

Implicit Behavioral Tendencies and Calorie Restriction in Anorexia Nervosa

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Description

A shift in implicit behavioural tendencies toward food might play a role in sustaining calorie restriction in Anorexia Nervosa (AN). To investigate this, we examined approach-avoidance behaviours toward various stimuli using a mobile version of the Approach-Avoidance Task (AAT). The study included 66 female patients with restrictive AN and 84 healthy female controls. Participants completed the AAT, which required them to either pull their phone toward themselves (to approach) or push it away (to avoid) different stimuli, including high-calorie foods, low-calorie foods and neutral objects. We collected response times and movement force using the smartphone's accelerometer.

Results indicated that patients with AN exhibited a diminished inclination to approach food stimuli when compared to healthy controls, who demonstrated quicker and more forceful movements when approaching food rather than avoiding it. This tendency was especially pronounced among patients experiencing higher levels of malnutrition. Notably, there were no significant differences between high-calorie and low-calorie food responses. The decreased propensity to approach food aligns with the eating behaviours of patients with AN and may contribute to the persistence of calorie restriction, highlighting a potential target for innovative therapeutic interventions.

Anorexia nervosa is a serious psychiatric disorder characterized by extreme calorie restriction, significantly low body weight and an intense fear of weight gain or changes in body shape. While psychotherapeutic methods like cognitive behavioural therapy and family-based treatment are commonly used, their effectiveness remains limited, with fewer than half of the patients achieving full recovery. AN is also recognized as having the highest mortality rate among psychiatric disorders.

In light of the need for new treatment strategies, research is focusing on understanding the neurocognitive mechanisms underlying AN's core symptoms, particularly calorie restriction. Several neurobiological models have been proposed, with some suggesting that the capacity of patients to resist food and limit caloric intake is linked to heightened self-control and increased cognitive control over appetitive responses. Other models, like the habit-centered approach, propose that calorie restriction

evolves from a voluntary behaviours to a habitual one, which changes automatic associations with food stimuli.

Exploring implicit behaviors in calorie restriction

Given these competing theories, it is critical to investigate how food stimuli elicit different responses in AN patients compared to healthy individuals, especially in terms of implicit behaviours. Current empirical support for these models is inconsistent, partly due to the challenges associated with creating experimental protocols that can detect changes in implicit responses to food stimuli. While some studies have reported diminished automatic approach tendencies toward food in patients, further replication and inquiry are essential, particularly with methodologies that reflect real-world scenarios.

Traditional approaches to studying these tendencies have included computerized tasks that lack ecological validity. To address these limitations, more realistic paradigms, such as the mobile version of the AAT, have been developed. In this task, participants interact with stimuli by moving their smartphones, enabling more naturalistic movements and allowing for data collection on both reaction times and movement intensity.

In our study, we utilized the mobile AAT to evaluate approach-avoidance tendencies toward both high-calorie and low-calorie foods among patients with restrictive AN. We hypothesized that automatic behavioural tendencies toward food stimuli could reinforce calorie restriction. Specifically, we expected that patients would demonstrate a reduced inclination to approach foods, particularly high-calorie options, compared to healthy controls. Given that low-calorie foods are typically favored by individuals with AN, we anticipated a stronger approach tendency toward these foods relative to both high-calorie foods and healthy controls.

Our research aims to provide insights into how implicit behavioural patterns toward food might contribute to the maintenance of restrictive eating behaviours in AN. By enhancing the understanding of these underlying processes, we hope to inform the development of targeted treatment strategies that address the automatic and habitual nature of eating behaviours in patients with AN. This could lead to more effective therapeutic interventions that align with the unique challenges posed by the disorder.