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Quantitative Analysis of Food Consumption Observation Affecting Unhealthy Food Desire

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Abstract: *Regular exercise and a balanced diet are essential for weight management and obesity prevention. However, the temptation of indulgent foods may make self-regulation difficult. This study explores whether the influencers on social media mukbang indulgent foods can satisfy their audiences' cravings and influence healthier dietary choices. This paper examines the effect of influencer-induced indulgent food consumption on audience preferences for unhealthy versus healthy foods, with consumption states as a potential catalyst. In the survey 1, participants who watched indulgent food live streaming reported increased desire for unhealthy foods and decreased desire for healthy ones. The study 2 shows that observing indulgent consumption activates participants' reward-seeking goals, therefore decreases healthy food desire while increases unhealthy food desire. The study 3 reveals that watching influencers' promotion on indulgent foods completely does not lessen the negative impact on unhealthy food desire. Overall, these findings suggest that influencer indulgence does not benefit diet adherence but rather promotes unhealthy food desires through enhanced reward-seeking goals, highlighting the implications of influencer behavior on audience eating habits.*

Keywords: *Unhealthy Food Desire; Indulgent Food consumption; Live streaming; Influencer*

1. Introduction

As well known, excess unhealthy food consumption is an increasingly major problem worldwide. There are more than 1.9 billion overweight adults, and the worldwide obesity problem has nearly tripled since 1975 according to a World Health Organization report [1]. As human's naturally favor on unhealthy but tasty food, keeping to a diet usually needs lots of willpower [2], does exist a trade-off for people to keep the enjoyment of high-calorie food and their diet plan? Recently, there is a popular trend of watching others' eating indulgent food on websites [3][4]. More than 10 million people subscribe to mukbang hosts, who usually show lots of indulgent food, such as eating ice cream, cupcakes, and fried chicken in front of the camera, creating a vivid multimodal consumption experience [5]. Some audiences consider it an effective way to ease their eagerness for indulgent food. However, does watching influencers' indulgent food consumption satisfy the audience's decrease desires for unhealthy food, or is the opposite the case?

Previous studies have shown that consumers' food choices are strongly influenced by others in their environments and a lot of visual catalysts [6][7]. There are three different perspectives to explain this phenomenon. Firstly, the modeling perspective. People tend to adapt their food choices to those of others, which is known as the modeling effect [8][9]. For example, consumers will select a larger portion of food after witnessing another consumer selecting a large portion [10]; Secondly, the impression management perspective. People employ their eating behaviors to convey a favorable impression of themselves to others [8], for example, women are more likely to follow their male partner's eating patterns when relationship motives are salient [11]. Thirdly, social facilitation perspective, people tend to eat more when eating with friends or family than alone. However, previous research has mostly explored how consumers react to others' food choice results, ignoring how observing others' vivid food consumption process influences consumers' food desires, especially in current social media produced plenty of vivid food consumption videos.

Some in-depth research has already shown observers' preferences are not only influenced by an influencer's ultimate choice but also by the process leading to this choice [12]. For example, when observing someone experiencing a dilemma in a great decision-making, observers are triggered by greater empathy and a greater sense of shared identity with the conflict [13]. When watching a hand in physical contact (vs. only presenting a hand) with a product in a digital environment, consumers have

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various body ownership of the virtual hand, thus consequently increasing consumers' psychological ownership and product valuation [14]. Garbinsky and Klesse [15] also demonstrated when consumers are faced with tasty food, consumers mental imagery of consuming food occurs unconsciously. Furthermore, individuals would experience "post-completion goal satiation" when they unwitting taking on another person's goal pursuit and witnessing its completion [16].

Thus, this paper extends previous literature about social influence by showing that observers' preference may not only be influenced by others' decisional outcomes (for example, choosing to eat a large hamburger) but also by the process of consumption (for example, the process of eating a large hamburger). This research hypothesizes that observing others' indulgent food or non-indulgent food consumption will increase audience members' desire for unhealthy food and decrease the desire for healthy food. However, observing others' complete (vs. not complete) entire consumption process will weaken the negative main effect.

