

# Improvement in Cognitive Performance after One Year of Methadone Maintenance Treatment



1. Behavioral Sciences, Academic College of Tel Aviv, Yaffo, Israel.

2. Dr. Miriam & Sheldon G. Adelson Clinic for Drug Abuse Treatment & Research

Tel-Aviv Sourasky Medical Center & Tel-Aviv University Sackler Faculty of Medicine

3. Department of Clinical Research, NeuroTrax Corporation, Modiin, Israel

Odelia Elkana<sup>1</sup>, Miriam Adelson<sup>2</sup>, Anat Sason<sup>2</sup>, Glen M Doniger<sup>3</sup>, Einat Peles<sup>2</sup>

## BACKGROUND

Methadone maintenance treatment is the most effective treatment for opioid use disorder. Subjects with substance use disorders are known to suffer from stress, poor sleep, and cognitive impairment.

## AIMS

We investigated whether individuals with opioid use disorder would improve cognitive performance following a year of methadone maintenance treatment (MMT).

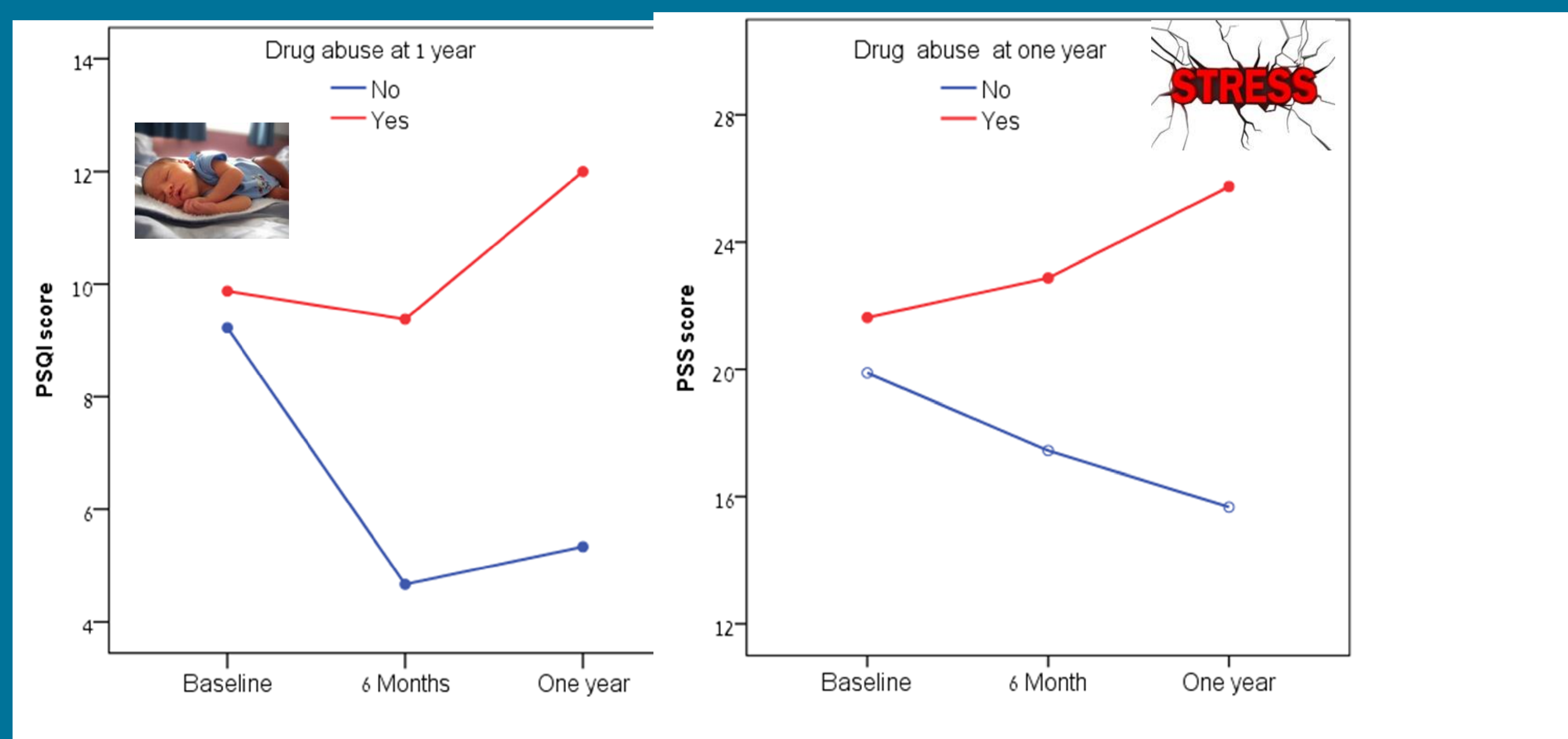
## METHODS

Perceived Stress Scale (PSS), the Pittsburgh Sleep Quality Index (PSQI), and a standardized computerized cognitive battery were administered at admission (T0) to 29 patients, and repeatedly following one year of MMT (T1) by 19 patients.

