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Beyond craving: Appetitive desire as a motivational antecedent of goal-directed action intentions

Alexandra Aguirre-Rodriguez[1] | Richard P. Bagozzi[2] | Patricia L. Torres[3]

[1]Department of Marketing and Logistics, Florida International University, Miami, Florida, USA

[2]Behavioral Science in Management, Stephen M. Ross School of Business, University of Michigan, Ann Arbor, Michigan, USA

[3]Department of Marketing, University of Detroit Mercy, College of Business, Detroit, MI

Correspondence
Alexandra Aguirre-Rodriguez, Florida International University, 11200 SW 8th St, Miami, FL 33199, USA.
Email: aarodrig@fiu.edu and aarodrig1980@gmail.com

Abstract

Self-regulation is generally considered a process of constraining appetitive desire motivation toward goal-inconsistent objects and actions through rationality-based (volitive) motivation. The predominant temptation-focused view of appetitive desire focuses on cravings and self-control dilemmas, overlooking the beneficial role of appetitive desire in motivating many types of goal-directed action intentions. We extend this line of research based in the philosophy of action theoretical perspective by proposing that appetitive desire is broader than cravings and it positively influences goal-consistent action intentions by strengthening volitive desire motivation. Appetitive desire toward goal means containing pleasurable features provides reasons for enacting goal-consistent actions, which energizes intention formation through volitive desire. Thus, appetitive desire often plays an instrumental rather than detrimental motivational role in reasoned action toward goal pursuit. Three studies, one measurement-based and two experimental, involving different goal-directed action contexts, demonstrate that goal means associated with high (vs. low) appetitive desire result in greater volitive desire, which strengthens intentions to enact the goal means. Our results contribute to an expanded understanding of appetitive desire, beyond craving and temptation, as a positive antecedent in the causal sequences of appetitive desire→volitive desire→intentions in the context of consumer goal pursuit.

KEYWORDS

appetitive desire, craving, goal pursuit, intentions, motivation, self-control, self-regulation, temptation

1 | INTRODUCTION

Extensive consumer and psychology research suggests that appetitive desire is antithetical to sound decision making. For instance, in their classic article on the "Interplay of Affect and Cognition in Consumer Decision Making," Shiv and Fedorikhin (1999) demonstrated that when cognitive processing resources are constrained "spontaneously evoked affective reactions" exert greater influence on decision making than cognitions (p. 279). In this study as and in many others that have followed, the affect-driven choice is a cognitively inferior, goal-inconsistent action or "temptation" in an intensive battle between impulse and reason. For example, a dieter faced with a choice of a slice of chocolate cake versus an apple as an afternoon treat must overcome the affect-evoking, goal-inconsistent snack option. Stimuli with hedonically salient properties, such as chocolate cake, give rise to appetitive desire when their features automatically evoke an integral affective reaction based on the perceived pleasure or pleasantness of its features. Conversely, deliberative, nonaffective reasons for performing an action are energized into action intentions by volitive desire (Bagozzi et al., 2003; Perugini & Conner, 2000). Existing research construes appetitive desire as an intensely affective force that motivates actions associated with

Patricia L. Torres was a marketing doctoral student at Florida International University at the time of the article acceptance.

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immediate pleasure and/or relief from discomfort (Hofmann et al., 2015). Recent studies on cross-domain effects of appetitive stimuli suggest a domain-spanning negative effect such that when consumers encounter appetitive stimuli in one domain, their appetitive motivation will carry over toward appetitive stimuli in other unrelated domains. For instance, in a study in which participants viewed physically attractive (vs. unattractive) opposite-sex faces, the participants were more likely to choose unhealthy foods in a subsequent task (Otterbring, 2020). As such, existing research construes appetitive desires as primarily responsible for self-control dilemmas (Hofmann & Vohs, 2016). The prevailing view is that self-regulation is a process of overcoming appetitive desires by engaging one's volitional system such as by reasoning about the cost of giving into a temptation to one's goal success (e.g., Dholakia, 2000; Hofmann & Vohs, 2016; Hofmann et al., 2012; Hur et al., 2015; Kliamenakis & Sobol, 2021; Zhang et al., 2010). In other words, making beneficial or goal-consistent choices hinges on individuals relying on reasoning-based volitive desire rather than affect-derived appetitive desire (Bagozzi et al., 2003; Perugini & Bagozzi, 2004; Perugini & Conner, 2000).