This paper argues that a reward-seeking goal mechanism underlies the mentioned effect. Due to social creatures, we can vicariously experience others' emotions and goal pursuits, even feeling as though others' actions are our own despite no physical involvement [17]. When continually observing others' indulgent consumption, individuals can spontaneously assume others' rewarding-seeking goals [18]. However, compared to unhealthy food, healthy food is usually not associated with pleasure and reward in our brains [19]. Consequently, observing others' indulgent consumption stimulates viewers' reward pathways in pursuing a goal and decreases the likelihood of choosing healthy foods. However, we expect that the consumption states of other observers will moderate the main effect; hence, when audience members watch the screen completing the entire decision-making process underlying their indulgent food consumption, their goal-pursuit desires are satisfied vicariously, thus increasing their desire for healthy food. Figure 1 summarizes the proposed theoretical framework and main hypotheses.

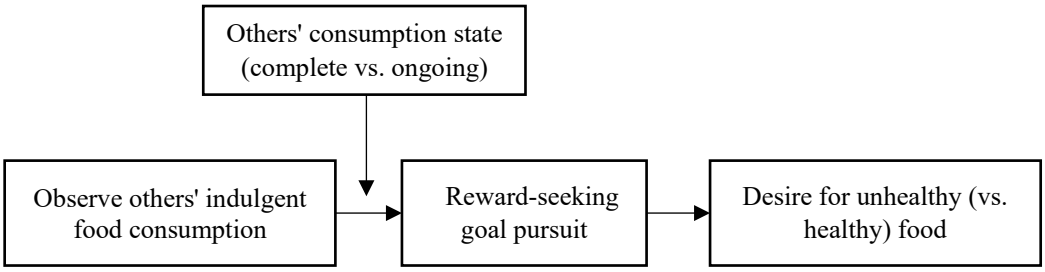

Figure 1: Theoretical Framework.

Our research may make several contributions to the literature. Firstly, we extend prior research to demonstrate that observers are not only influenced by others' ultimate consumption choices but also by the consumption process [10][13]. We postulate that observing others' ongoing indulgent food consumption may decrease healthy food choices, but observing the entire consumption process will mitigate this negative effect. Secondly, we identify a goal-pursuit mechanism underlying the effect [20]. We argue that by observing others' complete indulgent consumption, consumers vicariously satisfy their reward-seeking goals [16], thus increasing healthy food choices.

In addition to our study's theoretical significance, the driving research is important from a practical perspective. In many cases, individuals can directly watch others eating indulgent food through either pre-recorded or in real-time videos. In terms of encouraging healthy eating, we recommend that healthy food companies do not advertise their food when audiences are viewing ongoing (vs. complete) indulgent food consumption. Additionally, in terms of consumers' health conditions, we suggest that although audiences can have multisensory experiences observing others' indulgent consumption [3], they are also priming their reward-seeking goals, leading to less healthy food choices, which is not beneficial for weight control in the long term.

We develop a set of hypotheses that predict how observing others' indulgent food consumption influences audiences' healthy food choices. We then report the findings of three studies exploring the reward-seeking goal mechanism and others' consumption states as catalysts. We conclude by discussing our research's contributions and suggesting directions for future research.

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2. Theoretical Background

2.1. Goal Contagion through Observation

Human beings can take on others' experiences as their own. Understanding others' suffering and feeling sincere empathy can enhance our interpersonal relationships and benefit society as a whole, so we often take others' perspectives and share vicarious experiences. For example, when we see a friend crying about his father's death, we feel sad [21]; when we witness someone being ostracized by others, we feel ostracized as well [22]. The related researches show that our brains have a shared neural substrate for feeling and seeing pain, so we can experience similar suffering when being injured and witnessing others' injuries [23]. Individuals can vicariously experience both positive and negative events. For example, men have been shown to feel vicarious power after associating with a powerful other even though they cannot leverage the other person's power [24]. In another study, participants experienced a vicarious ethical license to reject an African American man after viewing an ingroup member's non-prejudiced hiring decision [25]. This demonstrates that we can take on others' behaviors and goals as our own despite not experiencing them ourselves.

