It's a force of habit: influences of emotional eating on indulgent tendencies

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Abstract

Purpose – The purpose of this paper is to build upon reward-learning theory and examine the role of indulgent food consumption and habitual eating behaviors as a means of emotional coping.

Design/methodology/approach – Both qualitative and quantitative methods were enlisted to explore emotional eating and indulgent tendencies. In Phase 1 of this research, participants responded to open-ended questions regarding the drivers of emotional eating. In Phase 2, a theoretically driven model was developed from Phase 1 findings and quantitative data was collected to test it.

Findings – Phase 1 findings indicate that negative terms such as "stressed" and "distract" were more prevalent in the high emotional coping group as opposed to the low emotional coping group. Building from Phase 1, findings from Phase 2 demonstrate a link between emotional eating and indulgent food consumption, underscoring the impact of habitual behaviors. Specifically, emotional coping frequency fully explains the relationship between emotional eating habits and indulgent eating frequency, while intentions to eat indulgent foods partially mediates the relationship between attitude toward indulgent foods and indulgent food consumption frequency. In addition, intentions to eat indulgent foods partially mediates the relationship between emotional coping frequency and indulgent food consumption frequency.

Practical implications – Social marketing efforts can be enlisted to de-market fatty foods to individuals prone to engaging in emotional eating. Individuals might also be encouraged to use emotion regulation techniques to help manage negative emotions.

Originality/value – This research contributes to the existing marketing and consumer well-being literature by exploring the role of habit formation in the development of emotional eating and indulgent food consumption.

Keywords Coping, Emotions, Consumer behavior, Consumer well-being, Food decision-making, Habit formation

Paper type Research paper

Introduction

Fast, inexpensive food is ubiquitous in the USA. In recent years, US fast food chain sales steadily increased, with drive-through services providing a safe mechanism to purchase meals, even with long wait times (Maze, 2020). Throughout the COVID-19 pandemic, these chains maintained steady growth, whereas other industries experienced marked declines (Russ, 2021). Sales of premium chocolate saw an uptick in sales of 12.5% in 2020 (National Confectioners Association, 2020), and the US chocolate market is expected to surpass $20bn by 2025. Nostalgic brands such as Krispy Kreme and Hostess have also seen an increase in value (Wilson *et al.*, 2018). Calorie-laden, comfort foods are an affordable pleasure. Despite alarming statistics that over 40% of US adults are obese (Hales *et al.*, 2020), 85% of consumers admit that they often give in to their cravings for indulgent, or hyperpalatable energy-dense foods that are rich in sugars and fats. While stay-at-home/quarantine orders were in place during the pandemic of 2020, sales of comfort foods rose steadily, and individuals claim that they consume them as a form of self-medication (Bandoim, 2020). These indulgent foods can serve as nourishment, expressions of hospitality, celebration, love, or they can be consumed as a coping mechanism for stressful, demanding situations.

Research demonstrates connections between stress and food. People tend to seek high-calorie, high-fat foods during periods of stress (American Psychological Association, 2014). Emotional eating is a common coping mechanism in response to many different environmental factors. In fact, during the COVID pandemic, 47% of US-based adults claim that they increased their food consumption (Blue Cross Blue Shield,

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Journal of Consumer Marketing
40/4 (2023) 445–457
© Emerald Publishing Limited [ISSN 0736-3761]
[DOI 10.1108/JCM-01-2022-5146]

The authors acknowledge and appreciate the support of the College of Business Administration at Loyola Marymount University, the Mel Larson Endowed Chair of Marketing in the Lee Business School at University of Nevada, Las Vegas (UNLV), and the College of Business Administration at the The University of New Orleans.

Received 24 January 2022
Revised 27 August 2022
12 January 2023
Accepted 29 January 2023

2020). However, Tikkanen (2020) discusses the role that consumer well-being plays with hedonic service consumption decisions. Specifically, happiness has been shown to predict spending more on hedonic products. Furthermore, in food consumption contexts, emotions such as stress are not the only triggers of emotional eating; instead, it can also be driven by impulsive behaviors which have morphed into habitual ones. For example, nostalgia or events which happened in a person's childhood, can also contribute to emotional eating. Having ice cream after a good report card or indulging in a sweet treat after a bad day might promote the development of emotional eating habits.

The purpose of this research is to examine the drivers of emotional eating. Specifically, the role of indulgent food consumption and habitual eating behaviors as a means of emotional coping is explored. This research contributes to the existing literature by exploring the role of habit formation in the development of emotional eating and indulgent food consumption. Conceptually, it builds on reward learning theory by examining the intersectionality of habit formation and emotion regulation in decision making and consumption. In two studies, health-related decisions and behaviors are examined to provide insight into the obesity public health concern. Recommendations are offered for how social marketing might be enlisted to reduce indulgent and emotional eating behaviors. In addition, suggestions are offered for how individuals can mitigate unhealthy food consumption practices by taking a proactive role in their health and well-being.

