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The audience eats more if a movie character keeps eating: An unconscious mechanism for media influence on eating behaviors



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ABSTRACT

Media's presentation of eating is an important source of influence on viewers' eating goals and behaviors. Drawing on recent research indicating that whether a story character continues to pursue a goal or completes a goal can unconsciously influence an audience member's goals, a scene from a popular movie comedy was manipulated to end with a character continuing to eat (goal ongoing) or completed eating (goal completed). Participants (N=147) were randomly assigned to a goal status condition. As a reward, after viewing the movie clip viewers were offered two types of snacks: ChexMix and M&M's, in various size portions. Viewers ate more food after watching the characters continue to eat compared to watching the characters complete eating, but only among those manipulated to identify with a character. Viewers were more likely to choose savory food after viewing the ongoing eating scenes, but sweet dessert-like food after viewing the completed eating scenes. The results extend the notion of media influence on unconscious goal contagion and satiation to movie eating, and raise the possibility that completing a goal can activate a logically subsequent goal. Implications for understanding media influence on eating and other health behaviors are discussed.

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1. Introduction

A number of studies find that media behaviors, such as watching television, increase food intake (Gore, Foster, DiLillo, Kirk, & West, 2003; Hetherington, Anderson, Norton, & Newson, 2006) and encourage obesity (Dietz & Gortmaker, 1985), eating disorders (Harrison & Cantor, 1997; Stice, Schupak-Neuberg, Shaw, & Stein, 1994) and other eating related issues. Watching food-related TV programs or advertisements appears to lead to overeating (Pope, Latimer, & Wansink, 2015; Wansink & Park, 2001) and poor eating habits (Harris & Bargh, 2009), particularly among children (Boyland & Halford, 2013; Brownell & Horgen, 2004), obese people (Falciglia & Gussow, 1980), and restrained eaters (Shimizu & Wansink, 2011). A number of content-related factors also seem to influence eating. For example, emotionally arousing movies increase food consumption among restrained eaters (Cools, Schotte,

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& McNally, 1992), and fast-paced action movies lead to more eating than slow-paced interview shows (Tal, Zuckerman, & Wansink, 2014; Wansink & Tal, 2015).

Media presentations of eating are frequently embedded in stories. However, few studies have looked at whether viewing a story character's eating behavior influences audience members' food intake and choice. Examining whether and how media characters' eating unconsciously influences viewers' subsequent eating behaviors is important given the prevalence of obesity in the US (about one-third according to Centers for Disease Control and Prevention, 2015) and an increasing obesity rate worldwide (Swinburn et al., 2011).

Many studies investigating how a media character's behavior influences audience members' health behavior are based on the conscious mechanisms associated with Social Cognitive Theory (SCT) (Bandura, 2004; also see Moyer-Gusé, Chung, & Jain, 2011; Nabi, 2009). In SCT, observers model behaviors if they believe the behavior leads to a desirable outcome and that they can achieve that outcome (Bandura, 1986). However, several non-conscious mechanisms related to media and eating have been suggested as well. Engaging media content distracts people's attention from monitoring how much they eat and whether they are full (Coon,

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Goldberg, Rogers, & Tucker, 2001), media depictions of food can prime eating of any available food (Harris, Bargh, & Brownell, 2009), and TV/movie viewing itself serves as a cue to evoking food consumption scripts such as eating popcorn when watching movies (Wansink, 2004).

One possibility that has not been tested has emerged recently. suggesting that observing others' goal-related behaviors can automatically activate or deactivate those goals in the observer. Based on the theory of vicarious goal contagion and satiation (Aarts, Gollwitzer, & Hassin, 2004; McCulloch, Fitzsimons, Chua, & Albarracín, 2011), research indicates that a media character's ongoing health-related goal can unconsciously activate that goal in an audience member's mind, and that activation is reduced when the character stops pursuing the goal (Lee & Shapiro, 2016). The current study investigates whether a movie scene depicting characters either in the process of consuming a meal or having completed that meal influences an audience member's actual eating behavior --- food intake and choice, and whether identification with the media characters moderates this effect. If so, this may suggest an unconscious mechanism for media influence on eating that has not been previously examined.

1.1. Vicarious goal contagion and satiation

Vicarious experience, taking part in another's experience through observation or media rather than being physically involved (Lewis & Duncan, 1958), can influence one's behaviors either consciously or unconsciously——a relatively conscious learning process in which observing others' behaviors makes people generate intentions to approach rewards and avoid punishments (Bandura, 2004), and an unconscious process in which perceiving an individual's goal pursuit can automatically activate the same goal in the perceiver (Aarts, Dijksterhuis, & Dik, 2008; Ackerman, Goldstein, Shapiro, & Bargh, 2009), until the goal is no longer pursued by the actor (Lee & Shapiro, 2016; McCulloch et al., 2011).