The predominant temptation-focused view of appetitive desire overlooks the potentially beneficial role of appetitive desire in goal-directed action intention formation. For example, the intention to eat a tasty mixed salad with chicken and raspberry vinaigrette dressing may involve the rational, volitive desire to eat a nutritious meal, as well as the affect-driven, appetitive desire to enjoy the delicious flavors of the salad. Similarly, the intention to purchase a particular fashionable sweater for an outdoor fall gathering may involve willful, volitive desire to obtain an article of clothing to keep warm, together with affect-driven, appetitive desire to wear attractively designed clothing. Given the primacy and sway of affective reactions (Pham et al., 2001), understanding how affect-propelled appetitive desires positively influence goal-directed action intention formation is critical to consumer research. This research takes the philosophy of action theoretical perspective to examine how appetitive desire toward goal means containing pleasant or pleasurable features provides reasons for enacting goal-consistent actions, which energizes intentions to perform the actions through volitive desire. Three studies, one measurement-based and two experimental, involving different goal-directed action contexts, demonstrate that goal means associated with high (vs. low) appetitive desire result in greater volitive desire, which strengthens intentions to enact the goal means.

The rest of this paper is organized as follows. First, we explain the roles of appetitive desire, volitive desire, and intentions in goal pursuit. Then, we provide a theory-based conceptualization of appetitive desire and volitive desire as the foundation upon which we develop our hypotheses about the role of appetitive desire in goal-directed action intention formation. Our hypotheses are tested in three empirical studies that support our predictions. Last, we discuss the implications of our findings for theory and consumer well-being.

2 | DESIRE AND ACTION INTENTIONS IN CONSUMER GOAL PURSUIT

Desire and intentions play a central role in the goal pursuit process (see Figure 1). Consumers strive for many types of goals, which are cognitive representations of desired end states that individuals commit to achieve by performing instrumental actions (Fishbach et al., 2004; Kruglanski, 1996). Examples in consumer research include women trying to conceive by undergoing fertility treatment (Fischer et al., 2007), market mavens desiring to help others by diffusing product information using social media (Kiani & Laroche, 2019), and dieters attempting to lose weight by dieting (David & Haws, 2016). Goal pursuit begins when consumers consciously form a goal intention, which answers the question, "What is it I strive for?" Subsequently, goal striving requires an action plan, which answers the question, "How will I attain that which I strive

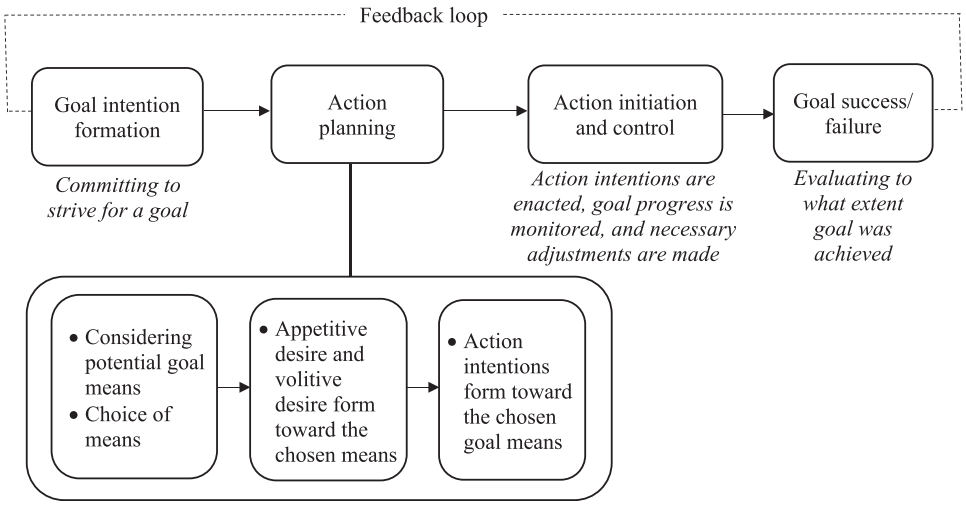

FIGURE 1 The role of appetitive desire and volitive desire in goal pursuit

for?" (Bagozzi & Dholakia, 1999b). At this stage, consumers consider the potential means for goal striving, which include behaviors, products, or services that aid consumers in the attainment of their goal (Etkin & Ratner, 2012). During the *action planning stage*, individuals select desirable goal means from a consideration set of various actions that could fulfill a given goal. An individual's motivation to pursue a goal means becomes salient to their consciousness through the experience of desire—a purposive motivational state that involves conscious awareness of one's motivation to pursue an object or outcome, sustained by some degree of self-efficacy and outcome expectancy (Bagozzi, 1992; Berridge, 2004; Marks, 1986; Toates, 1986).

