Exploring the relationship between attentional bias, stimulus control and BMI

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Introduction

Ø Attentional bias is giving preferential attention to a particular type of information (MacLeod & Mathews, 2012)
Ø Attentional bias toward food-related may contribute to overweight and obesity (Werthmann et al., 2007)
Ø Individuals with obesity show attentional bias towards high caloric food (Kemps, Tiggemann, & Hollitt, 2014)
Ø However, precisely how attentional bias influences real-world eating is unknown
Ø Stimulus control is a behavioural outcome of one’s responses to food-related cues (Weingarten, 1985)
Ø Incentive-sensitization theory (Robinson & Berridge, 1993) suggests attentional bias drives behaviour, resulting in greater stimulus control
Ø Aim: examine the relationship between attentional bias and stimulus control

Method

Ø 54 adults completed 14 days of EMA monitoring and two attentional bias tasks: visual probe and Stroop (Kemps et al., 2014; Nijs, Franken, & Muris, 2010)
Ø Stimulus control was assessed via EMA monitoring
Ø Participants’ levels of stimulus control were expressed as AUC-ROC values across multiple domains (food availability, social setting, negative affect, etc.)
Ø Reaction times (ms) of cognitive tasks were matched to each participants’ highest AUC-ROC value

Results

Ø Positive change scores reflect an underlying food-related attentional bias is present
Ø High AUC-ROC values suggest eating is motivated by food-related cues in one’s environment
Ø To address whether attentional bias and stimulus control are related, each participants’ highest AUC-ROC value (regardless of domain) was correlated to their attentional bias change scores
Ø AUC-ROC scores range: .60 – .95 (M = .71, SD = .06)
Ø Attentional bias change scores range: -51.55 – 32.73 (M = -0.01, SD = 15.19)
Ø Correlation between AUC-ROC value and attentional bias change score was small and non-significant: r = 0.02, p = .871

Discussion

Ø No relationship between stimulus control and attentional bias
Ø Attentional bias alone may not be the strongest predictor of real-world eating patterns
Ø Directions for future research:
  • Examine real-time variability of attentional bias (state vs. trait) and the effect on real-world eating behaviour
  • Examine relationship between levels of self-control exertion, impulsivity, attentional bias and real-world eating behaviour

References:


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Figure 1. Histogram of AUC-ROC values

Figure 2. Stroop task: a word presented centrally for maximum 2000ms. Participants instructed to ignore content of the word and respond quickly as possible to font colour of word by pressing a button in the corresponding colour (Nijs et al., 2010).