

Happy, Sad, or Hungry? Predictors of Emotional Eating in the Context of Emotional Affect

Grace E. Coleman & Bridget A. Hearon, Ph.D

Albright College



Abstract

In the present study, we examined emotional eating and dietary restraint in the context of induced positive and negative affect while also randomizing participants to a food or no-food condition. Participants completed informed consent, assessments of interest, and BMI measurements. They were randomly assigned to watch a sadness- or joy-inducing movie clip, and then were randomized to complete a sham taste-test of chocolate and potato chips or a time-matched task where participants rated the aesthetics of non-food images. Positive and negative affect were assessed throughout. Findings indicate that regardless of affect induced, participants experienced greater positive affect when eating than when rating images, and that BMI may influence the number of calories consumed when in a negative but not positive affective state.

Background

- Obesity and Overeating
 - Over 70% of US adults are considered overweight or obese, and this may be influenced by emotional eating (CDC, 2017).
- Overeating and Negative Affect
 - Increasing negative affect (negative state emotions) can increase the desire to eat (Bongers et al., 2015)
- Overeating and Positive Affect
 - Positive mood significantly increases food intake in self-reporting emotional eaters compared to a neutral condition, and there may be an association between caloric intake and an improvement in mood about five minutes after consumption (Bongers et al., 2013)
- Moderators of Emotional Eating
 - Anxiety sensitivity (Hearon et al., 2014), self-reported emotional eating and dietary restraint (Bongers et al., 2013), negative trait mood (Jansen et al., 2008), and BMI have all been associated with emotional eating, but have not been fully explored.
- In the present study, we simultaneously included assessment of an eating and non-eating condition following both positive and negative mood induction. We also assessed any potential moderators to changes in emotional affect and overall eating behavior.

Hypotheses

- Based on this research, the study sought to explore the relationship between emotional affect and food consumption by inducing positive or negative emotions participants and assessing their changes in emotional affect between induction and cue exposure of potato chips and chocolate or neutral images.
 - We hypothesize that participants with higher anxiety sensitivity (Hearon et al., 2014), higher self-reported emotional eating and dietary restraint as per Bongers et al. (2013), more negative trait mood as per Jansen et al. (2008), higher BMI, and a negative state mood induction would be more likely to eat higher quantities of food than those with lower anxiety sensitivity, lower restraint, more positive trait mood, lower BMI, and a positive state mood induction.
 - We also hypothesized that after consuming either sweet or savory foods, participants' overall affect would improve compared to individuals who did not receive food.

Participants

- 67 Students at Albright College
 - 35 in happy induction condition; 32 in sad induction condition
 - 34 in food cue exposure; 33 in image cue exposure
 - Mean age = 20 years old
- Demographic breakdown
 - African American (22.4%), American Indian or Alaska Native (1.5%), Asian (1.5%), Caucasian (53.7%), Native Hawaiian or other Pacific Islander (0%), Other (3.0%), and unknown (17.9%)
 - Participants were volunteers and participated in the study after being sent an email to participate in the study for an extra credit opportunity or monetary compensation
- Participants signed up via Sona Systems and came to the designated lab at their scheduled time. The duration of the experiment lasted 45-60 minutes.

Procedure

- Participants separated in a between-subjects design
 - Participants completed assessments of baseline food cravings, emotional eating, dietary restraint, depressive symptoms, and anxiety sensitivity, then completed a brief eye-tracking task
 - Participants from this study were randomly assigned to happy/food, sad/food, happy/image, or sad/image conditions.
 - Two induction conditions, watched *When Harry Met Sally* clip (happy) or watched *Marley and Me* clip (sad).
 - Two cue exposure conditions: ate and rated potato chip and milk chocolate (food) or rated neutral image aesthetics (image).
 - Food was weighed pre- and post-cue exposure
 - In the cue exposure sham rating tasks, participants were instructed to rate the items in front of them and the investigator left the room for 5 minutes to complete the tasks
 - Emotional affect questionnaires were completed pre- and post-mood induction and post-cue exposure
 - After final questionnaires, height and weight were measured to determine BMI

Results

- Analyzed using 3-Way Mixed Model ANOVAs
 - Negative Affect
 - interaction effect between time and induction condition, after viewing the happy induction, negative affect decreased, while after viewing the sad induction, negative affect increased, $F(2, 126) = 9.62, p < .001, \eta^2 = .132$
 - Positive Affect
 - interaction effect between positive affect over time and induction condition, those who viewed the happy induction experienced an insignificant decrease in positive affect and those who viewed the sad induction reported significantly lower positive affect than baseline, $F(2, 126) = 7.45, p = .001, \eta^2 = .106$
 - interaction effect between time and cue exposure condition, eating, regardless of induction condition led to an increase in positive affect, $F(2, 126) = 7.917, p = .001, \eta^2 = .112$
- Analyzed using Linear Regressions
 - Significant interaction between BMI and induction such that those with higher BMI who underwent sad induction consumed more calories. BMI had no effect on eating when positive affect was induced.
 - No other hypothesized moderators were significant.

Discussion

- As expected, positive affect was higher after viewing the happy induction condition than the sad induction condition, and overall positive affect increased after eating food more than after rating images.
- In terms of negative affect, scores were higher after viewing the sad induction condition than the happy induction condition, but there was not a significant difference in negative affect between the cue exposure conditions.
- BMI was a significant moderator for total calories consumed, and individuals with higher BMIs may be more susceptible to emotional eating when experiencing an increase in negative rather than positive affect.
- The current study lacked a neutral induction condition and investigators expected that the happy induction condition would elicit higher positive affect after viewing than the results indicated.

Future Directions

- This research could also be applied to understanding the mechanisms behind the connection between obesity and emotional eating. By understanding how positive and negative affect can be influenced by both visual entertainment and the presence of food, researchers, physicians, and lay individuals can be made aware that eating makes people feel better over short-term periods, which can perpetuate this behavior.
- Since BMI has been found as a moderator in the amount of calories participants consumed, medical providers could use BMI as an indicator in whether to screen individuals for emotional eating and teach adaptive coping techniques in the instances of negative affect.

References

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When Harry Met Sally



Marley and Me



Image Cue Exposure



Food Cue Exposure