Desire is the motivational element in intention; a requirement for action intentions to arise (Davis, 1984a). Intentions toward goal-directed (goal intentions) entail a person's self-commitment to a goal-directed action (Gollwitzer, 1999). People form intentions of varying intensity toward action options, with stronger intentions leading to action (Ajzen & Kruglanski, 2019; Bagozzi & Dholakia, 1999a; Davis, 1984a). The theory of planned behavior (TPB), the foundational social psychology framework for predicting intention formation, suggests that action intention strength is predicted by individuals' attitude toward the behavior, the perceived expectations of significant others (subjective norms), and perceived behavioral control (Ajzen & Fishbein, 1980). However, Bagozzi (1992) argued that attitudes and subjective norms are not inherently motivational constructs and, thus, are neither necessary, nor sufficient for action intentions to form. Consequently, Bagozzi and colleagues developed and empirically tested the model of goal-directed behavior (MGB), which demonstrates that desire is the motivational construct that directly predicts intention formation (Perugini & Bagozzi, 2001; Perugini & Conner, 2000). More recently, Ajzen and Kruglanski (2019) also acknowledged that the desire construct captures individuals' motivation to act, and more directly predicts intention formation (Kruglanski et al., 2015, 2018).

Forming intentions to perform a goal-directed action is a volitional process (in contrast to nonvolitional processes such as automaticity or impulsivity) (Bagozzi et al., 2003). Accordingly, existing research on the MGB (Perugini & Bagozzi, 2001, 2004) and the proposed theory of reasoned goal pursuit (TRGP; Ajzen & Kruglanski, 2019) attribute the formation of goal-directed action intentions to volitive desire, which is the type of motivation that energizes reasons for performing an action into intentions to act (Bagozzi et al., 2003; Perugini & Conner, 2000). However, existing goal pursuit research overlooks the positive motivational drive toward goal-directed action often supplied by appetitive desire, which arises from spontaneous, automatic evaluation that an action is pleasing and/or appealing (Davis, 1984b). The present research highlights the positive role of appetitive desire on intentions via volitive desire.

Following action intention formation, people may form implementation intentions that "specify the when, where, and how of responses leading to goal attainment" (Gollwitzer, 1999, p. 494). Implementation intentions facilitate enactment of goal intentions in the *action initiation and control phase* of goal pursuit. This phase also consists of monitoring goal progress and making adjustments to subsequent goal-directed actions as needed to increase the likelihood of goal success. Last, goal pursuit culminates in the consumer's assessment of goal success or failure. This stage potentially results in a feedback loop in which the process starts over if the consumer chooses to persist rather than abandon their goal.

3 | CONCEPTUALIZING APPETITIVE DESIRE AND VOLITIVE DESIRE

Conceptualizations of desire in social psychology research and consumer research range from defining desire as a general motivational state (e.g., Hofmann et al., 2012), as an affective state (e.g., Kavanagh et al., 2005), as reason-driven motivation (e.g., Perugini & Bagozzi, 2001), or as a affect- and reason-based motivation combined (e.g., Kossowska et al., 2020) (see Table 1). These variations in conceptualization reflect the notion that there are different senses of desire, which can give rise to a paradox of desire in that sometimes people want something (reason-based) while simultaneously not wanting it (appetitively), and vice versa (Shiffer, 1976). In line with this perspective, the philosophy of action literature distinguishes two future-oriented types of desire that determine action intention formation: appetitive desire, generated from latent perceptions of an action's appeal or pleasure, and volitive desire, generated from beliefs about an action's reasonableness for accomplishing the active goal (Davis, 1984a, 1984b; see Figure 2). For instance, a consumer ordering lunch in the fast-food drive-through may volitively "want" to eat a low-calorie salad (for health reasons), but simultaneously may not appetitively "want" to eat it (due to the consumer's latent feelings about the unpleasantness of the food's taste). However, the same consumer, when considering ordering the salad with citrus-marinated, grilled chicken, may "want" this food item both volitively (due to health reasons) and appetitively (due feelings about the food's perceived enjoyableness).

