

Craving is everything: An eye-tracking exploration of attentional bias in binge drinking.

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INTRODUCTION

- **Attentional bias** towards alcohol-related stimuli is a core characteristic of **severe alcohol use disorders**.¹
- This bias is related to high levels of craving², alcohol consumption³ and relapse risk⁴, but its **underlying mechanisms** and its extension towards **subclinical populations** (e.g., binge drinking) are still poorly understood.
- Moreover, it is not clear whether the bias is alcohol-specific or can be **generalized towards other appetitive stimuli** (e.g., food).
- Eye-tracking measures provide innovative insights on the **time course** of the bias, by dissociating early/automatic from later/controlled processing stages.⁵



To explore the time course of attentional bias, its specificity towards alcohol-related stimuli and its relationship with craving through eye-tracking measures in a binge drinking population.



METHODS

Participants

42 binge drinkers (BD) and 43 control participants (CTL), matched on gender/age

Selection criteria	BD	CTL
BD Score	> 22	< 12
AUDIT Score	< 20	< 9
Consumption frequency	1-4 / week	1-2 / week

BD score = (4*consumption speed) + drunkenness frequency + (0.2*% of drunkenness)

Procedure

Participants filled in questionnaires before and after performing the experimental tasks



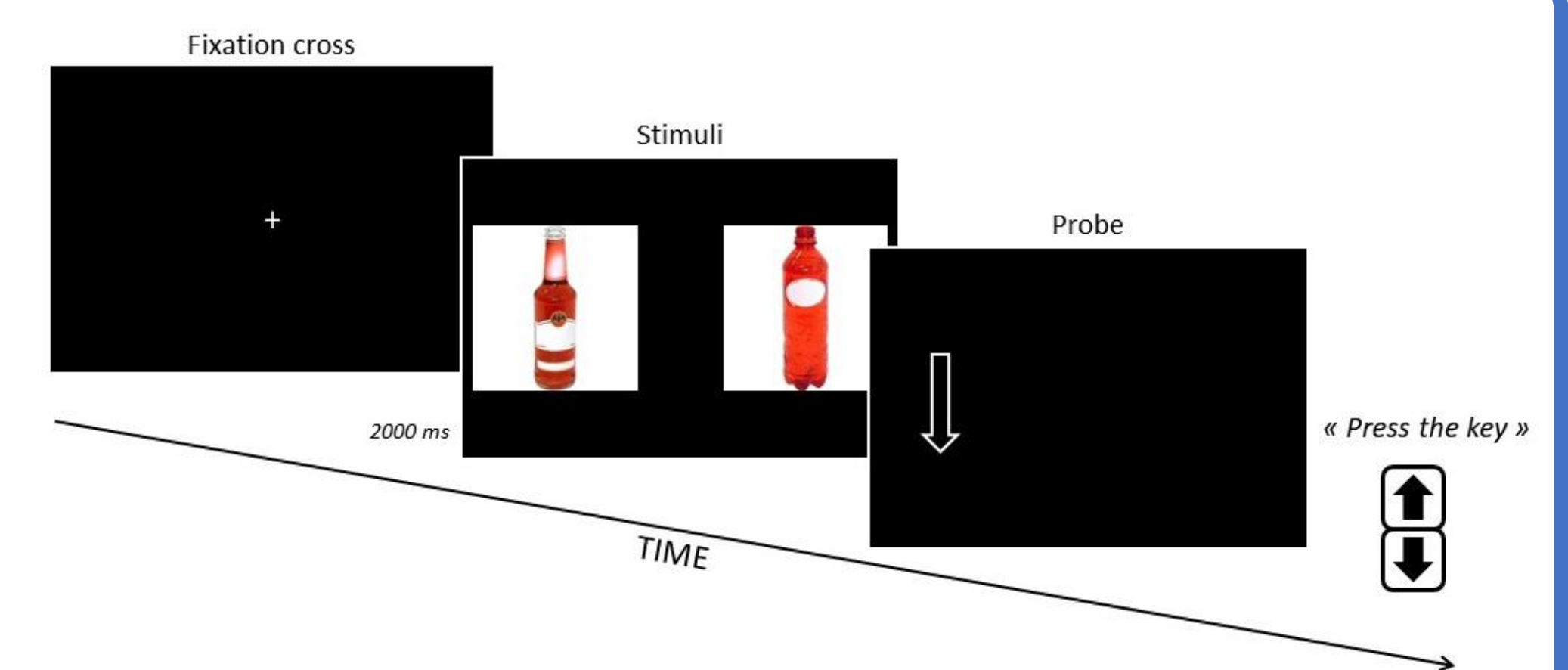
Questionnaires

- Psychopathological state (BDI-II, STAI, UPPS)
- Craving (VAS)
- Socio-demographic data
- Alcohol consumption
- Nutritional habits

Visual Probe Task

Three blocks of 84 trials

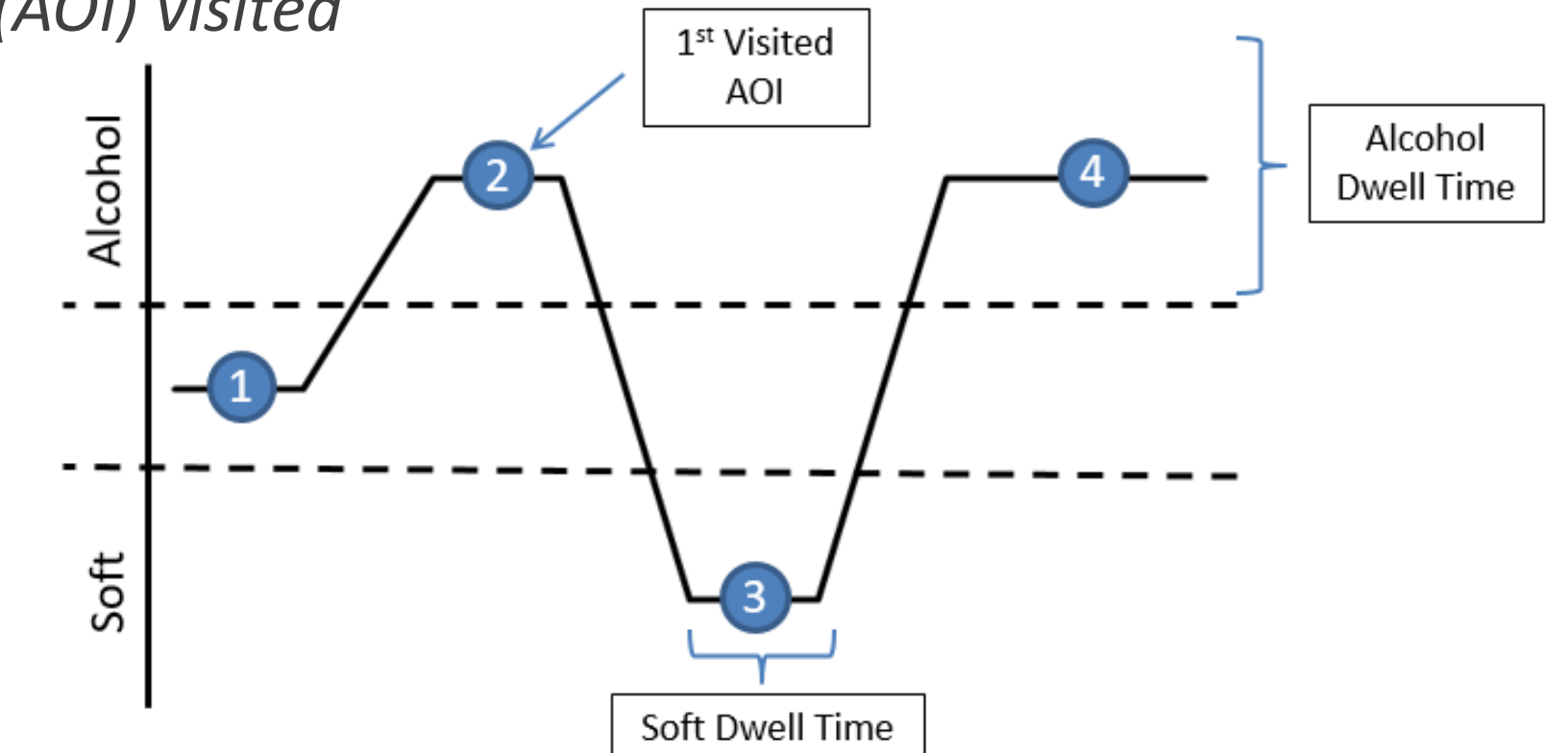
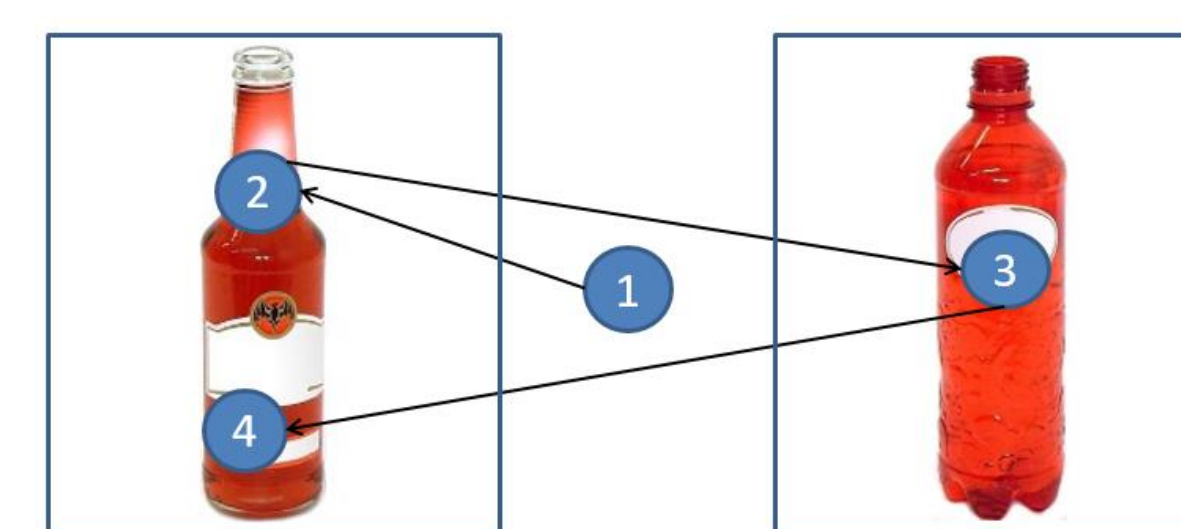
- Alcohol vs. Soft
- Alcohol vs. Caloric Food
- Salt/Sweet vs. Healthy food