However, previous research on vicarious experience has mostly focused on how observers react to others' ultimate choices instead of the process underlying these choices. Examples include informing participants of others' choices in a task [26], informing participants when others have engaged in moral behavior [25], or seeing someone buy a large quantity of food [27]. However, with the rapid development of technology, consumers not only can observe others' behavioral consequences through media but also can vividly immerse themselves in others' consumption processes. Researches on advertisement that consumers can be transported into the advertisement narrative and respond more favorably when immersing themselves in this way [28]. Additionally, individuals' viewing a product near their dominant views can lead to similar behavioral consequences as when they interact with the object [29]. Previous food consumption researches find that individuals are very sensitive to food cues, with the mere presence of food prompting individuals' mental imagery of consuming that food [15]. Observing others live consuming indulgent food through social media, will evoke viewers' indulgent consumption memories, lead to vivid mental imagery of eating that food, and activate reward-seeking goal pursuit. Moreover, compared to unhealthy food, healthy food is usually low-calorie, low-fat, and low-sugar, which does not strongly stimulate the brain's "reward center" [30]. Thus, we propose the following hypothesis:

Hypothesis 1: Observing others' indulgent (vs. non-indulgent) food consumption will increase audience members' desire for unhealthy food (abbreviated as H1a) and decrease the desire for healthy food (abbreviated as H1b).

Hypothesis 2: The effect predicts by hypothesis 1 will be mediated by the reward-seeking goal pursuit induced by observation. Specifically, observing others' indulgent (vs. non-indulgent) food consumption will activate audience members' reward-seeking goal pursuit associated with the experience, in turn increasing the desire for unhealthy food and decreasing the desire for healthy food.

2.2. Observation of Food Consumption as a Catalyst

We hypothesize that consumers will vicariously experience others' consumption state (complete vs. ongoing) as a signal to evaluate whether their own reward-seeking goals have been satisfied. According to observation-related researches, consumers tends to assume others' goal states when the similar situations occur to themselves. For example, when participants in one study viewed other students who had completed (vs. not yet completed) an anagram task, they were less motivated to complete the same task [16]. Furtherly, after seeing a movie character finish (vs. continue) eating, audience members eat less food and switch to sweet instead of savory food as a dessert [18]. Previous studies show that individuals can automatically adapt and pursue others' goals [31][32] and change their goals when others have already completed it [20][33]. Additionally, when vicariously experiencing others' thoughts, consumers will take on others' behaviors as their own, leading to behaviors such as less restraints over spending after mentally simulating another person exercising self-control, or exerting more effort after imagining others' drinking his favorite caffeinated beverage [34].

This study hypothesizes that others' consumption states will significantly moderate the relationship between reward-seeking goals and healthy food choices. We predict that observing others finishing their indulgent consumption will signal to observers that their goals have been satisfied, increasing their healthy food choices. However, when others continue eating, it will signal to observers that the goals have not been fulfilled in the current situation, which will decrease observers' healthy food choices.

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Hypothesis 3: The effect predicts by hypothesis 1 will be moderated by others' consumption state. Observing others' complete (vs. ongoing) indulgent food consumption increases the desire for observers' healthy food choices.

The above three hypotheses are tested in three studies. The survey 1 assesses participants' desire for healthy (vs. unhealthy) food after watching others' consumption episodes. The study 2 tests the mediating effect by measuring participants' reward-seeking goal fulfillment. In the study 3, we manipulate others' consumption states to determine whether observing others' completed consumption increases observers' healthy food desires.

3. Survey and Result

3.1. Survey 1

This study tested the hypothesis that watching others' indulgent (vs. non-indulgent) consumption will decrease viewers' desire for healthy food. We guided participants to watch the same network live streaming of eating two different type of foods. Here, we considered eating barbecue as indulgent food consumption and eating fruit as non-indulgent food consumption.