## RESULTS

Measures did not differ between those who studied once or twice. Patients who perceived very high stress levels ( $PSS \geq 24$ ) at 1y (11, 37.9%) had lower computerized global cognitive scores ( $67.6 \pm 16.2$  vs.  $90.9 \pm 12.5$   $p \leq 0.0005$ ). At one 1y, PSS and PSQI scores improved significantly among 11 patients with no substance abuse, but worsened among 8 with substance abuse. Global cognitive score improved at 1y for the entire sample ( $81.8 \pm 20.1$  to  $89.2 \pm 13.8$ ,  $p = 0.05$ ). Differentiation by high stress at 1y or by substance abuse at 1y subgroups showed that improvement was observed by those with very low cognitive scores at baseline.

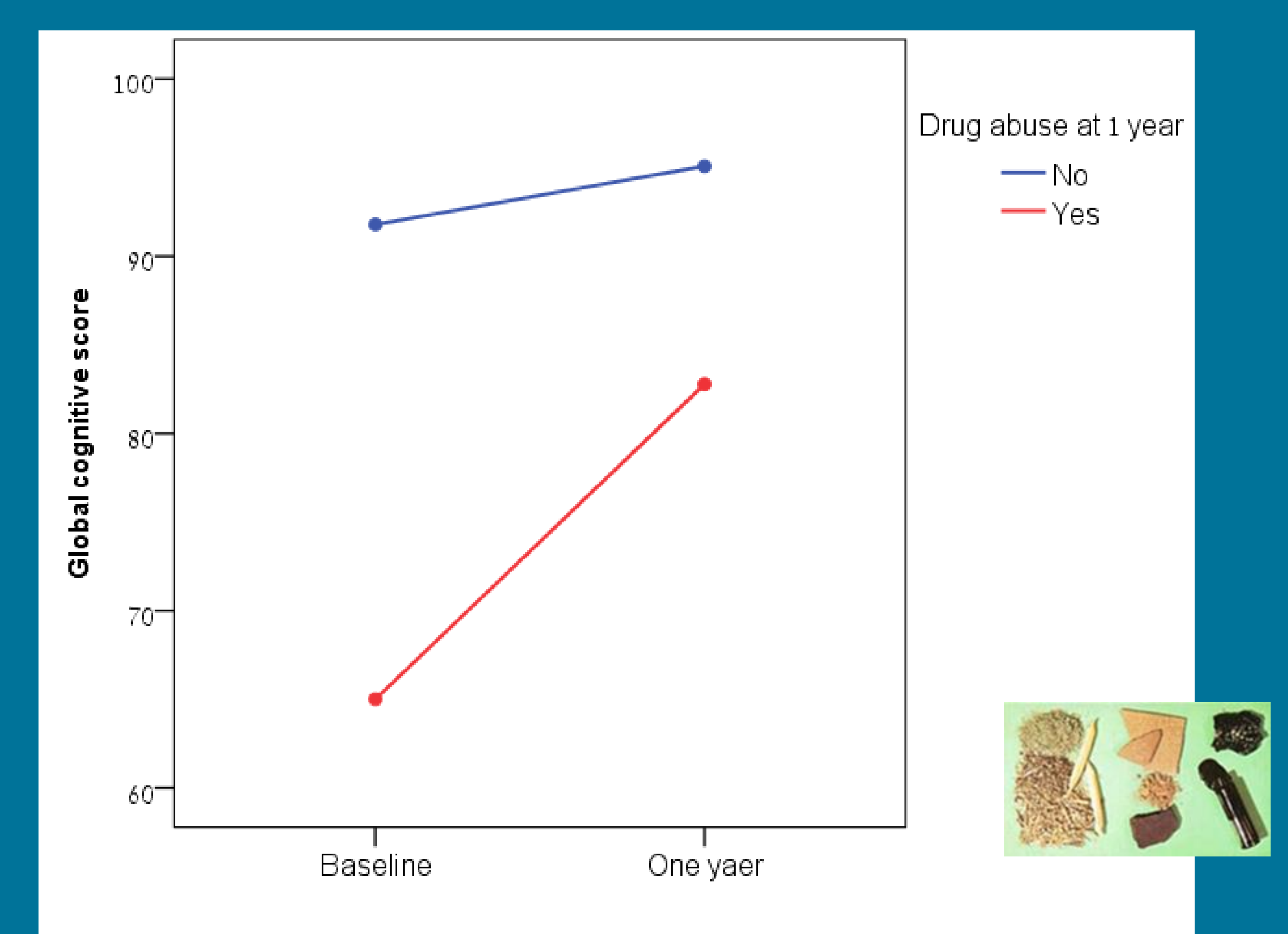
### Improvement in Sleep quality & perceived stress after one year in MMT, in patients who stopped drug abuse