Volitive desire consists of a volitional motivation to approach actions one considers reasonable for achieving important active goals and, conversely, to avoid actions that they consider unreasonable for goal achievement. Volitive desires are considered manifestations of the individual's will (Davis, 1984b). Volition is associated with the experience of agency, which consists of willfully "desiring an outcome and of choosing the action that will achieve it" (Frith, 2013, p. 294). Volition implies that a person has free will to apply one's thought processes concerning what to do and choose which action to desire, in contrast to stimulus-reaction-types of desires such as impulses or cravings (Binswanger, 1991). Volition is the source of controlled processes such as self-control and volitive desire, which endows motivational energy to reasons for acting such as those based in beliefs about the extent that an action helps fulfill one's duties, obligations, hopes, or dreams (Baumeister et al., 2000; Higgins, 1987).

MGB research suggests that volitive desire is the most direct predictor of intention formation toward goal-directed actions

TABLE 1 Table of select desire-related literature

Article reference	Desire type	Desire conceptualization	Desire study context(s)	Relevant findings	Research gaps/shortcomings
(Hildebrand et al., 2019)	A	Cravings toward indulgent foods.	How holistic and analytic thinking cues affect cravings for indulgent foods	Presenting an indulgent food with an occasion-setting background increased craving and subsequent purchase when using holistic (vs. analytic) thinking by increasing consumption imagery.	This is an appetitive-focused view of desire that concentrates narrowly on craving-type desires that are indulgences and overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions.
(Mead & Patrick, 2016)	A	Consists of feelings of motivation toward a temptation and must be tamed for successful goal pursuit.	Postponing temptation of eating unhealthy foods	Induced (vs. imposed) unspecific postponement (e.g., "some other time") reduced desire for and consumption of a self-selected temptation.	The view of desire focuses on appetitive motivation that runs contrary to an active goal, which overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when accompanying volitive desire.
(Hur et al., 2015)	A	Wanting to purchase, possess, use, or consume certain products. Desire can be goal-congruent (e.g., wanting to purchase water to quench one's thirst) or goal-incongruent (e.g., wanting to buy a chocolate cake while one's goal is to lose weight)	How anthropomorphi-zing a temptation impacts consumer self-control	Anthropomorphizing a tempting product weakens self-control not by increasing desire, but by decreasing consumers' internal attributions of responsibility and control for their actions	The view of desire recognizes that desire can either help or hinder goal pursuit but presents an affect-based conceptualization to the exclusion of volitional desire.
(Moore & Konrath, 2015)	A	Appetitive desires give rise to cravings, which are powerful, visceral drives that undermine control of food intake.	The relationship of affect intensity to food cravings and behavioral intentions	Affect intensity increases food cravings through emotional memories, weakening impulse control, and increased pleasure anticipation.	This research focuses on cravings, which are one type of appetitive desire directed toward food intake. The studies focus on showing how vivid food cues tempt people to yield to their impulses to eat tempting foods. The study overlooks the positive role of appetitive desire in goal-consistent food choices.
(Alba & Williams, 2012)	A	Consumers' motivation to achieve particular objectives such as desire for pleasure, adventure, to preserve special memories, etc.	Conceptual review of hedonic consumption research	Hedonic consumption involves desire for experiences, sensations, pleasure.	An appetitive-focused view of desire is used to describe hedonic consumption situations. This overlooks the role of desire in motivating non-hedonic actions.
(Trudel & Murray, 2011)	A	A short-term desire to consume directed toward an object such as a high-calorie dessert that produces a struggle with willpower.	To test an information-processing model of self-regulation focusing on the roles of processing cost	When people selectively processed greater cost attribute information (consequences of consumption to their goal), less chocolate was consumed	This is an appetitive-focused view of desire that concentrates narrowly and temptation-type desires that contradict goal pursuit and overlooks the potential

TABLE 1 (Continued)

