Can Virtual Gambling Exposure Modify the Urge to Gamble?

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Gambling Exposure in Virtual Reality

- Pathological gamblers report uncontrollable urges to gamble despite how much money they have or any negative consequences it may cause.

  Urge to gamble:
  A psychological, physiological and emotional state giving rise to a need or a desire to gamble
  (Raylu & Oei, 2004; Sharpe, 2002)

- Involved in the maintenance of pathological gambling and gambling behavior relapse following treatment (Sharpe, 2002; Wulfert, Maxson, & Jardin, 2009).
Gambling Exposure in Virtual Reality

- Cognitive-behavioral interventions may use cue-exposure treatment components (Ladouceur, Sylvain, Boutin, & Doucet, 2000);

- Exposure continues until the urge to gamble decreases and fades away, which corresponds to the desensitization or extinction process (Lambrey, Jouvent, Allilaire, & Pélissolo, 2010).
Gambling Exposure in Virtual Reality

- In vivo cue-exposure to a gambling environment (2 PPG, 17 and 22 sessions) (Symes & Nicki, 1997):
  - PSE
  - Urge to gamble

- One in vivo exposure session, case study (Tolchard, Thomas, & Battersby, 2006):
  - Urge to gamble

**Perceived self-efficacy (PSE):** Individual’s belief that he or she can or cannot resist the opportunity to gamble in a given context

(Casey, Oei, Melville, Bourke, & Newcombe, 2008).
Cue-exposure in virtual reality:

- Already used in the treatment of anxiety disorders and substance dependence (Bush, 2008).
- Combines the advantages of in vivo and imaginal exposure without most of the inconveniences.
Gambling Exposure in Virtual Reality

- **Aim of the study**: To Investigate the ability of virtual reality to be used as a cue-exposure technique for pathological gambling treatment.

- Virtual reality exposure program: *Able to elicit an urge to gamble* (Loranger, Bouchard, Boulanger & Robillard, 2011).

- Was not tested for treatment:
  - Would the urge to gamble decrease in a single session?
  - Would a 20-minute immersion be sufficient to set extinction process into motion?
Hypotheses

- **Hypothesis 1**: One cue-exposure session in a virtual gambling environment will modify participants’ urge to gamble on Video Lottery terminals (VLTs).

- **Hypothesis 2**: PSE will also change within this same session of cue-exposure.
Method - Participants

Inclusion criteria:

- 18 years of age or older;
- Gamble on VLTs at least once a month;
- Wish to control or decrease their VLT gambling habits.

10 VLT players (6 ♂ - 4 ♀);
- Mean age = 63.4 years;
- Mean score on the Canadian Problem Gambling Index [CPGI] = 9.9 (SD = 5.5).
Method - Material

➢ Screening questionnaire
  ▪ Inclusion/exclusion criteria, participants’ characteristics, CPGI (Ferris & Wynne, 2001).

➢ Urge to gamble on VLTs
  0 = no urge to gamble
  10 = extreme urge to gamble

➢ PSE
  0 = not at all able to resist the temptation to gamble
  10 = totally able to resist the temptation to gamble

➢ Post-exposure questionnaire
  ▪ Gambling inventory, experience in virtual reality (realism, similarity).
Method - Material

- Virtual reality headset, computer, speakers, wireless mouse.

- Virtual reality exposure program (Bouchard, 2009):
  - Practice environment
  - Gambling environment
Method – Virtual reality exposure program
Method - Procedure

Planning of the cue-exposure session

- 13 measures of urge to gamble on VLTs and PSE (1B through 13PE)

<table>
<thead>
<tr>
<th>Initial measure</th>
<th>Priming</th>
<th>Practice task</th>
<th>Cue-exposure (5 sequences)</th>
<th>Post-exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival, consent form, initial measure.</td>
<td>Measure following priming.</td>
<td>3 measures while participants are moving within the practice environment.</td>
<td>5 sequences of cue-exposure (4 steps by sequence). Measures are taken at step 4 of each sequence.</td>
<td>3 measures following cue-exposure, urge to gamble defusing.</td>
</tr>
<tr>
<td>1B</td>
<td>2B</td>
<td>3P 4P 5P</td>
<td>6SE 7SE 8SE 9SE 10SE</td>
<td>11PE 12PE 13PE</td>
</tr>
</tbody>
</table>

Steps

1. ATM
2. Bar counter
3. Look at the VLTs
4. Sit in front of a VLT
Results

- **Experience in virtual reality:**

- **No motion sickness during the immersion**
Results

- Urge to gamble on VLTs
- Perceived self-efficacy

<table>
<thead>
<tr>
<th>Measures</th>
<th>Urge to gamble on VLTs</th>
<th>Perceived self-efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>2.95</td>
<td>2.92</td>
</tr>
<tr>
<td>2B</td>
<td>3.05</td>
<td>3.11</td>
</tr>
<tr>
<td>3P</td>
<td>2.23</td>
<td>3.81</td>
</tr>
<tr>
<td>4P</td>
<td>3.07</td>
<td>3.65</td>
</tr>
<tr>
<td>5P</td>
<td>3.54</td>
<td>3.69</td>
</tr>
<tr>
<td>6SE</td>
<td>3.51</td>
<td>3.92</td>
</tr>
<tr>
<td>7SE</td>
<td>4.17</td>
<td>3.91</td>
</tr>
<tr>
<td>8SE</td>
<td>3.84</td>
<td>3.98</td>
</tr>
<tr>
<td>9SE</td>
<td>3.83</td>
<td>4.01</td>
</tr>
<tr>
<td>10SE</td>
<td>3.95</td>
<td>4.04</td>
</tr>
<tr>
<td>11PE</td>
<td>3.88</td>
<td>3.43</td>
</tr>
<tr>
<td>12PE</td>
<td>4.03</td>
<td>3.91</td>
</tr>
<tr>
<td>13PE</td>
<td>4.09</td>
<td>4.03</td>
</tr>
</tbody>
</table>
Results: Main analyses

Measures in the gambling environment

**Hypothesis 1**: modification of urge to gamble on VLTs

No significant difference, $\chi^2_F(4, N = 10) = 7.78, p = .10$.

**Hypothesis 2**: modification of PSE

No significant difference, $\chi^2_F(4, N = 10) = 1.27, p = .87$. 
Results: Secondary analyses

- Significant increase in urge to gamble on VLTs between practice environment and gambling environment ($p = .01$).
Results: Secondary analyses

- Urge to gamble in gambling environment and last measure taken after exposure: no significant difference ($p = .08$).
Results: Secondary analyses

- Urge to gamble in practice environment and last measure taken after exposure: no significant difference ($p = .04$).

\[ M = 1.63 \]

\[ 3.5 \]
Discussion

- No fluctuation in urge to gamble on VLTs and PSE during cue-exposure to a virtual gambling environment.

- These findings do not support those obtained by Symes and Nicki (1997) and by Tolchard et al. (2006).

- Duration of cue-exposure (20 minutes) & extinction.
Discussion

- Virtual gambling environment
  - is able to **arouse an urge to gamble on VLTs**
  - is assessed as **realistic** by the participants.

- Limitations of the study:
  - Sample size;
  - Sensitivity of measures.
Conclusion

- Virtual reality: a promising cue-exposure technique
- Future studies: possibility of combining cue-exposure to a virtual gambling environment with a cognitive intervention.
Thank you!

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References


References


