Mood, alexithymia, dispositional mindfulness, sensitivity to reward and punishment, frontal systems functioning and impulsivity in clients undergoing treatment for substance use disorders

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Background: Neurobiological perspectives on addiction have emphasised the intertwined roles of (1) the subcortical dopaminergic reward system as a motivational driver of excessive substance use (Koob & Le Moal, 1997) and (2) prefrontal cortex dysfunction as the basis of the impaired self-control that characterises addictive behaviour (Lyvers, 2000). Traits presumed to reflect the functioning of these brain systems include reward sensitivity, presumed to index the motivational influence of the dopaminergic reward system, and traits such as rash impulsivity, disinhibition, executive deficit and alexithymia, all of which have been linked to deficient compensatory defences (Barratt, 1995), frontal lobe dysfunction and associated traits, although the current findings cannot determine whether such characteristics predated or post-dated disordered substance use. Methods. After excluding those with major psychiatric disorders, 100 residents of two therapeutic communities undergoing in-patient addiction treatment and 107 social drinker controls completed the following indices: Depression Anxiety Stress Scales -21 (DASS-21; Lovibond & Lovibond, 1995), Frontal Systems Behavior Scale (FrSBe; Grace & Malloy, 2001), Sensitivity to Reward and Sensitivity to Reward Questionnaire (SPSRQ: Torrubia et al., 2001), Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Barratt Impulsiveness Scale (BIS-11; Patton et al., 1995), Toronto Alexithymia Scale-20 (TAS-20; Bagby et al., 1994) as well as demographic items.

Results: Multivariate analysis of covariance (MANCOVA) controlling for age, education, previous serious head injury and gender revealed highly significant differences ($p < .0001$) between clinical and control groups on all dependent measures. The clinical group scored significantly higher on depression, anxiety, stress, alexithymia, frontal systems dysfunction, reward sensitivity, punishment sensitivity and impulsivity, and lower on dispositional mindfulness, than the control group. Time in treatment was significantly correlated only with levels of depression, anxiety and stress, supporting the relative stability of the trait measures. Group differences (all $p < .0001$) are shown in the following table.

### Conclusions:

Results are consistent with the notion that substance use disorders are linked to reward system and frontal lobe dysfunction and associated traits, although the current findings cannot determine whether such characteristics predated or post-dated disordered substance use.

References


