

Worth the effort? Not if you're depressed

August 12 2009



Individuals suffering from anhedonia, a key symptom of depression, are less likely to pursue rewards if effort is required to obtain the reward. Credit: Michael Treadway, Vanderbilt University

New research indicates that decreased cravings for pleasure may be at the root of a core symptom of major depressive disorder. The research is in contrast to the long-held notion that those suffering from depression lack the ability to enjoy rewards, rather than the desire to seek them.

The research, led by Vanderbilt psychologists Michael Treadway and David Zald, was published Aug. 12 by the online journal [PLoS One](#).

"This initial study shows that decreased reward processing, which is a core symptom of depression, is specifically related to a reduced willingness to work for a reward," Treadway, a graduate student in psychology, said.

Decreased motivation to seek and experience pleasurable experiences, known as anhedonia, is a primary symptom of [major depressive disorder](#). Anhedonia is less responsive to many [antidepressants](#) and often persists after other symptoms of depression subside. However, understanding the different components of anhedonia - the desire to obtain something pleasurable versus experiencing pleasure - has been difficult for researchers to determine in humans.

"In the last decade and a half, animal models have found that the [neurotransmitter](#) dopamine, long known to be involved in reward processing, is involved in craving or motivation, but not necessarily enjoyment," Treadway said. "To date, research into reward processing in individuals with anhedonia has focused on enjoyment of rewards, rather than assessing the drive to work for them. We think this task is one of the first to do that."

Treadway and his colleagues devised the Effort-Expenditure for Rewards Task, or EEfRT, to explore the role of reduced desire and motivation in individuals reporting symptoms of anhedonia. EEfRT involved having individuals play a simple video game that gave them a chance to choose between two different tasks, one hard, one difficult, to obtain monetary rewards. Participants were eligible but not guaranteed to receive money each time they completed a task successfully.

The "hard" task required pressing a button 100 times within 21 seconds using one's non-dominant little finger and carried a potentially higher reward than the easy task, which required pressing a button 30 times in seven seconds using one's dominant index finger. The subjects were told

at the beginning of each trial whether they had a high, medium or low probability of winning a prize if they successfully completed the trial. The participants could choose which trials they completed and were given 20 minutes to perform as many tasks as possible.

The researchers found that subjects who reported symptoms consistent with anhedonia were less willing to make choices requiring greater effort in exchange for greater reward, particularly when the rewards were uncertain.

"Consistent with our hypotheses, we found that individuals with self-reported anhedonia made fewer hard-task choices," the authors wrote. "These findings are consistent with theoretical models linking anhedonia to decreased (dopamine levels)."

"By addressing the motivational dimension of anhedonia, our findings suggest a plausible theoretical connection between dopamine deficiency and reward processing in [depression](#), which may eventually help us better understand how anhedonia responds to treatment," Treadway said.

Source: Vanderbilt University ([news](#) : [web](#))

Citation: Worth the effort? Not if you're depressed (2009, August 12) retrieved 25 April 2024 from <https://medicalxpress.com/news/2009-08-worth-effort-youre-depressed.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.