To empirically examine this phenomenon, the paper is organized as follows. In the first phase, we design an open-ended survey to understand emotional eating drivers. We then conduct an unguided semantic analysis of the qualitative responses to gather insights, themes and concepts. Upon completion of this analysis, we design a quantitative, descriptive survey to test the conceptual framework suggested by our hypotheses. Finally, we discuss our empirical findings, offer implications for both marketers and researchers and summarize with conclusions and limitations.

Research method

To further understand the antecedents of emotional eating frequency and indulgent consumption, this study uses a phased, mixed methodology. First, we sought to delve into the drivers of emotional eating as a phenomenon; to do so, we gathered responses to a set of open-ended questions (cf. Casidy *et al.*, 2018). Following this, we designed a quantitative survey study based on a theoretically driven model. In the age of digitally active consumers who are perpetually overloaded with information, researchers propose focusing on multiple methods, regardless of their methodological preference (Midgley *et al.*, 2017). We implement methodological pluralism using an exploratory sequential design to further understand emotional eating and indulgent consumption (Harrison, 2013). This methodology begins by gathering qualitative insights and then merges those ideas to develop a quantitative study (qual + QUAN); this technique stimulates creative research design, triangulation (mutually collaborating ideas) and diversity of approach (Harrison and Reilly, 2011). By branching away from methodological myopia, mixed-methods approaches can encourage deeper insights and a broader vision from which to study the same context (Woodside, 2010). In addition to gathering open-ended verbal prose from a survey followed by quantitative responses, we used multiple samples for both studies, allowing for a more rigorous understanding of emotional eating (cf. Voorhees *et al.*, 2006).

Literature review

Whereas in 2016, roughly two out of three US adults were overweight or obese (Flegal *et al.*, 2016), those numbers continued to rise during the COVID-19 pandemic (Warren *et al.*, 2020). Obesity is also a global epidemic, with over 1.9 billion adults considered overweight or obese throughout the world (World Health Organization, 2019). As such, the obesity epidemic has been cited as a major global health concern. In Western culture, eating behavior may be motivated by the rewarding value of food rather than feelings of hunger or maintaining homeostasis (Berridge, 2004; Karremans *et al.*, 2016; Ilicic and Brennan, 2022). Both physiological and psychological motivations are central to an individual's selection and preference for certain foods. In recent years, there has been a growing interest in examining how consumer characteristics influence food intake (McCarthy *et al.*, 2017; Klein *et al.*, 2022).

Some scholars have argued that chronic overeating can be modeled as an addictive behavior, similar to other substance-dependent disorders (Corwin, 2006; Constant *et al.*, 2020). One key factor which contributes to overeating is emotional eating. Eating linked to an individual's emotional state, or emotional eating, often leads to overconsumption and has been cited as the reason why many diets fail (Palmeira *et al.*, 2019). Emotional eating is a common behavior in response to emotions and is characterized as both emotional relief and a form of dysfunctional coping (Manzoni *et al.*, 2009). Emotional eating has been defined as the consequence of eating in response to emotions instead of physical hunger (Jones, 2018). Emotional eating can be the result of a conflict between internal states of hunger and satiety, and physiological symptoms related to emotions (Van Strien, 2018). Specifically, food is used for reward, nurturing, excitement and for downregulating negative affect (Bourdier *et al.*, 2018). Using food to cope with emotional problems can become a habitual response and may prevent individuals from learning constructive coping skills for effectively resolving emotional distress (Brown *et al.*, 2009; Guèvremont, 2019).

Reward-learning theory suggests that habits maintain a stimulus–response link through extended reward training (Luque *et al.*, 2020) such that learning how to obtain rewards serves as the key foundation to behavioral formation (Brembs *et al.*, 2002). The influence of reward systems on behavior plays an important role in numerous areas of decision-making (O'Doherty *et al.*, 2017), health psychology (Verhoeven and de Wit, 2018) and behavior-related outcomes (Constant *et al.*, 2020). Extensive behavioral research suggests that rewarding learning reflects two distinct cognitive systems: goal-directed and habit systems (Verplanken, 2018). *Goal-directed behaviors* are those targeted at obtaining a specific outcome. For example, if one engages in specific action X, then the product outcome Y is produced. So, if outcome Y is desired, then

execute action X. On the other hand, *habit systems* operate on mental and associative network links between the presence of a stimulus–response system where habits are formed due to the structure of the reward system. Therefore, the balance between both goal-directed and habit systems influence reward-related behavior. However, the difference in these two systems is that the goal-directed system operates at the beginning of reward training, while the habit system comes into effect after repetitive, prolonged and stable training has taken effect (Morris *et al.*, 2019).

For the purpose of this research, we examine reward-training in relation to habit formations and emotion regulation. We take interest in better understanding emotion regulation, as indulgent eating habit formations direct more sustained consumption behavioral patterns. Furthermore, we examine these health-related decision behaviors in hopes of providing insight into behavioral mechanisms that contribute to rising obesity statistics and preventable, obesity-related deaths among industrialized nations, such as the USA.