Eye-tracking measures

EyeLink 1000 desktop-mounted eye-tracker (1000 Hz sampling rate, 0.25° - 0.5° accuracy)

- **Early processes index** : 1st area of interest (AOI) visited
- **Late processes index** : dwell time

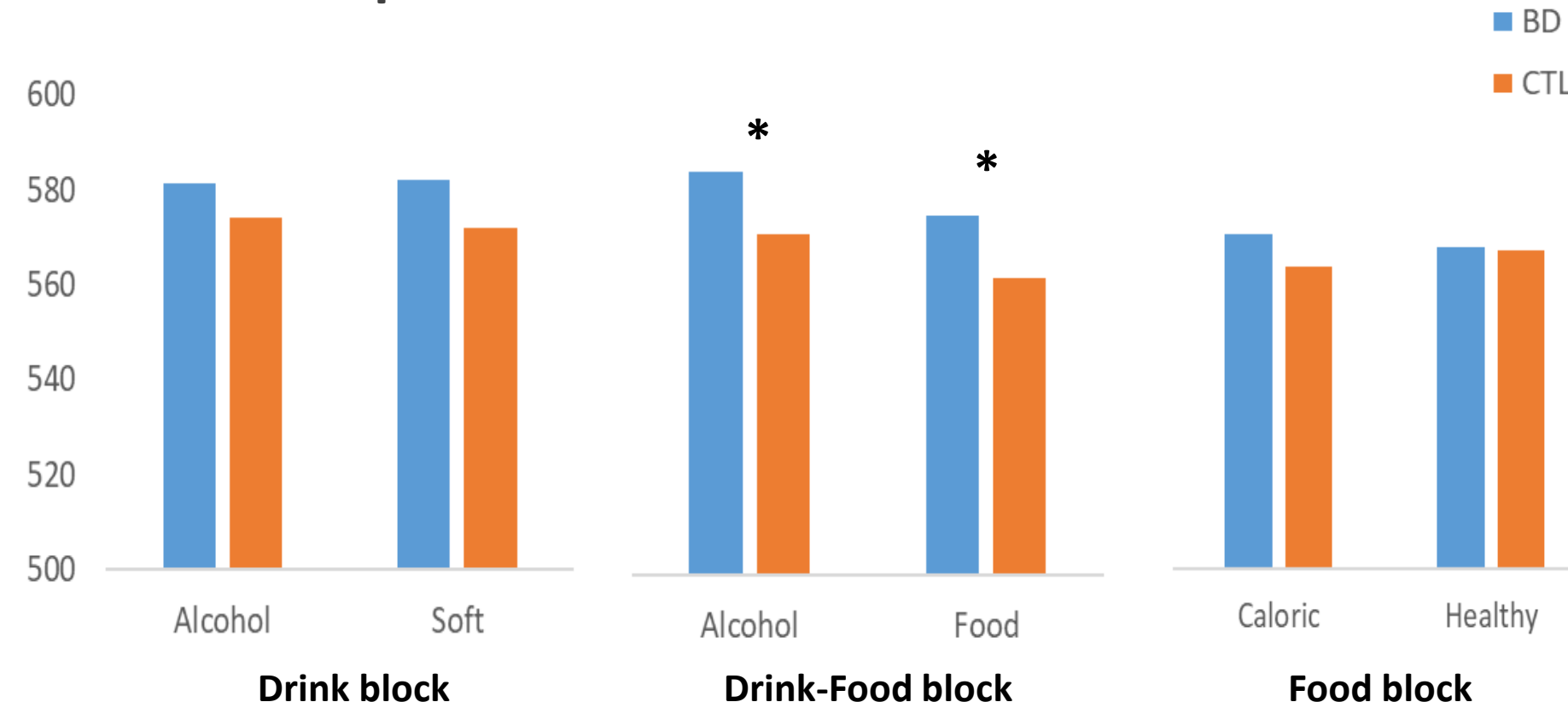


RESULTS

Sociodemographic data

	BD (N = 42)	CTL (N = 43)
Gender (male/female) ^{ns}	20/22	20/23
Age ^{ns}	21.4 ± 2.2	21.1 ± 2.0
AUDIT score ^{**}	17.4 ± 5.0	4.7 ± 3.1
BD score ^{**}	43.9 ± 23.2	5.3 ± 3.9
Alcohol craving ^{**}	28.5 ± 27.0	8.6 ± 15.5
Salt craving ^{**}	32.8 ± 25.6	17.2 ± 21.8
Sweet craving ^{ns}	33.8 ± 25.3	26.1 ± 20.6

Behavioural performance



→ Attentional bias for food compared to alcohol in both groups.