3.1.1. Characteristics Statistics of Survey Respondents

A total number of 133 participants are recruited in this survey (41.40% of them are male; $M_{age} = 27.02$, $SD_{age} = 7.72$) from the Credamo website which is a data collection platform in China similar to Amazon Mechanical Turk. We provided a small monetary reward for participation. The experiment employed a two-level (indulgent food consumption, non-indulgent food consumption) between-subjects design. Participants were randomly assigned to one of the two conditions ($N_{indulgent} = 66$, $N_{non\text{-}indulgent} = 67$).

3.1.2. Procedures and Measures

Firstly, in the indulgent food consumption condition, participants watched a video clip (3 minutes 6 seconds) featuring a live streaming anchor eating a barbecue. In the non-indulgent food consumption condition, participants watched a different video clip in which the same live streaming anchor was eating fruit (3 minutes 7 secondes).

Secondly, we measured participants' desire for healthy items (watermelon, banana) and unhealthy items (roasted chicken wings, roasted mutton cubes) on a 7-point scale ("Please rate how much you desire to eat the following food"; 1 = "not at all," 7 = "a lot"). Finally, participants reported their age, gender, education, previous diet experience, BMI, and degree of hunger and thanked them for their participation.

3.1.3. Results

To examine whether watching others' consumption affected participants' preferences for healthy food, we conducted a general linear model analysis (1 = non-indulgent food, 2 = indulgent food). We controlled participants' previous diet experience, BMI, degree of hunger, and other demographic characteristics. We averaged watermelon and banana scores to calculate the overall desired degree of healthy food. The result ($F(1, 133) = 34.16$, $p < .001$, $np_2 = 0.22$) confirmed that participants in the indulgent consumption group ($M_{indulgent} = 4.22$, $SD_{indulgent} = 1.34$) have a lower desire for healthy foods than those in the non-indulgent consumption group ($M_{non\text{-}indulgent} = 5.51$, $SD_{non\text{-}indulgent} = 1.22$).

We also averaged all the healthy food scores to calculate the overall desired degree of unhealthy food. The result ($F(1, 133) = 42.51$, $p < .001$, $np_2=0.26$) confirmed that participants in the indulgent consumption group ($M_{indulgent} = 6.21$, $SD_{indulgent} = 1.00$) have a higher desire for healthy foods than those in the non-indulgent consumption group ($M_{indulgent} = 4.59$, $SD_{indulgent} = 1.66$).

3.1.4. Discussion

The results of the first survey supports the hypothesis 1, providing evidence for the effect of others' consumption types on observers' preferences for healthy and unhealthy foods. We demonstrate that watching others' indulgent (vs. non-indulgent) consumption decreases unhealthy food desires and decreases healthy food desires. However, the survey 1 does not identify the mechanism of this effect. We conduct the survey 2 to verify reward-seeking goal pursuit as the mediator of this effect.

3.2. Survey 2

The survey 2 has two main goals. The first goal is to reexamine the previously identified main effect.

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The second goal is to verify the mediating effect of reward-seeking goal pursuit. We consider in some situations fruit may be seen as indulgent food because it contains sugar, so we selected lettuce and ice plant as representative of healthy food, and we added the manipulation test for perceived health degree. In the survey 2, we considered eating barbecue and fried chicken as indulgent consumption and considered eating lettuce and ice plants as non-indulgent consumption.

3.2.1. Characteristics Statistics of Survey Respondents

We recruited 160 participants (36.90% of them are male; M_{age} = 28.41, SD_{age} = 6.52) from Credamo. Participants received a small monetary reward. The experiment employed a two-level (indulgent food consumption vs. non-indulgent food consumption) between-subjects design. Participants were randomly assigned to one of the two conditions ($N_{indulgent}$ = 80, $N_{non\text{-}indulgent}$ = 80).

