Effects of unrelated arousal on reckless gambling behavior

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Self-Introduction

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Main theme: Gambling Behavior, Affect, Perceived Luck

Especially, my research focused on gambling behaviors on human beings, and did some experimental studies.
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◆ Background & Purpose

◆ Method
  - Participants, Measure, Gambling Task, Control of Arousal

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  - Fundamental Date, Effects of unrelated arousal

◆ Conclusions and future plans
Background

There are many opportunity to do various gambles also in Japan.

Ex: horse racing, public lottery, and pachinko (a Japanese upright pinball)

But, the study of gambling in Japan is still limited (Kido & Shimazaki, 2007).
Some studies (ex. Cummins et al., 2009) revealed the relationship between **positive emotion** and **reckless gambling**.

... when people feeling positive, they likely to bet **risky** and **recklessly** compared to feeling negative.

**Emotions are likely to play a large role in gambling!**
Russell and Feldman-Barrett (1999) insists that emotional state is consisted by 2 dimensions.
However, it is not clear that which dimension is important for reckless gambling.

In this study, effects of unrelated arousal without positive emotion were experimentally investigated in healthy undergraduates.
Method

- **Participants**
  34 Japanese undergraduates
  (18 males, 16 females, mean age was 19.76)

- **Measure (affect)**
  Affect Grid (Russell et al., 1989)

- **Measure (perceived-luck)**
  1-item scale (How much do you think you are lucky of now?)
  from -5 (bad luck) to +5 (good luck)

- **Gambling Task**
  Game of Dice Task (GDT; Brand et al., 2005)
Affect Grid (Russell et al., 1989)

Arousal Score

Pleasure Score

arousal

sleepiness

pleasure

displeasure

x
• **Participants**
  34 Japanese undergraduates
  (18 males, 16 females, mean age was 19.76)

• **Measure** (affect)
  Affect Grid (Russell et al., 1989)

• **Measure** (perceived-luck)
  1-item scale (How much do you think you are lucky of now?)
  from -5 (bad luck) to +5 (good luck).

• **Gambling Task**
  Game of Dice Task (GDT; Brand et al., 2005)
Select your combination and PUSH Enter key.
Reckless Gambling score

RG score
4
3
2
1

PUSH Enter key to continue this GAME.
Procedure

GDT: trial 1

GDT : trial 2

Affect Grid, Perceived-Luck (19 times)

GDT : trial 18
Manipulation of Arousal

Before GDT

Experimental Group

Control Group

Step Exercise
Wait 2 minutes

Arousal
High
Neutral
## Results

1. Manipulation checks

<table>
<thead>
<tr>
<th></th>
<th>Experimental group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Pleasure score</td>
<td>5.24</td>
<td>1.20</td>
</tr>
<tr>
<td>Arousal score</td>
<td>6.47</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Arousal manipulation in this study was successful.
## Results

2. The fundamental data

<table>
<thead>
<tr>
<th></th>
<th>Experimental group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RG score</strong></td>
<td>1.60 (0.50)</td>
<td>2.02 (0.67)</td>
</tr>
<tr>
<td><strong>GDT final score</strong></td>
<td>882.35 (2161.67)</td>
<td>-641.18 (3462.31)</td>
</tr>
<tr>
<td><strong>Pleasure score</strong></td>
<td>5.06 (1.23)</td>
<td>4.40 (1.48)</td>
</tr>
<tr>
<td><strong>Arousal score</strong></td>
<td>6.15 (1.06)</td>
<td>6.09 (1.31)</td>
</tr>
</tbody>
</table>

*Experimental group prefer less reckless gambling than control group!*
Analysis

◆ $2 \times 2$ ANOVA (unrelated arousal × winning versus losing)

**Dependent variable:** the sift size of each score

(Ex)

Trial 1  RG score: 2

Trial 2  RG score: 3

Trial 3  RG score: 2

Became more reckless

Became more safety

Sift size: $+1$

Sift size: $-1$
3. The effect of unrelated arousal, and winning versus losing on sift size of each score

<table>
<thead>
<tr>
<th></th>
<th>Experimental group</th>
<th>Control group</th>
</tr>
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<tbody>
<tr>
<td><strong>RG score</strong></td>
<td>win</td>
<td>0.19 (0.17)</td>
</tr>
<tr>
<td></td>
<td>lose</td>
<td>-0.19 (0.27)</td>
</tr>
<tr>
<td><strong>Pleasure score</strong></td>
<td>win</td>
<td>0.77 (0.53)</td>
</tr>
<tr>
<td></td>
<td>lose</td>
<td>-1.12 (0.71)</td>
</tr>
<tr>
<td><strong>Arousal score</strong></td>
<td>win</td>
<td>0.12 (0.27)</td>
</tr>
<tr>
<td></td>
<td>lose</td>
<td>-0.24 (0.35)</td>
</tr>
<tr>
<td><strong>Luck score</strong></td>
<td>win</td>
<td>0.55 (0.38)</td>
</tr>
<tr>
<td></td>
<td>lose</td>
<td>-0.82 (0.53)</td>
</tr>
</tbody>
</table>
### Results

3. The effect of unrelated arousal, and winning versus losing on sift size of each sore

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<th>Control group</th>
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<tbody>
<tr>
<td><strong>Arousal score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Win</strong></td>
<td>0.12 (0.27)</td>
<td>0.18 (0.18)</td>
</tr>
<tr>
<td><strong>Lose</strong></td>
<td>-0.24 (0.35)</td>
<td>0.09 (0.64)</td>
</tr>
<tr>
<td><strong>Luck score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Win</strong></td>
<td>0.55 (0.38)</td>
<td>0.93 (1.05)</td>
</tr>
<tr>
<td><strong>Lose</strong></td>
<td>-0.82 (0.53)</td>
<td>-0.94 (0.63)</td>
</tr>
</tbody>
</table>

The main effects of winning versus losing was significant. But, the main effects of unrelated arousal and interaction were not significant.
Conclusions

Arousal without positive emotion might have not promoted but inhibited reckless gambling behavior.

“Pleasure – displeasure” dimension may be more important factor than “arousal – sleepiness” dimension for reckless gambling.

After participants experienced wins, compared to losses, their emotional state became more positive and aroused, and their perceived luck increased, and their next gambling choice became more reckless.
In this study, manipulation of arousal was conducted only before the gambling task.

It might need the manipulation which continued through all gambling task.

To understand the basic mechanisms of gambling behavior, further research is needed that focused on the effects of affect.
Thank you!

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