Emotion regulation

The experience of emotions is an integral part of human existence. Enlisting emotions in decision-making can promote discernment and guidance; simultaneously, yielding to emotions can result in impulsive and destructive behavior (John and Gross, 2004; Gross, 2015). Thus, individuals may work to manage, or regulate, their emotions. The psychology literature defines emotion regulation as the process of dampening, intensifying or simply maintaining an existing emotion (Gross *et al.*, 2006). One of the most common forms of emotion regulation involves downregulating negative emotions (Gross and John, 2003; Zaehringer *et al.*, 2020) to improve an emotional state (Pasupathi *et al.*, 2017; Trump and Newman, 2021).

Research demonstrates that consumption is one strategy used by people experiencing negative emotions to attain positive reinforcement (Tice *et al.*, 2001; Kemp *et al.*, 2021). For example, people purchase goods of either intrinsic or extrinsic value (e.g. jewelry, cars) to make themselves feel better (Mick and DeMoss, 1990; Iyer *et al.*, 2019). However, purchasing or consuming to manage emotions can have potentially adverse effects on consumers. For example, people may be driven by their emotions to consume food. Emotional eating is a common response to unwanted emotional states (D'Arrigo, 2007; Constant *et al.*, 2020; Klein *et al.*, 2022). In this regard, food is used as a way to palliate negative emotions.

Habit formation

Habits are defined as automatically triggered behaviors which are learned through repetition in a consistent context (Beeken *et al.*, 2017). Research shows that repetition of a behavior in a consistent context leads to a behavior being activated upon exposure to the same contextual cues (Gardner *et al.*, 2012; Wood *et al.*, 2022). For example, putting on a seatbelt (behavior) after getting into a car (contextual cue) becomes a habit. Also, once initiation of the behavior is "transferred" to external cues, dependence on conscious attention or motivational processes is reduced. Therefore, habits are likely to persist, even after conscious motivation wanes. Furthermore, the automation of a common behavior absolves resources so that other tasks can be performed.

A burgeoning literature highlights the relevance of habit-formation principles to health (Palmer, 2020; van der Weiden *et al.*, 2020). Behavior that is directed by habit is regulated by an impulsive processing system, and can be elicited with minimal cognitive effort, awareness, control or intention (Gardner *et al.*, 2012). Minimal cognitive effort is required because the habit formation process involves a gradual transferal of action initiation from the conscious, attentional or motivational systems involved in reflective processing, to external cuing mechanisms. Thus, behavior becomes detached from motivational control, which alleviates cognitive resources for unfamiliar or otherwise more demanding tasks. As a result, habit theory proposes that habit strength will predict the likelihood of enactment of habitual behavior, and that strong habitual tendencies will dominate over motivational tendencies. As such, behaviors become routinized and "second nature." Our first study explores emotional eating as a coping mechanism with a snowball sample. Through a semantic analysis of the core themes regarding emotional eaters, we aim to identify differences between those with high versus low tendencies.

Study – phase I

Sample and method

The sample was collected through a snowball sampling technique including both students and nonstudents to increase the ecological validity and provide appropriate heterogeneity in terms of the age, education, occupation and income levels of the respondents. The students who participated were incentivized with extra credit for gathering additional respondents through the snowball technique. Respondents were required to be at least 18 years old, and there were a total of $n = 69$ respondents for the study in fall of 2018. Participants responded to six open-ended questions regarding their emotional eating experience and frequency in an online questionnaire. In addition to this, they answered several other questions including attitude toward indulgent eating, satisfaction with actual weight, exercise frequency and demographics, as well as emotional eating to cope behaviors (i.e. "How often do you eat to cope with your emotions or feelings?") which consists of a three item, seven-point Likert scale including infrequently/frequently, seldom/often and never/always. The scale demonstrated adequate reliability with a Cronbach's $\alpha = 0.98$.

Procedure and analysis

The analysis follows a mixed-methods approach, first drawing from a quantitative scale and then performing semantic analysis on qualitative responses. To begin analysis, we used the emotional coping (EC) scale, with a mean of 2.64 and a median of 2.0. We next split the EC construct to create two separate groups, a high EC group (HEC: $n = 37$) and a low EC group (LEC: $n = 32$). Next, we divided their responses to the qualitative questions into these two groups (high vs low emotional eating). A semantic content analysis tool, NVivo12 (www.qsrinternational.com/nvivo/home), was used to derive a word cloud and tree map from the prominent terms in the two groups of qualitative data (HEC and LEC). Figures 1 and 2

Figure 1 Low emotional eating qualitative results

provide the content analysis for the low and high emotional eating groups in terms of word clouds and tree maps. Figure 1 depicts the content analysis for the low emotional eating group (LEC) with the most prevalent terms beginning with emotions, foods, usually; next is bad, change, eat, activities, then periodical, move, upset, try and then lunch, event, negative, something and often. Figure 2 shows three main ideas for the high emotional eating group (HEC): foods, emotional and usually. These terms are then expanded upon in the tree map provided below the word cloud, which displays the branching terms following the three largest ones (co-occurrences). The next set of terms following the three main ideas are period, change, act and often, followed by eat, bad, stressed, move, and then distract, upset, something, activities and snack. Both tree maps continue to show less frequent terms after the fourth level.