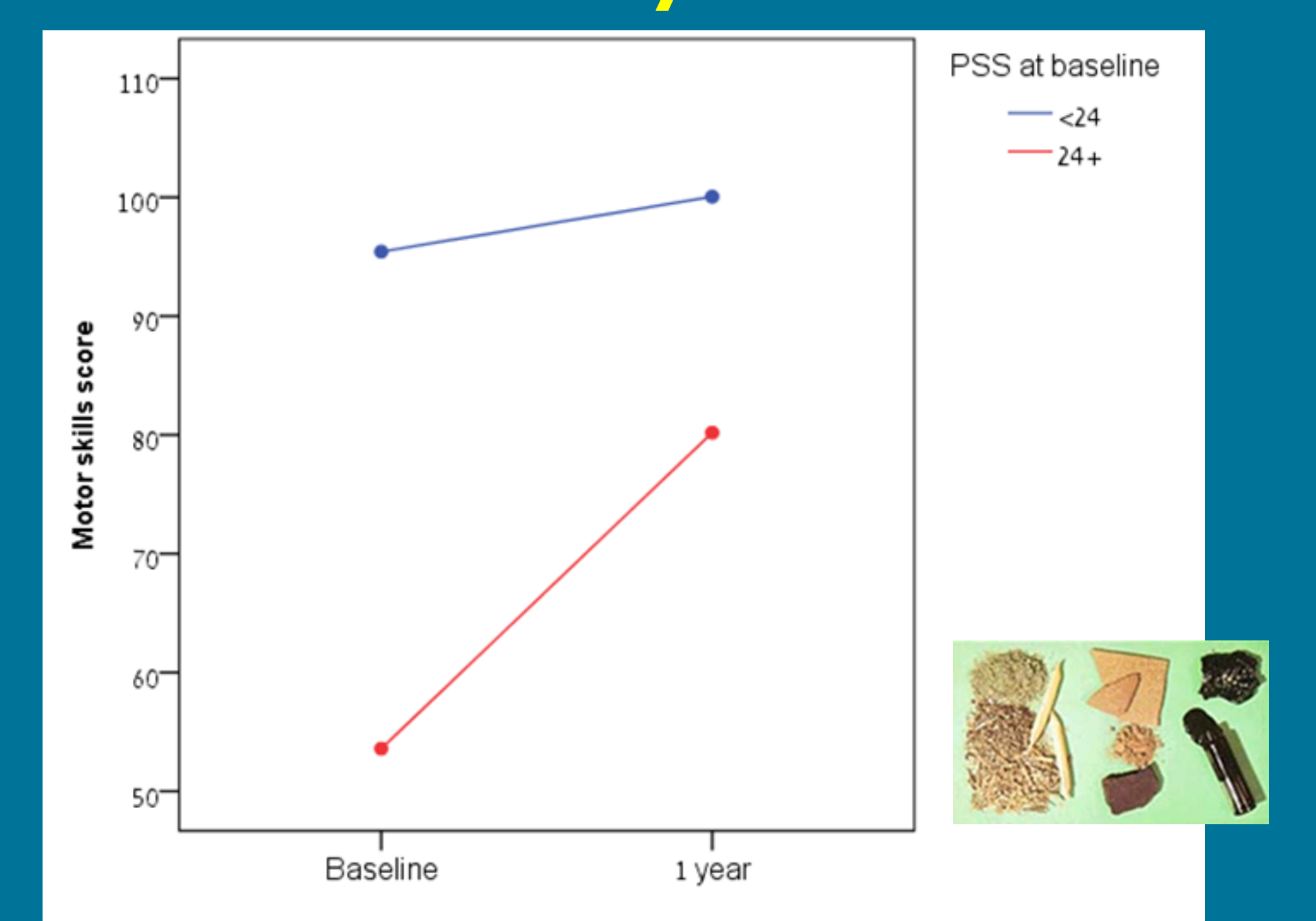
$p(\text{Time})=0.8$ ,  $p(\text{Group})=0.005$ ,  $p(T*G)=0.03$

Repeated measure,  
 $p(\text{Time})=0.02$ ,  
 $p(\text{Group})=0.02$ ,  
 $p(T*G)=0.09$

### Global score at admission and 1y drug abuse at one year



### Motor skills at admission and 1y drug abuse at one year



$p(\text{Time})=0.01$ ,  
 $p(\text{Group})=0.001$ ,  
 $p(T*G)=0.07$

## CONCLUSIONS

Patients with poor cognition may improve following one year of MMT, due to stress and substance abuse reduction. Interventions for stress reduction are recommended.