD[a]



[a] PCL-S=PTSD Checklist–Specific. The original and model average PCL-S values (range, 17–85) are derived from the mixed linear model following each of six treatment sessions (weeks 2 to 7), controlling for the PCL-S score obtained at the first treatment session (week 1). The time-by-group estimated difference score at week 7 was 14.58 ($p<0.001$) for the intention-to-treat analysis and 16.74 ($p<0.001$) for the per protocol analysis.

Brunet et al. (2018).
The American Journal of Psychiatry

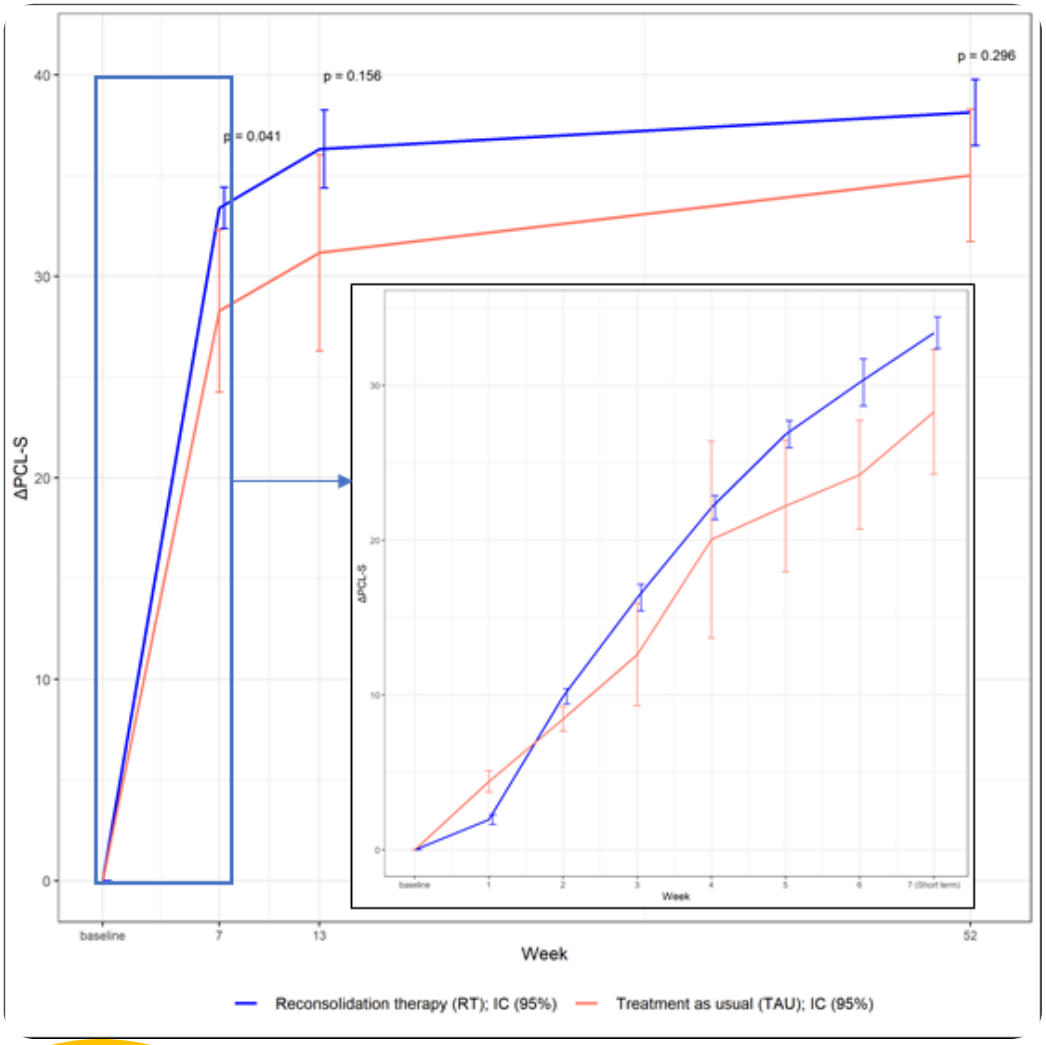
Results of the Randomized Clinical Trial