Interpretation and discussion

Comparing the high versus low emotional coping qualitative responses shows that negative terms are more prevalent in the HEC group, including stressed and distract, even though bad and upset are in both sets. Usually appears in the first and most prevalent items in both the low and high emotional eating results, showing that frequency of consumption is tied to emotional eating. Both groups also show a high prevalence of action verbs with concepts such as eat, change, act and activities. However, in the high emotional eating set of responses, frequency of consumption is also indicated in the second set of responses, through the concept often, showing that frequency seems to be a stronger theme in the high emotional eating group.

Conceptual framework and hypotheses

As aforementioned, habits are learned through repetition and automatically triggered behaviors. After continuous reinforcement, these behaviors become habits. Each time the behavior is reinforced, the habit is strengthened (Gardner *et al.*, 2012; Wood *et al.*, 2022). Individuals may especially use eating to regulate their emotions, which may become habit-forming. Thus, a propensity to eat to when certain emotions are experienced, or an emotional eating habit is formed. Research suggests that individuals may receive positive chemical reinforcement from consuming some foods (Eneva *et al.*, 2017).

Figure 2 High emotional eating qualitative results

Research regarding individuals who identify as emotional eaters finds that these consumers consistently cite that the experience of negative emotional states ignites eating behavior and increased consumption frequency (Kemp *et al.*, 2013). These individuals use eating as a way to cope with or manage emotions and do so frequently. In congruence with our first study results, high emotional eaters experience a range of negative emotions and link frequent repetitive consumption with emotional eating, the following hypothesis is proposed:

H1a. There is a positive relationship between emotional eating habits and emotional coping frequency.

A common feature of behavioral approaches to manage affect and emotions is the frequent use of self-reward. Studies show that the frequency of pleasurable activities is correlated with increased positive affect (Parkinson *et al.*, 1996; Arora, 2012). Emotional eaters may be especially susceptible to the consumption of hedonic or indulgent food items (Bongers and Jansen, 2017). These culinary offerings often stimulate positive feelings in consumers (Hirschman and Holbrook, 1982; Voss *et al.*, 2003). Indulgent foods may include those food items which are high in fat and sugar that individuals consume for pleasure (e.g. chocolate, chips, pizza, fried foods and desserts).

Studies suggest that emotional eating may be related to early consumer socialization (Brown *et al.*, 2009; Moore, 2018; Fuente González, 2022) . For example, children are often rewarded with treats like cake and candy to allay negative affect when minor incidents occur (e.g. bumping a head). Once these children become adults, they may grow accustomed to having a food-related treat to help them cope. Thus, those who use food consumption to cope with emotions may be more likely to consume indulgent foods. This automatic response becomes a behavior which has precipitated from habit. Hence, the following is predicted:

H1b. There is a positive relationship between emotional coping frequency and frequency of consuming indulgent foods.

H1c. Emotional coping frequency will mediate the relationship between emotional eating habits and frequency of consuming indulgent foods.

Research indicates that individuals who are more likely to consume indulgent foods have positive attitudes about these

food items. Kemp *et al.* (2013) find that individuals who identified as emotional eaters express an attribution bias toward information about food and develop positive attitudes toward indulgent food. For example, many food advertisements contain emotional appeals that promote snacking, fun, happiness and excitement (Wicks *et al.*, 2009; Poor *et al.*, 2013). Such priming can activate a desire for food items (Fedoroff *et al.*, 2003). Hence, the following is proposed:

H2a. There is a positive relationship between attitude toward indulgent foods and intention to eat indulgent foods.

H2b. The intention to eat indulgent foods will mediate the relationship between attitude toward indulgent foods and frequency of consuming indulgent foods.

If individuals have positive attitudes about indulgent foods, this may serve as a cue which makes food salient, and thus, incites consumption (Harris *et al.*, 2009). Bohon *et al.* (2009) indicate that self-reported emotional eaters show greater activation in the parahippocampal gyrus and anterior cingulate (part of the brain's reward system) in response to the expected receipt of a milkshake during negative emotional experiences. Furthermore, Kemp *et al.* (2011) find that individuals engaging in frequent emotional eating often rationalize about consuming indulgent, hedonic foods. Palatable, tasty foods promote "comfort" in high emotional eaters (Van Strien *et al.*, 2019). In addition, individuals who consume food as a form of emotional coping often engage in hedonic rationalizations, or a form of prefactual thinking, which is used to justify conceding to a temptation (Moore and Bovell, 2008). Thus, individuals who use eating to manage emotions will be more likely to eat indulgent foods and consume them frequently, regardless of the provision of objective nutritional information suggesting negative health consequences (Bui *et al.*, 2017; Tangari *et al.*, 2019). Accordingly, the following hypotheses are put forth:

H3a. There is a positive relationship between emotional coping frequency and the intention to eat indulgent foods.

