

CAPS score, total BDI score, total symmetry span score, and the interaction between BDI score and symmetry span score as the independent variables and total ERQ cognitive reappraisal score as the dependent variable.

**Results:** When examining each predictor independently, cognitive reappraisal was not associated with working memory ( $t=1.42$ ,  $p=.165$ ), but was significantly associated with PTSD ( $t=-3.17$ ,  $p<.003$ ) and depressive ( $t=-4.15$ ,  $p<.001$ ) symptom severity. The multiple regression model ( $F(4, 35)=4.45$ ,  $p<.005$ ,  $R^2=.26$ ) did not support the hypothesized relationship between working memory and depressive symptoms ( $t=0.56$ ,  $p=.579$ ). Depression independently predicted utilization of cognitive reappraisal in veterans with PTSD ( $t=2.43$ ,  $p=.020$ ) but PTSD symptom severity and working memory scores did not. However, additional investigation revealed that independently, greater PTSD symptom severity did predict less utilization of cognitive reappraisal ( $t=-3.17$ ,  $p<.005$ ).

**Conclusions:** While depressive symptoms did not moderate the relationship between working memory and cognitive reappraisal, depressive symptoms did best predict utilization of cognitive reappraisal in a population with PTSD. Contrary to the hypothesized outcome, neither working memory nor PTSD symptoms were significant predictors of cognitive reappraisal when controlling for depressive symptoms. This suggests that the phenomenon of lower cognitive reappraisal rates in individuals with PTSD may be due to the presence of depressive symptoms rather than traumatic stress symptoms or neuropsychological ability. Due to the sample size and homogeneous diagnosis of the current study it is possible that the predicted relationship between working memory, PTSD severity, and cognitive reappraisal was not observed due to low power or a restricted range. Further investigation specifically in clinical populations on factors that predict utilization of cognitive reappraisal could expand on these findings in populations experiencing other stress-based disorders.

**Categories:** Emotion Regulation

**Keyword 1:** working memory

**Keyword 2:** post-traumatic stress disorder

**Keyword 3:** depression

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### 34 Neurocomputational Mechanisms of Social Reward Processing in Combat-Exposed Veterans

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**Objective:** Combat exposure is associated with higher rates of depressive symptoms, including anhedonia (i.e., a reduced ability to seek and experience rewards) and feelings of social disconnectedness. While these symptoms are commonly documented in combat-exposed Veterans following deployment, the cognitive mechanisms underlying this pathology is less well understood. Computational modeling can provide detailed mechanistic insights into complex cognition, which may be particularly useful to understand how social reward processing is altered following combat exposure. Here, we use a Bayesian learning model framework to address this question.

**Participants and Methods:** Thirty-three Operation Enduring Freedom (OEF)/ Operation Iraqi Freedom (OIF)/Operation New Dawn (OND) Veterans (25 Male, 8 Female) between the ages of 18-65 years old ( $M = 41.61$ ,  $SD = 10.49$ ) participated in this study. In both classic/monetary and social reward conditions, participants completed a 2-arm bandit task, in which they must choose on each trial between two options (i.e., slot machine vs social partner) with unknown reward rates. While they received monetary outcomes in the classic condition, participants received compliments from different fictitious partners in the social condition. We first compared a learning-independent Win-stay/Lose-shift (WSLS) heuristic and either a Rescorla-Wagner Q-learning or a Bayesian learning model (Dynamic Belief Model/DBM) paired with a Softmax reward maximization policy. DBM+Softmax provided the best fit of the data for most participants (31/33). Individual DBM parameters of prior reward expectation, reward learning (i.e., perceived stability of reward rates), and Softmax reward maximization were estimated and compared across conditions.

**Results:** Participants did not differ in their reward learning parameters across monetary and social conditions ( $t(30) = -0.70$ ,  $p = 0.490$ ), suggesting similar perception of reward stability in both modalities. However, higher Bayesian prior mean (i.e., initial belief of reward rate;  $t(30) = -2.31$ ,  $p = 0.028$ ,  $d = 0.42$ ) and greater reward maximization (i.e., Softmax parameter;  $t(30) = -2.26$ ,  $p = 0.031$ ,  $d = 0.41$ ) were observed in response to social vs monetary rewards. In the social reward condition, higher self-reported social connectedness was associated with greater model fit of our DBM model (i.e., smaller Bayesian Information Criterion/BIC;  $r = -0.38$ ,  $p = 0.041$ ). In this condition, those expecting higher reward rates when initiating reward exploration (those with higher DBM prior mean) endorsed lower self-esteem (Spearman's  $\rho = -0.43$ ,  $p = 0.078$ ) and lower positive affect ( $\rho = -0.32$ ,  $p = 0.078$ ).

**Conclusions:** A Bayesian learning modeling framework can characterize mechanistic differences in the processing of social vs non-social reward among combat-exposed Veterans. Individuals with higher social connectedness were more model-based in their performance, consistent with the notion that they are more likely to estimate and anticipate how much social peers have to offer.

Combat-exposed individuals with lower self-esteem and positive affect appear to have higher initial expectations of reward from unknown partners, which could reflect greater need for mood and/or self-esteem repair in those individuals. Overall, Bayesian modeling of social reward behavior provides a useful quantitative framework to predict clinically relevant construct of functional outcomes in military populations.

**Categories:** Emotional and Social Processes

**Keyword 1:** social cognition

**Keyword 2:** social processes

**Keyword 3:** neurocognition

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### 35 Happiness Project: A Customized Mind Body Intervention Significantly Changed the Social Relationship Scores

### Among Healthy College Students during the COVID-19 pandemic.

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**Objective:** To find how healthy college going participants SRS were affected by a customized Mind Body Intervention (MBI).

**Participants and Methods:** We performed a customized online tele-video course based MBI incorporating mindfulness and awareness training over a period of one month in 2021 to MBA students attending the Indian Institute of Management (IIM). Each subject was their own control. We used the World Health Organization Quality of Life Scale (QO-BREF) social relationship sub-scores pre and post intervention to assess participant SRS.

**Results:** 277 MBA students from the IIM with a mean age of  $26.89 \pm 1.7$  were analyzed. Of the 277 students, 90 (32.49%) were female. The MBI decreased the self-perceived Social Relationship score among 277 graduate students. The mean SRS before the intervention was  $7.51 \pm 1.7$  while the mean SRS after was  $6.9 \pm 1.7$ . Univariate paired t-test showed a significant mean difference ( $t = 5.1$ ,  $p < .001$ ). On a multivariate linear-regression model, the SRS change estimate was 0.46, t-value was 9.3,  $p < 0.001$ ; 95% confidence interval was 0.37 - 0.56; p-value  $< 0.001$ .

**Conclusions:** An online tele-video based customized Mind Body Intervention decreased the self-perceived social relationship score among graduate students at the IIM during the Covid-19 pandemic.

**Categories:** Emotional and Social Processes

**Keyword 1:** social cognition

**Keyword 2:** metacognition

**Keyword 3:** adaptive functioning

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### 36 White Matter Correlates of Coping with Social Stress in Adolescence, and Their Links to Mental Health