

JUNE 11, LITERATURE REVIEW

Binge Drinking

Though global definitions remain non-standardized, in the United States, binge drinking refers to an “excessive episodic consumption of alcohol,” usually 5 or 4 drinks, for men and women, respectively [Stolle et al., 2009], but see also the “4/5” rule [Fillmore and Jude, 2011].

Compulsivity

Compulsivity describes the “urge [in a subject] to perform an overt or covert behavior” despite a “lack of goal orientation.” Thus, subjects may face “adverse consequences” as a result of compulsive behavior. Importantly, compulsivity is a key driver of alcohol- and drug-use disorders [Burchi et al., 2019].

Insula

In [Naqvi and Bechara, 2009], researchers observed that the “agranular insula... [may] play a part in pain modulation and the rewarding effects of some drugs of abuse.” Furthermore, “functional imaging studies have revealed activation of the insula during drug urges.” This is not so surprising, as the insula is deeply involved in “salience and reward networks” [Radhakrishnan et al., 2021].

Further imaging studies have related the “anterior insular cortex [to] impulse control in both healthy individuals and those addicted to drugs” [Belin-Rauscent et al., 2016, Dambacher et al., 2015, Ersche et al., 2011]. It has also been observed that the same neurons in the AIC which fire in response to the onset of drinking (in rats) also “had greater activity under compulsion-like conditions” [Hopf et al., 2024].

especially
with respect
to water-fed
control sub-
jects. notes
the varying
timescales
used by re-
searchers: for
an alcohol
access period
of 2 hours, 10
minute- up
to 40 minute-
periods
have been
considered

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