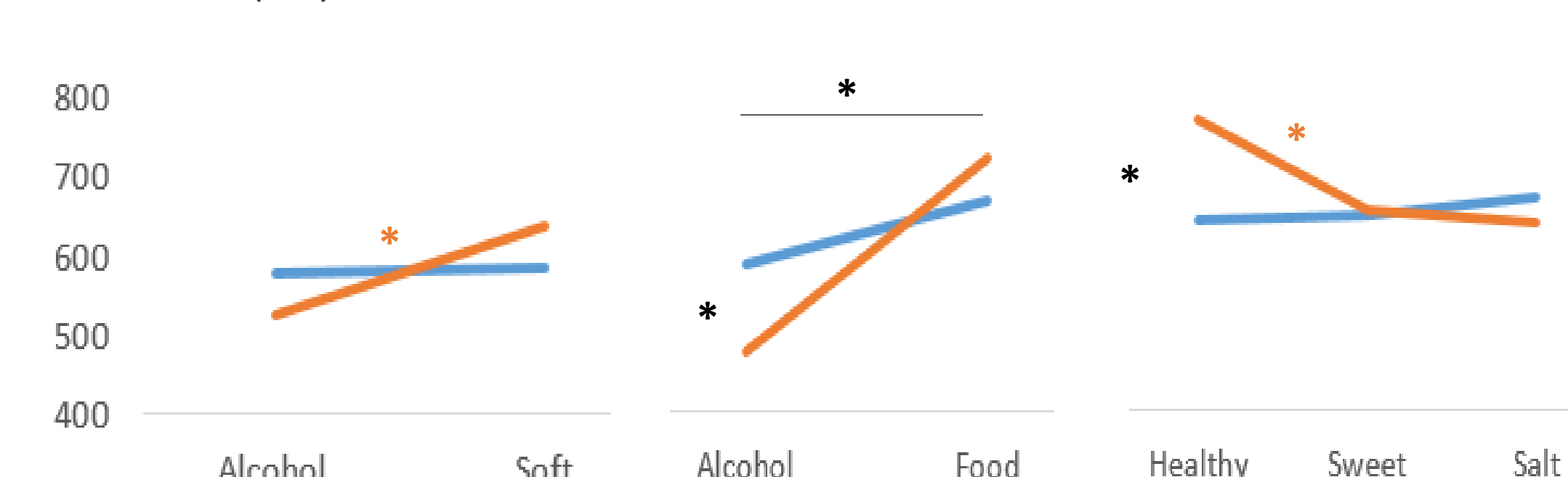
Eye-tracking indexes

First area of interest visited (%)



→ First saccade towards caloric food in both groups.

Dwell time (ms)

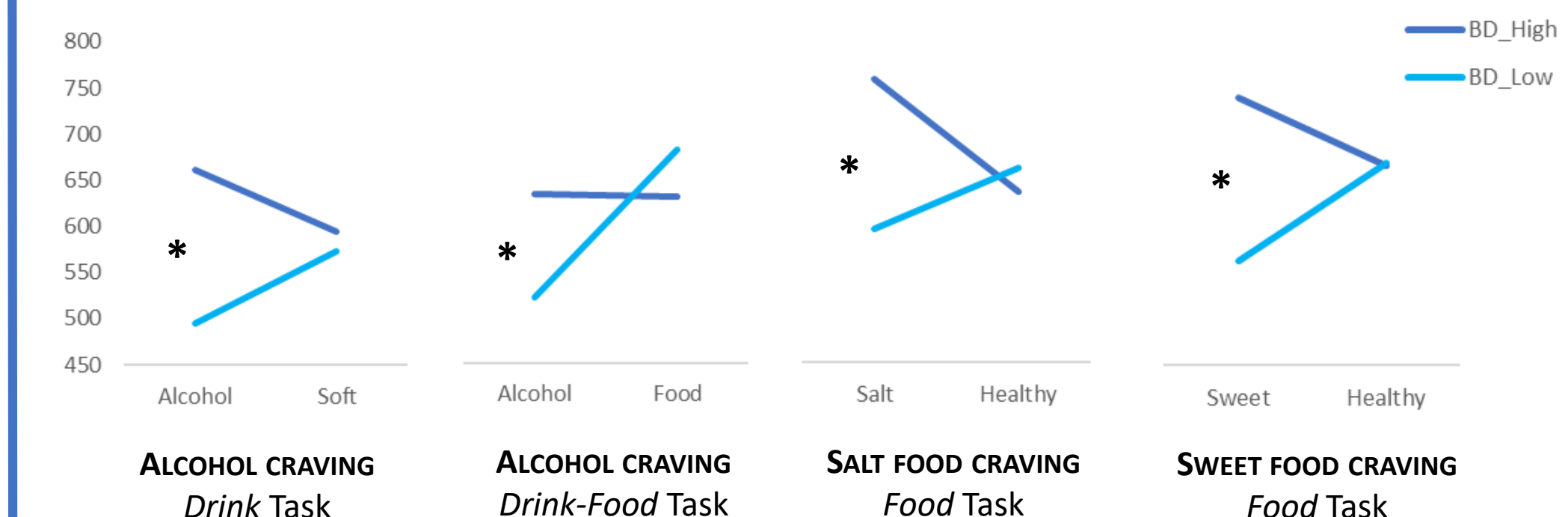


→ Shorter fixations for alcohol and longer ones for healthy food in CTL.

