Using Olfaction to Reduce Stakes in High-Risk Gamblers

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Rationale

Since the Covid-19 pandemic the prevalence of online gambling has increased by 16% in the UK, 26% in Canada, and 31% in the USA (Hodgins & Stevens, 2021).

The most consistently affected demographic groups are younger age groups, males, those with higher risk propensity, and those with prior gambling addictions (Hodgins & Stevens, 2021).

Recent attempts to reduce problematic gambling include national treatment centres (Johnstone & Regan, 2020), web-based self-help tools (Bajingartner et al., 2019), personal feedback interventions (Peter et al., 2019), and psychotherapy (Ginley et al., 2019). However, currently one pertinent dimension that remains completely overlooked is olfactory research.

Arousal is considered a key contributory factor behind high-risk gambling. One of the first salient studies in this field was by Anderson and Brown (1984), where they discovered that an individual's heart rate increases dramatically whilst gambling, elevating by as much as 58 beats per minute.

Scents have empirically demonstrated the capability to manipulate arousal levels across diverse contexts. Isovaleric acid (Sowndhararajan & Kim, 2016) and peppermint scents (Ali et al., 2015) have been shown to increase arousal levels, whereas lavender has been shown to decrease arousal levels (Schiffelstein et al., 2011).

Hypotheses

This study incorporated two hypotheses:

1. The relaxing smell (lavender) will decrease risk taking behaviours within gambling, compared to the stimulating scents (peppermint and isovaleric acid).
2. An individual's risk propensity (RT18 risk scores) would influence the effect of these smells on risk taking behaviours within gambling.

Introduction

Method

Within-participants IV was the smell type (isovaleric acid: peppermint; lavender)

Between-participants IV was the RT-18 scores (high risk; low risk).

The DVs were the CGT measures of overall proportion bet (best proxy for risk taking) and bet value.

Participants

A convenience sample of n = 43 (27 female) CCCU psychology students.

Age: 23 were 19-24, 6 were 25-34, 6 were 35-44, 6 were 45-54, and 2 were 65+

Exclusion: Dysosmia, allergies, illness.

Materials and Apparatus

Scent pots containing isovaleric acid, peppermint, or lavender.

The RT-18 risk questionnaire assessed participants risk propensity (De Haan et al., 2011).

An augmented version (halved) of the Cambridge Gambling Task (CGT; Rogers et al., 1999).

Procedure

Participants completed the RT-18 risk questionnaire as part of the participant information form. They subsequently completed the adapted CGT whilst being exposed to each smell type; three times in total.

Results

ANOVA 1 – Proportion Bet

Significant main effect of smell on proportion bet, F (1, 47, 60.11) = 8.84, p < .005, η² = .177.

Significant interaction effect, F (1, 47, 60.11) = 7.03, p < .005, η² = .146, whereby lavender is lower only in high risk takers.

ANOVA 2 – Bet Value

Marginally significant main effect of smell on bet value, F(2, 82) = 2.92, p = .060, η² = .066, whereby lavender is significantly lower than and isovaleric acid (p = .074).

Discussion

Key Findings

Evidence found to support both hypotheses, but only in relation to the overall proportion bet.

The relaxing scent of lavender led to a lower overall proportion bet amongst participants, compared to the stimulating scents. Furthermore, lavender also significantly reduced the overall proportion bet amongst those with a high risk propensity.

Unexpected results

Bet value did not yield any significant results. The standard deviation of bet value remained high across all three smell conditions.

Practical Implications

There are wider implications for future research, prevention, and treatment of problematic gambling.

Climical aromatherapy applications to utilise lavender as a treatment (Farrar & Farrar, 2020).

Cheap and easy interventions as preventative measures to problematic gambling.

Limitations

Potentially uneven scent concentration entering participants nasal cavity (Amores et al., 2019).

Smell perception may have varied due to the wide age range and inclusion of older participants (Seow et al., 2016).

The inclusion of bet value as a behavioural measure.

The absence of familiarisation task (Bedwell et al., 2023).

Future Research

Utilise more advanced scent delivery systems (Amores et al., 2019).

Test alternative relaxing scents, such as orange, chamomile, and ylang ylang (Schiffelstein et al., 2011).

Incorporate more targeted recruitment related to intended demographic groups.

Use more ecologically valid measure and environment.

Introduce lavender scents to in-person betting establishments (Chebat & Michon, 2003).

Key Finding

Compared to isovaleric acid and peppermint, lavender substantially reduced the overall proportion bet amongst high-risk gamblers.