3.2.2. Procedures and Measures

Firstly, in the indulgent food consumption condition, participants watched a video clip featuring a live streaming anchor eating barbecue (1 minute 11 seconds) or fried chicken (1 minute 1 second). In the non-indulgent food consumption condition, participants watched a different movie clip where the same live streaming anchor was eating lettuce (1 minute 1 second) or ice plant (1 minute 11 seconds).

Secondly, we asked participants to rate their current desire for healthy and unhealthy food via a four-item measure with a 7-point response scale ("How much do you desire lettuce/ ice-plant/ fried chicken/ barbecue?"; 1 = not at all," 7 = "very much").

Thirdly, we assessed participants' current reward-seeking goal pursuit with three items utilizing a 7-point response scale ("When you see the video clip, to what extent do you feel tempted to eat tasty food?"; "When you see the video clip, to what extent does it inspire a craving for food?"; and "When you see the video clip, to what extent do you want the pleasure of eating delicious food?"; 1 = "not at all," 7 = "very much"; α=0.95). Fourth, we assessed the perceived healthiness of the focal foods using a 7-point response scale ("Please rate the following foods' healthiness: fried chicken, barbecue, ice-plant, and lettuce"; 1 = "not at all healthy," 7 = "very healthy"). Finally, participants reported their age, gender, education, previous diet experience, and the time since they last ate.

3.2.3. Results

(1) Manipulation Check

The results of the one-way ANOVA revealed that participants rated fried chicken (M = 2.74, SD = 1.04) and barbecue (M = 2.63, SD = 2.63) as significantly less healthy than ice-plant (M = 5.09, SD = 1.00) and lettuce (M = 6.13, SD = 0.72) ($F(3, 639) = 503.16$, $p < .001$). Therefore, Participants identified fried chicken and barbecue as unhealthy foods but ice-plant and lettuce as healthy ones.

(2) Desire for Healthy or Unhealthy Food

We tested whether food type significantly affects the participants' food desires. We averaged ice-plant and lettuce scores to calculate the overall desired degree of healthy food. A one-way ANOVA result ($F(1, 159)=0.38$, $p > .01$) showed that participants in the indulgent consumption group ($M_{indulgent}$ = 3.52, $SD_{indulgent}$ = 1.57) have a similar desire for healthy foods than those in the non-indulgent consumption group ($M_{non\text{-}indulgent}$ = 3.66, $SD_{non\text{-}indulgent}$ = 1.38).

We also averaged fried chicken and barbecue scores to calculate the overall desired degree of unhealthy food. A one-way ANOVA result ($F(1, 159) = 16.37$, $p < .001$) confirmed that participants in the indulgent consumption group ($M_{indulgent}$ = 5.13, $SD_{indulgent}$ = 1.51) have a higher desire for unhealthy foods than those in the non-indulgent consumption group ($M_{non\text{-}indulgent}$ = 4.06, $SD_{non\text{-}indulgent}$ = 1.82).

(3) Mediating Effect of Reward-seeking Goal Pursuit

To test the mediation effect of reward-seeking goal pursuit, we averaged three reward-seeking goal pursuit items scores (M = 4.97, SD = 1.69) to obtain the degree of reward-seeking goal pursuit. Firstly, we conducted a one-way ANOVA analysis with the reward-seeking goal as a dependent variable. The result showed that audiences' reward-seeking goal is significantly higher when they are watching indulgent food consumption ($M_{indulgent}$ = 5.37, $SD_{indulgent}$ = 1.60) than non-indulgent food consumption ($M_{non\text{-}indulgent}$ = 4.57, $SD_{non\text{-}indulgent}$ = 1,70, $F(1, 159) = 9.28$, $p < .01$). We examined the underlying mechanism of the effect using mediation analyses in SPSS (PROCESS model 4, 5,000 iterations. Consumption type (indulgent food = 1, non-indulgent food = 2) was the independent variable and the desire for healthy food was the dependent variable; demographic characteristics and time since a participant last ate were the control variables. The results show that the indirect effect was negative and

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significant (β=-0.1648, SE=0.0957, 95% CI=[-0.3930, -0.0251]. Further, the direct effect of the food type on healthy food desire was insignificant (β= -0.3134, SE=0.2410, 95% CI = [-0.1626, 0.7894].