→ Longer fixations for food compared to alcohol in both groups.

Craving analyses

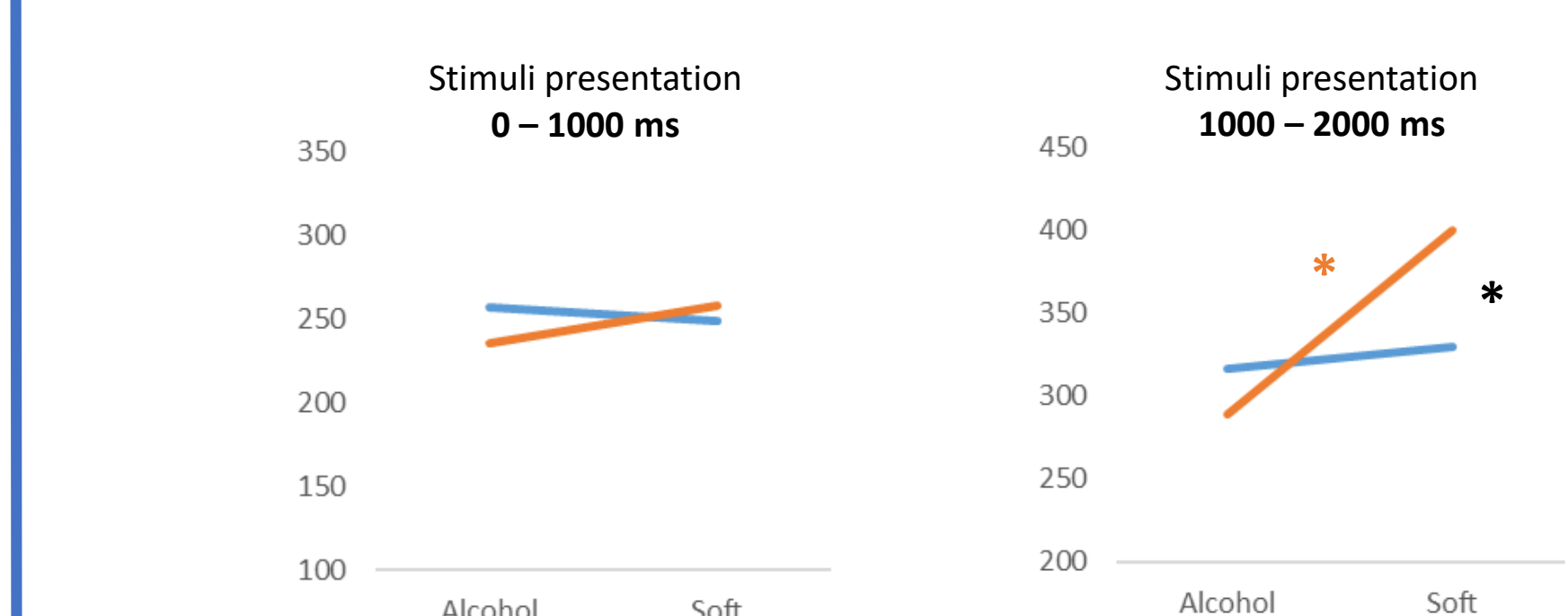
Dwell time (ms)



→ BD with high craving show longer fixations towards the craving target.

Time course

Dwell time (ms)



→ Group differences only observed after 1000ms.

CONCLUSION

- The attentional bias is generalized towards caloric food.
→ *Attentional bias is not alcohol-specific in subclinical populations, as it is also present for other appetitive stimuli.*
- Dwell time showed that CTL allocate more attention to healthy cues (i.e. non alcohol-related and healthy food stimuli).
→ *No attentional bias for alcohol in BD, but rather an avoidance bias towards alcohol in CTL.*
- A strong association is found between craving and attentional bias in BD.
→ *The attentional bias towards alcohol in BD is only present for individuals with high alcohol craving.*

→ Future works should (1) **combine behavioural and eye-tracking measures** to offer a reliable and precise measure of the bias
(2) further investigate the **role played by craving** in the intensity of the bias

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