H3b. There is a positive relationship between the intention to eat indulgent foods and frequency of consuming indulgent foods.

H3c. Intention to eat indulgent foods will mediate the relationship between emotional coping frequency and frequency of consuming indulgent foods.

The structural model in Figure 3 shows the directional hypotheses predicted from our theoretical literature review. In line with reward-learning theory, emotional regulation and habit formation, our model shows that in combination with a positive attitude toward indulgent foods, emotional eating habits can lead to higher intentions to consume indulgent foods, and ultimately a higher frequency of consumption as a coping mechanism. In Phase 2, we will now test our structural model with a quantitative study.

Study – phase 2

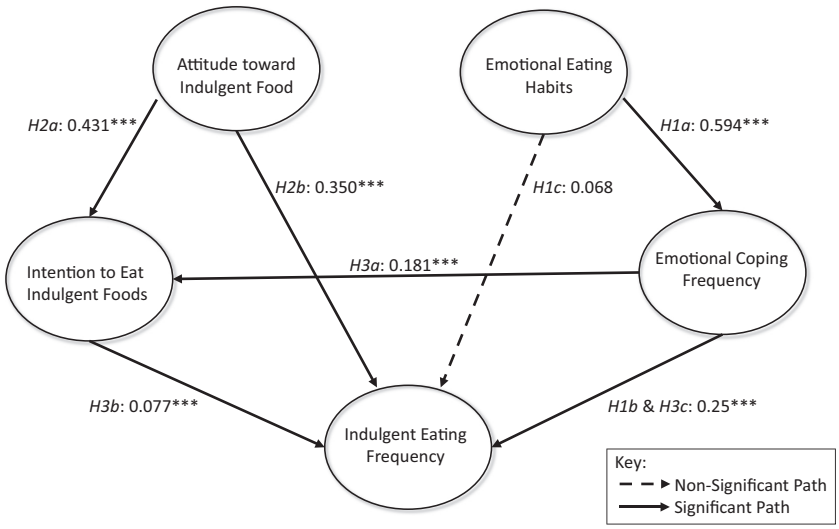
Sample and method

A total of 375 surveys were collected using a quasi-convenience snowball sampling technique including both students and nonstudents in an online survey in fall of 2018. This sampling methodology has been employed in previous research (Krishen *et al.*, 2016; Rayburn, 2014), and when samples are adequately sized, should not produce estimation issues or biases (Chen *et al.*, 2013). The population consisted of 44.5% males and 55.5% females, with ages ranging from 23 to 56 and a mean of 31 years of age. Among this population, most participants were employed (80%), nonstudents (82.4%) consisting of 58.9% Caucasian, 18.9% Asian, 3.7% African-American, 0.8% Native American, 9.6% Hispanic/Latin American and 8% other. The population came from suburban areas (39.7%), metropolitan areas (35.7) and urban areas (18.1%), while the rest were made up of rural (4.8%) and other areas (1.6%). Participants were informed that they would be filling out a survey about emotional eating behaviors and to report their responses to the best of their abilities. They answered questions pertaining to (1) their attitude toward indulgent foods, (2) how often they eat indulgent foods, (3) how often they eat to cope with their emotions, (4) how often they engage in emotional eating and (5) their emotional eating habits. Scales were developed specifically for this research and each of the scales demonstrated appropriate reliability. The attitude toward indulgent food scale is a multi-item scale consisting of seven-point bipolar response items of unfavorable/favorable, bad/good and negative/positive to the question: "What is your overall attitude toward indulgent foods?" and exhibited reliability (Cronbach's α = 0.94). To capture how often individuals eat indulgent foods, a multi-item scale consisting of seven-point, bipolor response items of infrequent/frequent, seldom/often and never/always to the question: "In general, how often do you eat indulgent foods?" was used (Cronbach's α = 0.96). To determine how often individuals eat to cope with their emotions, a multi-item scale consisting of seven-point, bipolor response items of infrequent/frequent, seldom/often and never/always to the question: "In general, how often do you eat to cope with your emotions (or feelings)?" was included (Cronbach's α = 0.98). To capture how often individuals engage in emotional eating, a multi-item scale consisting of seven-point, bipolor response items to infrequent/frequent, seldom/often and never/always to the question: "In a week, how many times do you engage in emotional eating?" indicated reliability (Cronbach's α = 0.96). And lastly, to capture participants' emotional eating habits, they responded to a seven-point, bipolar multi-item scale consisting of the following questions: "When you engage in emotional eating, it is done: seldom in the same place/always in the same place; seldom at the same time/always at the same time; seldom with the same people/always with the same people; and seldom in the same mood; always in the same mood," which demonstrated appropriate reliability (Cronbach's α = 0.90).

