

Effects of deprivation on smokers' motivation

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Theories

Incentive Sensitization Theory. Repeated drug use leads to a sensitization of dopamine systems involved in motivational properties of consumption through Pavlovian Conditioning. These dopamine systems do not affect liking but only wanting. Wanting is a cue-triggered reaction that corresponds to the motivation of an individual to get a reward (*i.e.*, drugs) and does not affect the hedonic aspect of consumption.

Valuation. Smoking deprivation, as a cue high in incentive value, leads to a goal activation. Valuation signifies that people have higher preferences for objects related to their goals, and devaluation means that people have lower preferences for objects that are unrelated to their goals.

Reverse Alliesthesia. The activation of cues high in incentive value leads to a general motivation state, causing people to seek anything rewarding.

Predicted pleasure. The distinction between wanting and liking as the hedonic aspect of consumption leads to confusion. Previous researchers identified identical patterns for wanting and predicted pleasure from consuming.

Hypotheses

H1: Deprived smokers have a higher need to smoke in comparison to non-deprived.

H2a: Cigarette deprivation activates a general motivational state, causing deprived smokers to seek anything rewarding.

H2b: Cigarette deprivation activates a cue-specific motivational state, causing deprived smokers to seek only incentives relevant to their current need state (*i.e.*, cigarettes).

H2c: Cigarette deprivation activates a focal need to smoke, which leads to a devaluation of choice options unrelated to this need.

H3: Deprivation increases wanting and predicted pleasure from winning.

Method and predictions

The researcher conducted an **online experiment** in which some subjects were **smoking-deprived** while others not. The main task is a **concurrent schedule task** in which subjects could collect points by clicking repeatedly on the mouse to win a reward in a random draw. The rewards were either **money or cigarettes** and assigned randomly to the subjects. The more points collected for a reward, the higher its relative reinforcing value RRV.

According to the IST, deprived smokers should have a higher RRV of cigarettes.

If deprivation activates general motivational states, deprived smokers should have at least the same RRV of cigarettes than of money. If, by contrast, we observe a devaluation effect, the RRV of money should be smaller than the RRV of cigarettes.

Besides, subjects were asked **how pleasurable** it would be for them to learn that they have won the reward for which they collected points to assess their predicted pleasure from winning.

The researcher expects that a high RRV will be positively correlated with a high predicted pleasure from winning the reward.

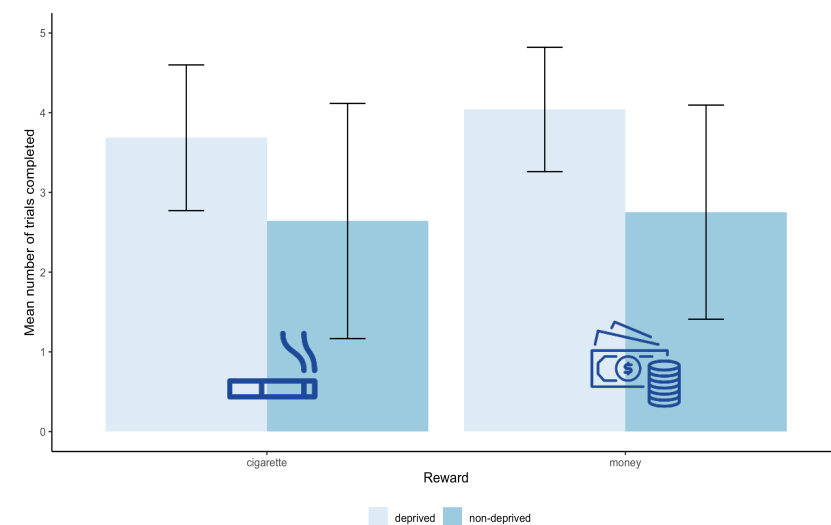
Results

Manipulation check. Deprived smokers judged their need to smoke to be significantly higher than non-deprived smokers.

RRV of cigarettes and money. The concurrent schedule task revealed a higher RRV of cigarettes for deprived smokers than for non-deprived smokers. Deprived subjects invested more effort for the money reward than for the cigarettes reward.

Predicted pleasure from winning. Very weak correlation between the predicted pleasure from winning and the number of trials completed. Significantly higher predicted pleasure from winning for deprived smokers than for non-deprived smokers.

Mean number of trials completed according to the reward and the deprivation condition



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