While food-related TV programs or advertisements often aim to stimulate the audience's intentions to consume certain food, in most cases eating scenes are just part of a media story with no persuasive intent. Such scenes may influence the audience's eating behaviors through unconscious goal contagion or goal satiation. In goal contagion, observers automatically adopt others' goals as their own (Aarts et al., 2004; 2008). When watching movies or reading novels, audiences keep track of a character's thoughts, feelings, and goals (Cohen, 2001; Hassin, Aarts, & Ferguson, 2005) in order to make sense of the character's experience and to maximize coherency of the story (Graesser, Singer, & Trabasso, 1994), making mental representations of the perceived goal more salient in an audience member's mind. These activated goal-related constructs make the perceiver more likely to pursue corresponding goals (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). For example, reading a goal-implying sentence speeds recognition of goal-related words compared to a non-goal-implying sentence (Hassin et al., 2005), and participants who read a story in which they could infer a character's goal of making money worked harder to earn money in a supposedly unrelated laboratory task compared to participants reading about a character without the goal of earning money (Aarts et al., 2004). Similarly, when watching a character who is pursuing a goal of eating something, audience members may unconsciously activate the same eating goal.

In goal satiation, observing another person complete a goal decreases goal accessibility in the observer's mind and mitigates the observer's efforts to achieve that goal, as if the observer experienced the goal completion him- or herself (McCulloch et al., 2011). Once a character completes a goal and moves on to pursue other goals, observers reallocate their mental resources to inferring other

goals, making mental representations of the completed goals less salient and less accessible (Förster, Liberman, & Higgins, 2005). For example, reading a story in which the character stopped pursuing a diet and exercise goal reduced readers' accessibility to that goal compared to reading about the same character continuing to pursue the diet and exercise goal (Lee & Shapiro, 2016). Participants who read about an employee looking for his manager (McCulloch et al., 2011) generated fewer goal-related words if the employee completed that goal than if the employee did not complete the goal. Similarly, when watching a character stop pursuing the goal of eating, audience members may also deactivate that eating goal.

Vicarious goal contagion and satiation suggest a mechanism for audience members keeping track of a story character's goal without exerting much conscious mental effort. Perceivers are unaware that observing others' goals activates the same goals in their own minds and makes perceivers more likely to pursue these goals (Bargh et al., 2001; Chartrand & Bargh, 1996; Custers & Aarts, 2010; Fitzsimons & Bargh, 2003; Shah, 2005). Instead of consciously evaluating the desirability of a goal-related behavior (Ajzen, 1991; Deci & Ryan, 1985), goal contagion and satiation can be seen as an unconscious on-off switch, making a goal more accessible and allocating mental resources to it when the observed goal is active while making the goal less accessible and shifting resources to other tasks when the observed goal is completed (Förster et al., 2005).

Automatically synchronizing with a character's goal status has important implications for vicarious eating. To examine how movie characters' goal-directed eating behavior influences the viewers' food intake and choice, this study uses eating scenes from the comic movie *Harold and Kumar go to White Castle* (Leiner, 2004). Harold and Kumar encounter a number of adventures in pursuit of White Castle burgers. When they finally reach a White Castle, they order a large meal and consume it. If a character's eating goal can unconsciously activate or deactivate a viewer's eating goal, we predict that:

H1: Participants who watch movie characters in the process of consuming a meal will eat more food than participants who watch the characters finish consuming the meal.

1.2. Identification as a moderator

Vicarious goal contagion and satiation is more likely when viewers are motivated to track a character's goals, thoughts and feelings and internalize those goals. Identification with a character-when an audience member takes the perspective of the character, imagines being that character, and temporarily replaces his or her own identity with the character (Cohen, 2001)—allows greater access to the character's goal-related mental representations (Ickes, 2003; Perner & Kühberger, 2005; Tal-Or & Cohen, 2010) and feelings resulting from the interaction of goals and story events (Oatley, 1995). The closer the relationship between an observer and an actor, the more likely there is unconscious synchronization of the actor's goals with the observer's goals and experience (Lakin, Chartrand, & Arkin, 2008; McIntosh, 2006; Shah, 2003). Since identification increases accessibility to a character's goals and mimics a close relationship, goal contagion and satiation seem more likely when an audience member identifies with a

In most studies, identification is measured (e.g., Cohen, 2001; Green, 2006; Igartua, 2010). However, a correlational approach limits drawing causal conclusions, and cannot rule out the possibility that people identifying with a character may already share goals with the character (De Graaf, Hoeken, Sanders, & Beentjes, 2012). To address these issues, in this study level of identification was manipulated based on a set of procedures developed by

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