Results

Using the maximum likelihood estimation method, the data were subjected to structural equation analysis in AMOS 25.0. As an extension of the general linear model, this analysis is a more powerful alternative to multiple regression (Byrne, 2001). As recommended by Anderson and Gerbing (1988), a two-step procedure was implemented to first assess the structural model for construct and discriminant validity and then to test our proposed hypotheses.

Figure 3 Emotional eating structural model



Notes: $^{**}p < 0.05$; $^{***}p < 0.001$

Measurement model

The measurement model exhibited adequate fit χ^2 (166.303), df (94), *p*-value (0.000), CFI (0.989), IFI (0.989), TLI (0.986), RMSEA (0.045) and SRMR (0.026). To test for convergent validity, factor loadings, along with the average variance extracted, were calculated for each latent variable. Standardized factor loadings exceeded the 0.6 threshold as recommended by Hair *et al.* (2006). In addition, as seen in Table 1, the average variance extracted for each construct exceeded the recommended rule of thumb of 0.5 (Hair *et al.*, 2006), which is an indication that the variance captured by the construct is greater than the variance due to measurement error.

To assess discriminant validity, the Fornell and Lacker (1981) test was performed. Discriminant validity is demonstrated when the average variance extracted for a construct is greater than the squared correlations between that construct and other constructs in the model. As depicted in Table 1, the average variance extracted between each construct is greater than the squared multiple correlations for each construct pairing. Reliabilities (represented by composite rho) were also assessed for each construct to ensure that each exhibited internal consistency (see Table 1). All measures exemplified acceptable reliability by exceeding the recommended 0.7 threshold (Nunnally and Bernstein, 1994). The results from the structural model follow.

Common method bias testing

We used several methods to test for common method bias (CMB). Initially, we included filler questions and multiple scaling formats for the constructs included in the questionnaire design (MacKenzie and Podsakoff, 2012). Second, we performed exploratory factor analysis, specifically Harmon's single-factor test to ascertain the unrotated solution. Our findings indicate that a multiple factor solution and a first factor variance provide a value of 47.5%, showing that it is sufficiently below the recommended limit of 50% or less (Baumgartner and Steenkamp, 2001). Therefore, our study design and test results allow us to conclude that CMB is not present in our model.

Structural model

The structural model and hypotheses were evaluated after attaining a validated measurement model. The model exhibited good fit: χ^2 (207.692), df (97), *p*-value (0.000), CFI (0.983), IFI (0.983), TLI (0.979) and RMSEA (0.055). *H1a–H3c* proposed both direct and mediated effects between latent variables and the primary dependent variables of interest. *H1a* and *H1b* specify direct effects. The results of these direct effects are presented in Table 2. *H1a* predicted that emotional eating habits would be positively related to emotional coping frequency. As seen in Table 2, *H1a* is supported (β = 0.594; SE = 0.059; $p < 0.001$). This indicates that when consumers engage in emotional eating habits, the more likely they will be to increase how often they emotionally cope. Moreover, *H1b*

Table 1 Average variance extracted (in *italic*) and squared correlations

	Attitude toward indulgent food	Intention to eat heavy meal	Indulgent eating frequency	Emotional coping frequency	Emotional eating habit	Composite rho
Attitude toward indulgent food	*0.859*					*0.948*
Intention to eat heavy meal	0.438	*0.903*				*0.949*
Indulgent eating frequency	0.583	0.402	*0.886*			*0.959*
Emotional coping frequency	0.326	0.302	0.362	*0.936*		*0.978*
Emotional eating habit	0.210	0.217	0.362	0.513	*0.687*	*0.898*

Table 2 Test of hypotheses

Hypotheses	Pathways		Unstandardized coefficient	Standardized coefficient	Standard error	Critical ratio	*p*-value	Hypothesis result
H1a	Emotional eating habits	→Emotional coping frequency	0.594	0.513	0.059	10.031	$p < 0.001$	Confirmed
H1b	Emotional coping frequency	→Indulgent eating frequency	0.250	0.363	0.036	6.967	$p < 0.001$	Confirmed
H1c	Emotional eating habits	→Indulgent eating frequency	0.068	0.086	0.049	1.659	$p > 0.05$	Confirmed
H2a	Attitude toward indulgent foods	→Intentions to eat indulgent foods	0.431	0.387	0.059	7.321	$p < 0.001$	Confirmed
H2b	Attitude toward indulgent foods	→Indulgent eating frequency	0.350	0.437	0.040	8.685	$p < 0.001$	Partially confirmed
H3a	Emotional coping frequency	→Intentions to eat indulgent foods	0.181	0.189	0.049	3.697	$p < 0.001$	Confirmed
H3b	Intentions to eat indulgent foods	→Indulgent eating frequency	0.077	0.107	0.034	2.287	$p < 0.001$	Confirmed
H3c	Emotional coping frequency	→Indulgent eating frequency	0.250	0.363	0.036	6.967	$p < 0.001$	Partially confirmed

