Psychological and Physiological Responses to Gambling Cues in Pathological Gamblers

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Background: Cue reactivity is a widely used paradigm in addictions research, where cravings and neural / physiological responses are elicited by controlled presentation of stimuli that are naturally associated with drug use; for example, a lighter or ashtray to a smoker. Cue reactivity has received relatively little attention in problem gambling, leaving an important question about how problem gamblers respond to gambling-related stimuli in the absence of actual play. We examined this using gambling images, tapping the common preferred games in problem gamblers attending the London National Problem Gambling Clinic. We were further interested in the responses to gambling film advertisements, which were legalised in the UK in 2006.

Methods: Participants (n = 15, age m=38.9, s.d. 14.7) were recruited from the National Problem Gambling Clinic, London. The cue reactivity task involved viewing 8 image blocks (4 gambling blocks, 4 matched control blocks). Participants were instructed to imagine themselves in the situation or using the device in the picture. Each image block contained 5 images, displayed for 4s each. Each gambling block depicted a specific form of gambling: Roulette, Sports, Slot Machines and Bookmakers shops. Participants also viewed a single block of gambling adverts, and a block of control adverts, each containing four 30 second video clips. Each block was preceded by a 60 second ITI to allow stabilisation of physiological signals. After each block, a 3-item Gambling Craving Scale (GACS; Young & Wohl 2009) was displayed onscreen. Psychophysiological data was collected via a Biopac MP150: Skin Conductance was measured via two electrodes attached to the fingers of the left hand. Heart Rate was collected via 2 electrodes to the left wrist and right ankle.

Results: Cravings ratings increased following gambling blocks (M = 9.8, SD = 5.0) relative to control blocks (M = 8.1, SD = 5.1) (p=.002), and following gambling adverts (M = 10.1, SD = 5.3) compared to control adverts (M = 7.2, SD = 5.0) (p=.056). Slot machine players rated their cravings as higher than EGM Roulette and sports gamblers, across all stimulus categories, highlighting a possible influence of game preference. Skin conductance levels increased primarily in response to the gambling adverts (M = 0.8, SD = 5.2) compared to control adverts (M = -0.1, SD = 6.6) (p=.082). There was a significant skin conductance rise during the first advert, for online slot machines (t(12)=2.35, p=.037). There was no change in heart rate to the gambling adverts or images.

Conclusions: Our results highlight some of the challenges of studying cue reactivity in gambling, including the stimulus differences between different forms of gambling, and the impact of preferred form. Subjective cravings data were consistent with cue reactivity studies from substance addictions, that gambling-related stimuli increase urge to gamble. Psychophysiological responses were generally noisy, showing habituation and limited correspondence with cravings data, but some increase to gambling adverts.