

## Society for the Study of Addiction PhD Studentship

### Final Report 2018

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#### **Interoception, Alexithymia and alcohol use: oxytocin, a solution?**

Interoception is the general sensitivity towards internal bodily signals. Interoceptive responses are crucial for homeostatic control and guide motivational behaviour, through generation of affective feelings, mainly integrated by the insular cortex. Alexithymia, a personality construct characterized by difficulties to identify such feelings, is implicated in the development and maintenance of alcohol use disorders (AUD). An emergent theory suggests that alexithymia, rather than being a problem with verbal labelling, is the outcome of an interoceptive failure. Interestingly, disruption of interoceptive processes in alcohol-dependent individuals correlates positively with alexithymia and subjective alcohol craving ratings. ([Click here](#) to read more about interoception and addiction). During my PhD, I explored the relationship between interoception, alexithymia and alcohol use.

An online survey was designed to characterise the causal relationship between self-assessment of alexithymia, sensitivity to bodily sensations and alcohol consumption, in a normative sample (N=600). A second study involving magnetic resonance spectroscopy measured the neurochemical and structural neural correlates within insular cortex of alcohol use. Finally, a third study objectively measured interoception (*interoceptive accuracy*) in social drinkers and tested the impact of intranasal oxytocin on performances.

I found that alexithymia and difficulties in identifying feelings mediated the relationship between bodily sensations and alcohol consumption; suggesting that difficulties in identifying feelings are the outcome of an interoceptive failure, apparently predisposing to AUD ([Click here](#) to read more about this research). This phenomenon can be explained, in part, by differences in insular glutamatergic neurochemistry and structural integrity associated with alcohol use. These findings have been presented at the SSA conference 2017 ( [Click here](#) to see slides or to listen to an audio recording) and are in the process to be published. At the behavioural level, social alcohol use was not directly associated with impaired interoceptive accuracy. However, intranasal oxytocin improved interoceptive accuracy on the discrimination task compared to placebo in heavy drinkers, but not in low-to-moderate drinkers. This finding suggests reduced flexibility of attentional resource-allocation between internal and external environmental signals, in heavy drinkers. Importantly, this impairment can be corrected by acute intranasal oxytocin ([Click here](#) to read more about this research or [here](#) to see slides from the SSA PhD Symposium 2017 or [here](#) to watch a short video explaining the research). Those findings were selected for the Enoch Gordis Award at the [Research Society on Alcoholism](#) Meeting 2017 in Denver, USA.

In conclusion, my PhD work demonstrates the role that interoception plays in alexithymia and AUD, by considering and integrating behavioural, physiological and neural dimensions. My observations motivate the need to take equally into account interoceptive processes alongside (other) regulatory impairments in the treatment of AUD. Therapeutic modulation of interoception can potentially reduce alexithymic features and consequently decrease the likelihood of AUD.