proposed that the more often one engages in emotional coping, the higher will be their intentions to indulgently eat. This hypothesis is also validated ($\beta = 0.250$; SE = 0.036; $p < 0.001$). Also, *H1c* proposed that emotional coping frequency would mediate the relationship between emotional eating habits and indulgent eating frequency. Following Baron and Kenny's (1986) procedure for testing mediation, the existence of a mediating effect is present when (1) emotional eating habits are significantly related to how often consumers engage in emotional coping, (2) frequency in emotional coping is significantly related to indulgent eat frequency, and (3) the relationship between emotional eating habit and indulgent eating frequency is not significant ($\beta = 0.068$; SE = 0.049; $p > 0.05$). Based on the results, full mediation is present. Further, the Sobel test statistic confirms the mediating effect ($z = 5.716$, $p < 0.001$). Thus, *H1c* is supported.

H2a–H2b specify both direct and mediating effects. *H2a* predicts that attitude toward indulgent foods will be positively related to intentions to eat indulgent foods.

Results corroborate this prediction ($\beta = 0.431$; SE = 0.059; $p < 0.001$). This shows that more favorable attitudes toward indulgent foods are linked to higher intentions to eat indulgent foods. Correspondingly, *H2b* predicts that intentions to eat indulgent foods mediates the relationship between attitude toward indulgent foods and frequency of engagement in indulgent food consumption. Given that the relationship between attitude toward indulgent foods and frequency in indulgent eating behavior is significant ($\beta = 0.350$; SE = 0.040; $p < 0.001$), the mediating effect is partially supported in that partial mediation is determined based upon Baron and Kenny's (1986) procedure for testing mediation.

H3a predicts that emotional coping frequency will be positively related to indulgent eating intentions. *H3a* is confirmed ($\beta = 0.181$; SE = 0.049; $p < 0.001$) indicating that greater frequency level of emotional coping is associated with increased indulgent eating intentions. Furthermore, *H3b* indulgent eating intentions will be positively related to indulgent eating frequency. The results support the *H3b* prediction ($\beta = 0.077$; SE = 0.034; $p < 0.001$), which indicates that greater intentions to eat indulgent foods is associated with positively increasing how often one engages in eating indulgences. Also, *H3c* proposes that intentions to eat indulgent foods mediates the relationship between emotional coping frequency and how frequent one engages in indulgent eating. Again, following Baron and Kenny's (1986) procedure for testing mediation, the existence of a mediating effect is present when (1) emotional coping frequency is significantly related to intentions to eat indulgent foods, (2) intentions to eat indulgent food is significantly related to how frequent one engages in indulgent eating behavior, and (3) the relationship between emotional coping frequency and how frequently one engages in indulgent eating not significant. *H2c* is partially supported since the relationship between emotional coping frequency and how frequent one engages in indulgent eating is significant ($\beta = 0.250$; SE = 0.036; $p < 0.001$). As such, partial mediation is established.

Discussion

Both qualitative and quantitative methods were enlisted to explore habitual emotional eating behavior and indulgent tendencies related to food consumption. In Phase 1 of our research, negative terms such as "stressed" and "distract" were more prevalent in the high emotional coping group as opposed to the low emotional coping group. Building from Phase 1, findings from Phase 2 demonstrate a link between emotional eating and indulgent food consumption and underscore the impact of habitual behaviors. Specifically, emotional coping frequency fully explains the relationship between emotional eating habits and indulgent eating frequency, while the intentions to eat indulgent foods partially mediates the relationship between attitude toward indulgent foods and how frequently one engages in indulgent eating. In addition, the intentions to eat indulgent foods partially mediates the relationship between emotional coping frequency and how frequently one eats indulgent foods.

Theoretical implications

This research builds on reward-learning theory and contributes to the existing literature by exploring the role that habit formation has in the development of emotional eating and indulgent food consumption. Theoretically, it extends reward learning theory by examining the intersectionality of habit formation and emotion regulation in decision making and consumption. Reward-learning theory suggests that habits maintain a stimulus–response link through extended reward training (Luque *et al.*, 2020). Learning how to obtain rewards serves as the key foundation to behavioral formation (Brembs *et al.*, 2002). Habit systems in reward learning operate on mental and associative network links between the presence of a stimulus–response system. Furthermore, habits manifest after repetitive, sustained and stable training (Morris *et al.*, 2019).

One of the most prosaic forms of emotion regulation involves downregulating negative emotions (Gross and John, 2003; Zaehringer *et al.*, 2020) and consumption is a common strategy used by people experiencing negative emotions to experience positive reinforcement (Tice *et al.*, 2001; Kemp *et al.*, 2021). Thus, findings from this research underscore the role that habit formation and emotion regulation plays in reward training as people are driven by their emotions to consume food as a coping mechanism.