(Brunet et al.; AJP, 2018)

TABLE 2. Posttreatment Change in PTSD Symptom Scores in a Study of Pre-Reactivation Propranolol Therapy for PTSD

	Trauma Reactivation and Propranolol Group		Trauma Reactivation and Placebo Group		Posttreatment Between-Group Difference			
Measure	Mean	SD	Mean	SD	Estimate	SE	df	p
Intention-to-treat analysis[a]								
Clinician-Administered PTSD Scale score								
Baseline	76.07	16.98	71.04	14.68				
Posttreatment	47.16	25.36	53.69	26.95	11.50[b]	5.24	22	0.034
PTSD Checklist–Specific score (self-report)								
Baseline	61.18	9.31	56.96	11.83				
Posttreatment	36.60	18.46	51.20	18.62	14.58[c]	3.30	208	<0.001
Per protocol analysis[d]								
Clinician-Administered PTSD Scale score								
Baseline	74.87	16.92	76.13	12.86				
Posttreatment	48.00	26.88	65.31	19.06	16.30[b]	7.45	23	0.037
PTSD Checklist–Specific score (self-report)								
Baseline	61.73	7.94	61.27	8.79				
Posttreatment	38.07	16.73	55.71	13.79	16.74[c]	4.20	145	<0.001

[a] N=30 for each group in the intention-to-treat analysis.
[b] Estimated posttreatment between-group difference, adjusted for baseline score (analysis of covariance).
[c] Estimated posttreatment difference from the mixed linear model (see Figure 2 for details).
[d] N=15 for each group in the per protocol analysis.



- Paris MEM Study:

Mean PTSD Symptom Improvement Over Time

(Imputed and Weighted Data)

What about PSPs?

Development of a Treatment Protocol for PSPs

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2021, VOL. 12, 1959117
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EUROPEAN JOURNAL OF PSYCHO-TRAUMATOLOGY

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CLINICAL RESEARCH ARTICLE

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Trauma on duty: cognitive functioning in police officers with and without posttraumatic stress disorder (PTSD)

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ABSTRACT

Background: Neuropsychological alterations co-occur with Posttraumatic Stress Disorder (PTSD); yet, the nature and magnitude of such alterations in police officers remains unknown despite their high level of trauma exposure.

Objective: The current research sought to examine (1) cognitive functioning among police officers with and without PTSD; (2) the clinical significance of their cognitive performance; and (3) the relationship between PTSD symptoms and cognition.

Method: Thirty-one police officers with PTSD were compared to thirty age- and sex-matched trauma-exposed officers without PTSD. Clinical assessment and self-report questionnaires established PTSD status. All participants underwent a neuropsychological evaluation.

Results: Police officers with PTSD displayed lower cognitive performance across several domains, notably executive functioning, verbal learning and memory, and lexical access, compared to controls. The neuropsychological decrements in the PTSD group were mild compared to normative data, with average performances falling within normal limits. Among officers with PTSD, higher levels of intrusion symptoms were associated with reduced efficacy in executive functioning, as well as attention and working memory. Moreover, increased intrusion and avoidance symptoms were associated with slower information processing speed.

Conclusion: Considering that even mild subclinical cognitive difficulties may affect their social and occupational functioning, it appears important to integrate neuropsychological assessments in the clinical management of police officers diagnosed with PTSD.