We also conducted a similar analysis by taking unhealthy food desire as the dependent variable. The results show that the indirect effect was negative and significant (β=-0.3581, SE=0.1374, 95% CI = [-0.6335, -0.1009]. Further, the direct effect of the food type on healthy food desire was significant (β=-0.5822, SE=0.2436, 95% CI = [-1.0634, -0.1010].

3.2.4. Discussion

The survey 2 supports the hypothesis 2, which predicts that watching others' indulgent (vs. non-indulgent) consumption would increase viewers' reward-seeking goal pursuit, further weakening their desire for healthy food and strengthening their desire for unhealthy food. In the survey 3, we tested whether watching others complete their indulgent consumption could satisfy viewers' reward-seeking goal pursuit, thus weakening the negative effect on healthy food choices.

3.3. Survey 3

The survey 3 has two main goals. The first goal is to reexamine the previously identified main effect. The second goal is to test the moderating effect of others' consumption states. We found another live streaming anchor and presented the video as ongoing or complete eating while holding the duration constant.

3.3.1. Characteristics Statistics of Survey Respondents

We recruited 218 participants from Credamo, providing a small monetary reward for participation. 18 respondents failed the attention check, and their questionnaires were aborted before completion. After eliminating these responses, we were left with 200 usable responses (42.50% of them are male; M_{age} = 26.70, SD_{age} = 6.22).

The experiment employed a 2 (video type: indulgent food consumption vs. non-indulgent food consumption)×2 (consumption state: ongoing vs. complete) between-subjects design. Participants were randomly assigned to one of the four conditions ($N_{indulgent\ complete}$ = 50, $N_{non\text{-}indulgent\ complete}$ = 50, $N_{indulgent\ ongoing}$ = 50, $N_{non\text{-}indulgent\ ongoing}$ = 50). For the first factor, fried chicken was used as the indulgent food, and fruit was used as the non-indulgent food. We manipulated the second factor by directing participants to watch ongoing consumption or completion of consumption. All video clips were the same length (2 minutes 20 seconds).

3.3.2. Procedures and Measures

Firstly, in the indulgent ongoing condition, participants watched a video clip featuring a live streaming anchor eating fried chicken, from the beginning to eat to the middle of eating. In the indulgent completion condition, participants watched the same live streaming anchor completely eating fried chicken, from the beginning to eat to finish all the food. The same pattern is applied in non-indulgent conditions. In the non-indulgent ongoing condition, participants watched the live streaming anchor eating fruit, from the beginning to eat to the middle of eating. In the non-indulgent completion condition, participants watched the live streaming anchor complete eating fruit, from the beginning to eat to finish all the food. We asked participants whether the live streaming anchor completed their eating or not as an attention check.

Secondly, we asked participants to rate their current desire for several healthy foods (whole wheat bread, apple, cucumber, high-fiber biscuit) and unhealthy foods (mousse cake, kabob, coke, cookie) on a 7-point response scale ("How much do you desire the following items?"; 1 = "not at all," 7 = "very much"). Then, participants reported their age, gender, education, and degree of hunger and thanked them for their participation.

3.3.3. Results

(1) The desire for healthy food

We averaged the scores of healthy food as the dependent variable of healthy food desire. We conducted a two-way ANOVA with the food type, consumption state, and their interaction as the independent variables, the desire for healthy food as the dependent variable, and the degree of hunger, age, gender, and education as the control variables. the results showed the main effect of the food type to be significant ($p < 0.001$), the main effect of consumption state to be insignificant ($p > 0.05$), and the interaction effect between food type and consumption state to be insignificant ($F(1, 192) = 0.12$, $p > .05$).