Managerial implications

Emotional eating affects many individuals. However, most individuals do not seek appropriate help (Bekker *et al.*, 2004). Compounding this, the prevalence of food, increased portion sizes, misleading health claims and emotionally-based promotional appeals are all contributors to indulgent food consumption overeating (Lee *et al.*, 2016; Karremans *et al.*, 2016). Based on self-regulation theory, Mason *et al.* (2018) conduct an intervention-based study which asked participants to weigh themselves, and provided them with weight management advice and exercise-to-calorie consumption ratio information. Their results indicate that cognitive constraint can serve as a potential inhibitor of emotional eating. Our Phase 1 results show that high levels of emotional eating are related to higher stress, distraction and frequency of consumption. As such, curbing overconsumption and emphasizing food as a hedonic experience can reduce the habit formation shown in our Phase 2 model. In combination with these studies, our findings imply that food service marketers, public health agencies and advertisers can provide social marketing that (1) helps curb emotional eating habit formation with social media games and activities that reward calorie-based self-regulation, (2) encourages journaling of food consumption with free online reporting tools and brand-based information campaigns, and (3) emphasizes servicescape attributes linking to consumer well-being (Sheng *et al.*, 2016; Guèvremont, 2019). Our Phase 1 results show that high levels of emotional eating are related to higher stress, distraction and frequency of consumption. As such, curbing overconsumption and emphasizing food as a hedonic experience can reduce the habit formation shown in our Phase 2 model.

High levels of emotional eating are associated with increased stress and distraction (Phase 1 findings), and habit formation (Phase 2 results). As shown in our model, these findings require individuals to develop coping mechanisms. Therefore, another implication of our research is that food service marketers can interrupt the emotional eating pattern demonstrated in our model by implementing rituals such as consumption tracking and goal setting (Tian *et al.*, 2018). Consumption reminders can be used to encourage mindful eating, especially during stressful events and occasions (Bahl *et al.*, 2013). Mindful consumption involves "consciousness in thought and behavior about the consequences of consumption" and may support an individual's intent to make consumption decisions that are optimal for overall well-being (Sheth *et al.*, 2011). Mindfulness approaches (e.g. mindfulness meditation) might include providing individuals with an alternative means of relief from distress and habitual behavior patterns. Subsequently, individuals might be empowered with an ability to resist impulsive urges. As shown by Batat (2022), food service managers can emphasize food well-being and cultural preservation as opposed to only highlighting healthy eating habits.

In combination with Moore (2018), our results imply that the cycle of emotional eating leading to indulgent food consumption can have intergenerational influences and therefore advertisers should also target parents and children with promotions to develop healthy eating habits. McCarthy *et al.* (2017) indicate that to implement healthy eating habits, individuals must use self-control to disrupt negative eating behaviors. Our findings imply that to break unhealthy eating habits and automaticity, marketers, especially those in the food sector, should engage consumers throughout their consumption journeys to capture both their emotional and cognitive states. Using customer relationship management (CRM) tools, food marketers can then promote nutritious consumption by tracking emotional eating patterns and targeting high risk consumers with healthy eating promotions. Given the negative effects of emotional eating habit formation on consumer well-being, our findings imply that advertising campaigns could highlight the harms of maladaptive indulgent behaviors on both individuals and society (Boland *et al.*, 2020; Krishen *et al.*, 2015). Similar to services such as refurbishing, when food service managers encourage healthy consumption habits, consumers will experience heightened well-being and ultimately a higher sense of self (Durgee and Agopian, 2018). One final implication and recommendation for marketers would be to use digital media-based marketing strategies to curve emotional eating and institute self-regulatory mechanisms, such as through digital apps with reminders, social networking community building efforts and CRM reward mechanisms for healthy eating habits.

Finally, individuals might be encouraged to enlist internal mechanisms or emotion regulation strategies to help manage and regulate negative emotion. One common emotion regulation strategy which has proven useful in effectively downregulating negative emotion is cognitive reappraisal (Gross and John, 2003). Cognitive reappraisal involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact. It involves keeping the event in mind, but actively seeking alternate interpretations of the meaning of the event. For example, someone engaging in cognitive reappraisal might change what they are thinking about to avert feeling a certain emotion, or they may reframe a situation such that the experience of the emotion is lessened.

Limitations and future research

Although the current research makes important contributions in understanding the drivers of habit formation in emotional eating, our limitations provide opportunities for future research. For example, social norms can play a crucial role in explaining emotional eating (Kemp *et al.*, 2013). Additional qualitative methods, including in-depth interviews might be enlisted to further understand the role that social norms play in emotional eating habit formation. Furthermore, future studies might explore the role of specific emotions in eating behavior. For example, are there discrete emotions which trigger emotional coping and indulgent food consumption? Are there effective ways to target such emotional eaters through social marketing to foster healthy coping behavior? Finally, individuals who practice temperance in their consumption habits can experience a healthier existence. Future research might investigate the most beneficial strategies for individuals to alleviate harmful emotional eating and improve emotional intelligence toward nutritional choice to attain optimal well-being (cf. Peter and Brinberg, 2012).

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