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Posttraumatic stress disorder; Trauma; Cognitive functioning; Police officers; Neuropsychology

PALABRAS CLAVE
Trastorno de estrés postraumático; Trauma; Funcionamiento cognitivo; Oficiales de policía; Neuropsicología

关键词
创伤后应激障碍; 创伤; 认知功能; 警官; 神经心理学

HIGHLIGHTS

Cognitive deficits in police officers with PTSD

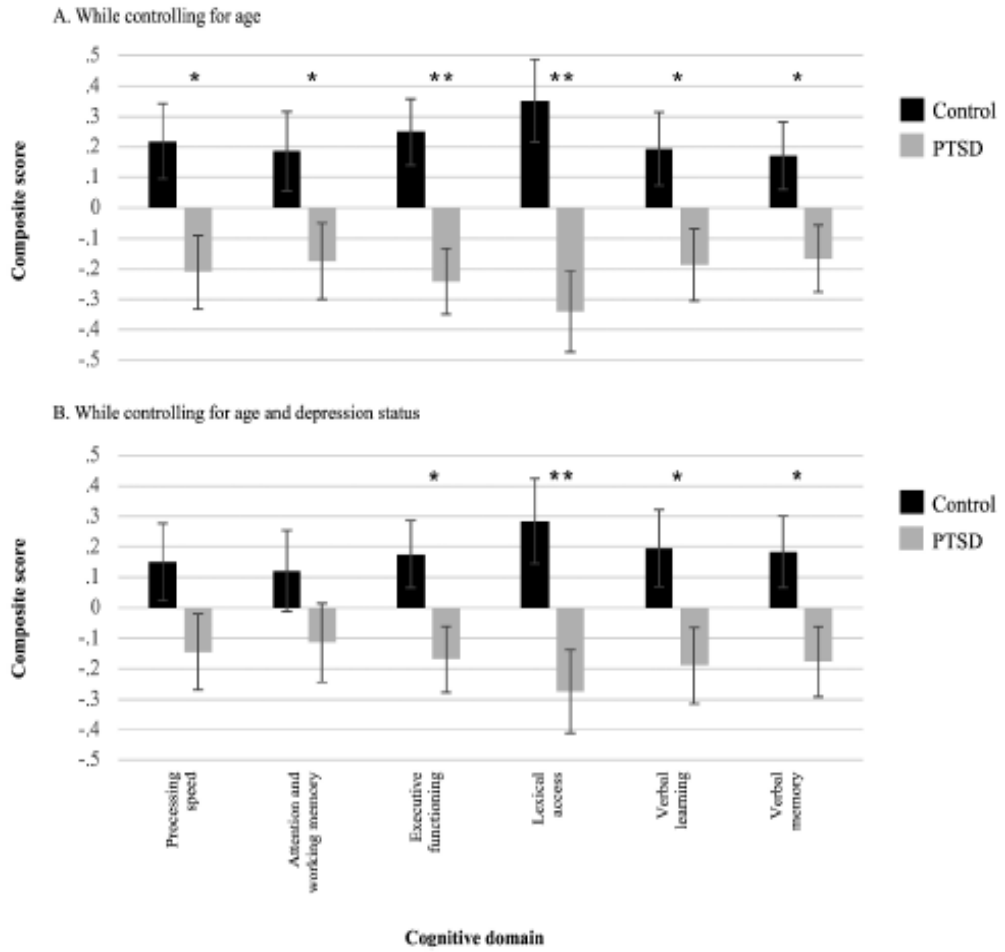

Figure 1. Group comparison by cognitive domain.†
†Estimated marginal means adjusting for the covariates are presented; Error bars represent standard error from the mean; asterisk (*) represent statistically significant between-group differences, *$p < .05$ **$p < .01$.

Correlations between cognitive domains and PCL-5 PTSD symptoms among police officers

Cognitive domain	PTSD Total score	PTSD Cluster B	Cluster C	Cluster D	Cluster E
Information processing speed	−.24	−.44*	−.52**	.18	−.15
Attention and working memory	−.38	−.51**	−.26	−.05	−.38
Executive functions	−.28	−.42*	−.30	>.01	−.23
Lexical access	.03	−.06	−.04	.23	−.07
Verbal learning	−.29	−.39	−.02	−.07	−.34
Verbal memory	−.07	−.19	.16	.03	−.11

Future Directions…

- Could novel Therapies like RT help reduce :
  - PTSD among PSPs in 6 sessions?
  - Impaired social functioning?
  - Sick leave?
  - Suffering?

- Will this symptom reduction improve cognitive functioning … or not?