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For participants who watched non-indulgent consumption ($M_{non\text{-}indlugent}$=4.09, $SD_{non\text{-}indlugent}$ = 0.12) have more desire for healthy food than participants who watched indulgent consumption (M indulgent= 3.11, Indulgent = 0.12, F (1, 192) = 34.38, p < 0.001). However, others' consumption state didn't moderate the main effect, participants who watched ongoing non-indulgent food consumption ($M_{ongoing\ non\text{-}indulgent}$ = 4.15, $SD_{ongoing\ non\text{-}indulgent}$ = 0.17) had a similar desire for healthy food compared with those who watched complete non-indulgent food consumption ($M_{\ complete\ non\text{-}indulgent}$ = 4.04, $SD_{complete\ non\text{-}indulgent}$ = 0.17). A similar pattern showed in the indulgent food consumption condition, participants who watched ongoing indulgent food consumption ($M_{ongoing\ indulgent}$ = 3.11, $SD_{ongoing\ indulgent}$ = 0.17) have similar desires to those who watched complete indulgent food consumption ($M_{complete\ indulgent}$ = 3.11, $SD_{complete\ indulgent}$ = 0.17).

(2) The desire for unhealthy food

We average the scores of unhealthy food as the dependent variable of healthy food desire. We conducted a two-way ANOVA with the food type, consumption state, and their interaction as the independent variables, the desire for unhealthy food as the dependent variable, and the degree of hunger, age, gender, and education as the control variables. the results showed the main effect of the food type to be significant (p < 0.001), the main effect of the consumption state to be insignificant (p > 0.05), and the interaction effect between food type and consumption state to be insignificant (F (1, 192) = 0.43, p > .05). For participants who watched indulgent consumption ($M_{indlugent}$ = 4.99, $SD_{non\text{-}indulgent}$ = 0.12) have more desire for unhealthy food than participants who watched indulgent consumption ($M_{non\text{-}indulgent}$= 3.90, Indulgent = 0.12, F (1, 192) = 46.62, p < 0.001). However, others' consumption state didn't moderate the main effect, participants who watched ongoing non-indulgent food consumption ($M_{ongoing\ non\text{-}indulgent}$ = 4.06, $SD_{ongoing\ non\text{-}indulgent}$ = 0.16) had a similar desire for unhealthy food compared with those who watched complete non-indulgent food consumption ($M_{complete\ non\text{-}indulgent}$ = 3.76, $SD_{complete\ non\text{-}indulgent}$ = 0.16). A similar pattern showed in the indulgent food consumption condition, participants who watched ongoing indulgent food consumption ($M_{ongoing\ indulgent}$ = 5.04, $SD_{\ ongoing\ indulgent}$ = 0.17) have similar desires to those who watched complete indulgent food consumption ($M_{complete\ indulgent}$ = 4.95, $SD_{complete\ indulgent}$ = 0.17). The results of the survey 3 are shown in Figure 2.

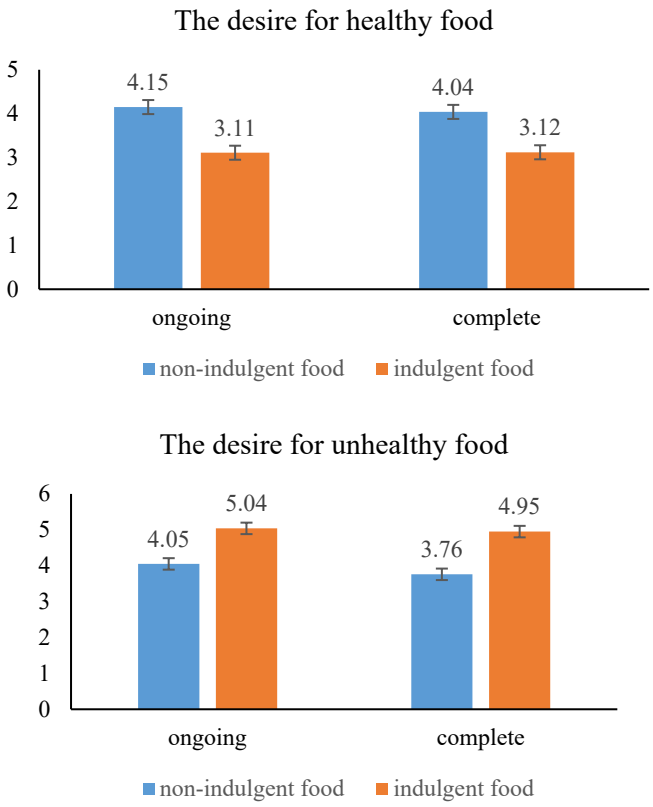

Figure 2: Relationship between food type and desire for healthy and unhealthy food across consumption state conditions of the survey 3.

