

A Study of Gambling Using a Virtual Casino



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When Gambling Becomes a Problem

- ◆ *Pathological Gambling*. An impulse control disorder characterised by chronic inability to resist impulses to gamble. (DSM-IV, American Psychiatric Association, 1994).
 - 1.6% of the general public
 - 3.85% sub-clinical levels
- ◆ Among university students
 - 5% pathological
 - over 9% sub-clinical levels



Problem of Ecological Validity in Experimental Gambling Research

- ◆ Level of arousal different between actual gambling situation & laboratory setting (Anderson & Brown, 1984).
- ◆ Previous laboratory gambling simulations often bear little resemblance to real gambling situations (Wildman, 1997)
- ◆ Not possible to study participants in a real casino setting
 - Researchers are reliant on self-report measures



Virtual Reality Casino

- ◆ Using a virtual reality casino is potentially an effective compromise
 - Meets controllability demands of an experimental study
 - However it is unknown whether it can illicit adequate anticipatory arousal in the gambler
 - This is the purpose of the current research



VR and Urges/Craving

- ◆ Craving is a strong subjective drive to use a substance (APA, 1994, p. 192)
- ◆ Studies have shown drug craving/urges predict relapse (Sayette et al., 2000).
- ◆ Previous research has shown the utility of Virtual Reality in eliciting urges among smokers (Baumann & Sayette, in press)



Method

Apparatus

- ◆ A virtual reality casino was created using 3D Game Studio (Conitec)
- ◆ Two of the games (blackjack and slot machines) in the casino are interactive
- ◆ Startup interface enables experimenter to preset a number of variables
 - the win/loss ratio
 - payoff amounts
 - the individual cards dealt to player and dealer



Methods (cont.)

Participants

- ◆ Thirty-five sub-threshold pathological gamblers, as defined by the DSM-IV checklist for gambling pathology
 - recruited from the undergraduate population at Carleton University in Ottawa, Canada.

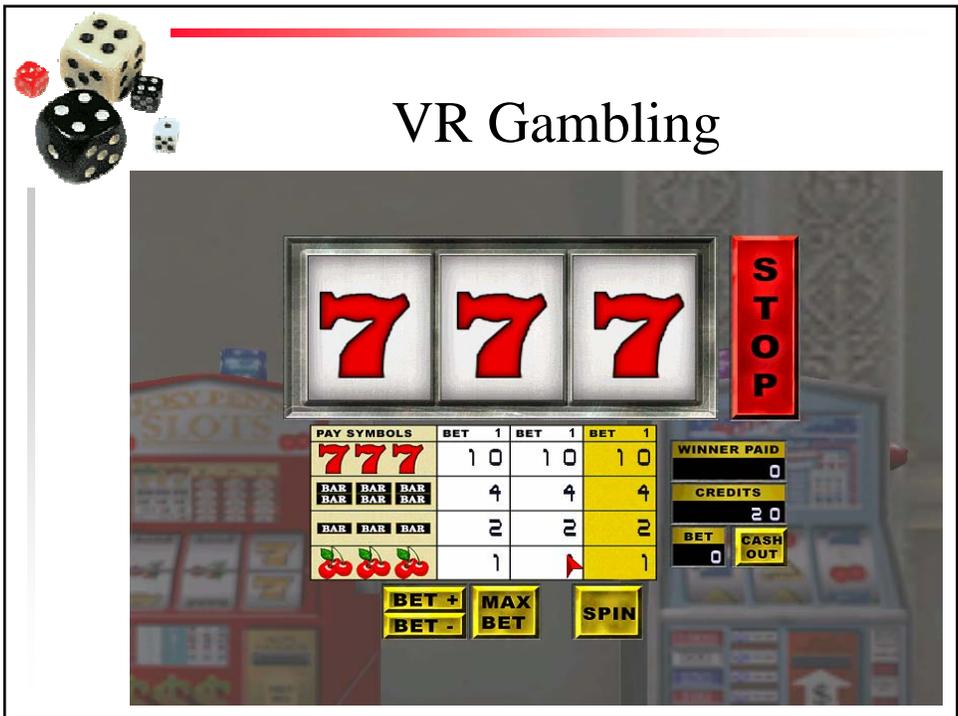
Procedure

- ◆ Participants came to the lab and were invited to gamble at a slot machine in the virtual reality casino



VR Gambling







Methods (cont.)

Procedure (cont.)

- ◆ Participants played slot machine
 - 20 spins
- ◆ Participants were told machines were programmed with the 40% payout rate of local casino.
- ◆ In actuality slot machines were programmed to win or loose in a particular sequence.
 - Half the participants lost \$6 of their initial \$10 seed money
 - Half won an additional \$6.



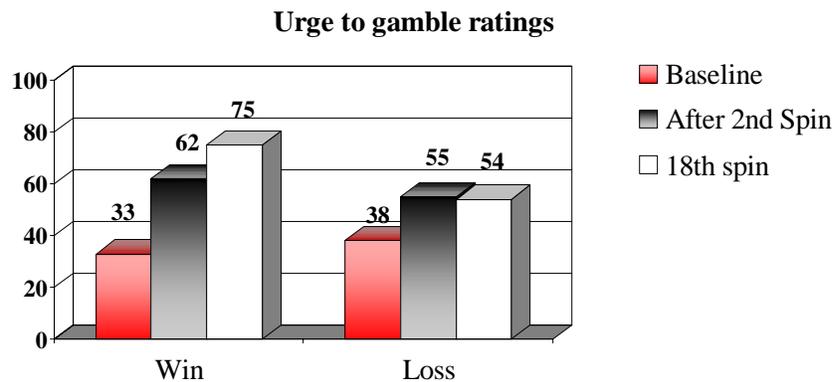
Methods (cont.)

Measures

- ◆ Single item urge measure
 - Screen overlay rating scale (0-100)
 - “*How strong is your urge to gamble?*”
 - Responses obtained after the 2nd and 18th spin
 - Baseline craving assessed with random phone call two weeks after laboratory session.



Results



Results

- ◆ VR simulation was able to significantly increase gambling urges in problem gamblers ($p < .001$)
- ◆ This effect was qualified by a significant interaction effect of win/loss by time on urge rating ($p = .02$).
 - winning caused craving to increase more than losing, especially as gambling persisted up to the 18th spin.



Conclusion

- ◆ A virtual casino was used successfully to illicit gambling related urges in problem gamblers.
- ◆ This effect was heightened following a winning sequence



Discussion

- ◆ Limitations
 - Participants did not wager their money in the casino
 - Likely resulted in decreasing effect size.
 - Single item urge measure of limited reliability
- ◆ To our knowledge, first use of a virtual reality simulation to study gambling behavior in pathological gamblers.