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4. General Discussion

Healthy food consumption is gaining increasing traction among consumers; however, in real life, it is difficult to resist the temptation of tasty but unhealthy food. There has been a recent trend of watching others' consumption of indulgent food through media to satisfy desires for unhealthy food. However, an important question is whether watching others' indulgent food consumption influences an observer's unhealthy food consumption and how it works. This study provides insights into the effects of others' consumption types and consumption states on the observers' preferences for healthy foods. We uncovered the mediating role of reward-seeking goal pursuit in this relationship. We found that consumers' observation of others' indulgent (vs. non-indulgent) consumption activates their reward-seeking goal pursuit, decreasing their healthy food choices, but watching the entire process of consumption cannot mitigate this negative effect.

4.1. Theoretical Contributions

The current research advances our knowledge in several ways.

Firstly, our findings contribute to the goal contagion literature in indulgent food consumption situations. Previous studies show that individuals automatically adopt and pursue a goal that is implied by another person's behavior; for example, reading about another student's work as an assistant increased participants' willingness to earn extra money [31], seeing a movie character continue eating increased audience members' food consumption [35] and desire for the depicted food [36]. Our research reveals the mechanism of the goal contagion effect in indulgent food consumption, as observing others' consumption of indulgent (vs. non-indulgent) food triggers reward-seeking goal pursuit among viewers.

Secondly, this research contributes to the literature on observing others' food consumption behavior by showing others consumption state (ongoing vs. complete) didn't affect observers' food desires. Prior work suggests the mixed result of the goal contagion effect. For example, some research found observing others' ultimate food choices affects observers' own food choices, such as seeing others select a larger portion of food and following suit [10], eating more snacks when being served by an overweight waitress [27], and so on. However, a recent meta-analysis on goal contagion showed the effect size was small and the goal contagion effect might bias through the current publication system. This research demonstrates that observers are not influenced by others' consumption processes, and compared to observing others' ongoing indulgent consumption, observing complete consumption cannot increase the desire for healthy or unhealthy food. The current findings augment our understanding of the goal contagion effect.

4.2. Managerial Implications

Our research has several important implications for practitioners and policymakers in the food industry. Managers in companies producing indulgent foods, such as Coca-Cola, cake, and fried chips, should consider investing in ads to run when the live streaming anchor is eating indulgent food. In contrast, managers of companies producing healthy foods, such as fruit, whole-wheat bread, and vegetables, should avoid showing their advertisements when consumers are watching hosts in the indulgent consumption. For consumers, our research shows that watching others' indulgent consumption will not help them maintain their diet; in fact, such videos can even decrease their willingness to consume healthy food. Thus, watching mukbang videos is not an effective way to vicariously satisfy desires for unhealthy food and keep their diet plan.

4.3. Limitations and Future Research

While this research reveals the impact of media figures' food consumption on viewers' preference for healthy foods, there are several limitations to consider, which suggest promising avenues for future research. The current study used only female live streaming anchors' videos because most broadcasters and viewers of such content are female. Additionally, being mindful of participants' time constraints, we presented videos only 1 to 3 minutes in length. Future research should attempt to replicate our findings while presenting longer videos and ones created by male live streaming anchors.

Another limitation is that we did not measure how much healthy food participants were consuming; we only measured their willingness to consume healthy foods. Although the willingness to choose a product is highly correlated with consumption behaviors, we recommend that future studies measure participants' healthy food consumption in real situations, such as tracking purchase behaviors after

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watching YouTube mukbang videos.

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