Article reference	Desire type	Desire conceptualization	Desire study context(s)	Relevant findings	Research gaps/shortcomings
			versus pleasure information in predicting consumption	than when they processed greater pleasure attribute information (tastiness, richness).	positive role of appetitive desire in motivating goal-directed action intentions when accompanying volitive desire.
(Dholakia et al., 2006)	A	A desire experience toward an action that can contradict important current goals a person is pursuing.	Examining self-regulation of desire for temptations	Promotion focused individuals experienced greater desire intensity but also more effectively resisted temptation by approaching the desire-resistance goal, whereas prevention focus individuals used less effective temptation avoidance strategies.	This is an appetitive-focused view of desire that concentrates narrowly and temptation-type desires that contradict goal pursuit and overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when accompanying volitive desire.
(Dholakia et al., 2005)	A	They are (1) like urges or cravings, (2) subjective, (3) directed toward objects and action involving objects. They motivate intentions and behavior. Desires for impulsive options arise from stimulus exposure, impel urgent action, and discourage consideration of potential negative consequences.	Testing a proposed sequential mitigation effect of impulsive decision making	Desire for impulsive options functions as a limited motivational resource, such that when impulsive desires are enacted in the first task, such desire is experienced to a lesser extent in the subsequent task.	The focus is impulsive desire, which is conceptualized as a highly appetitive desire experienced with little or no deliberation, and, hence, volitive desire. This appetitive-focused view of desire concentrates narrowly on craving-type desires that are impulsive and overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when it accompanies volitive desire.
(Kavanagh et al., 2005)	A	An affectively charged cognitive event that focuses on an object or activity associated with pleasure or relief of discomfort.	How cravings entail elaboration about intrusive appetitive thoughts	Conceptual	The theory conceptualizes desire consistent with appetitive desire to the exclusion of volitional elements within the context of strong cravings, which represents a narrow perspective of the desire construct.
(Hofmann et al., 2012)	G	Wanting to have or do something that may or may not conflict with one's goals.	Developing a four-step conceptual model of motivated behavior	Desire is a common, recurrent theme in daily life, as is frequent inner struggle to manage desire. Personality traits, social factors, and situational factors also shape the experience and outcome of desires.	The conceptualization of desire is broad and does not differentiate between different types of desire. However, resisting desire defines self-control, which overlooks the positive role of desire in motivating goal-directed action intentions.
(Dholakia, 2000)	M	A consumption impulse (CI) that can be consonant (consistent with the	To test a theoretical framework of impulse formation and enactment	When dissonant CIs are accompanied with negative cognitive evaluation of	This research presents a form of interplay between appetitive and volitive desire

(Continues)

TABLE 1 (Continued)

Article reference	Desire type	Desire conceptualization	Desire study context(s)	Relevant findings	Research gaps/shortcomings
		active goal) or dissonant (conflicting with the active goal).		enacting the behavior, the volitional system will resist the CI, resulting in less likelihood of CI enactment. Trait impulsivity rather than deliberation predicts consonant CI enactment.	as it relates to the dissonant CI in that the volitional system (i.e., volitive desire) can lower behavior enactment of an appetitively desired action (consumption impulse). However, this overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions.
(Kossowska et al., 2020)	M	A motivational state determined by want and expectancy. Want is an affectively charged motivation toward an object, person, or activity associated with pleasure or relief from displeasure that primarily drives action but is assisted by expectancy, a subjective assessment of the gratification of the want.	Motivation for helping others	Desire to help (Want) is the main predictor of helping, regardless of level of expectancy that the helping action will effectively aid the victim. How- ever, when the desire (want) to help is low, helping is still possible when Expectancy is high.	The authors' conceptualization of desire confounds appetitive desire ("want") with a type of volitive desire ("expectancy"). However, the operationalization of want does not capture affect or pleasure ("To what extent is it important for you to help…" nor does the operationalization of "expectation" capture reasons for desiring ("I carefully think about…")
(Ajzen & Kruglanski, 2019)	V	Motivation to perform a behavior that is based "first and foremost on the perceived likelihood or expectancy that performing the behavior will bring about desired goals, as well as on the subjective values or magnitudes of these goals" (p. 775).	To combine the theoretical perspectives of TPB and Goal systems theory in a proposed theory of reasoned goal pursuit.	Conceptual	The authors deduce that "the formation of a behavioral intention is determined by motivation to perform a behavior," but they assume this motivation is cognitively-driven (p. 774). This view overlooks the positive motivational role of appetitive reasons in reasoned goal pursuit.
(Hur & Nordgren, 2016)	V	Reasoned motivation to acquire an object.	How exposure to performance incentives affects desire for the reward object	When participants' performance was incentivized with monetary rewards desire for money increased.	Desire is conceptualized broadly as a motivation to acquire a rewarding target. However, the operationalization of desire anchors the motivation to beliefs about money, which relates to volitive desire. The role of appetitive desire is overlooked.
(Xie et al., 2013)	V	"The central motiva- tional process transforming reasons for acting (ratio- nal, emotional, and social) into actual decisions to act" (p. 14).	To develop a comprehensive model of consumer decision making in the context of Bacalhau (traditional Portuguese fish fish) drawing upon the theory of planned behavior	Anticipated emotion (AE) predicted desire, which influenced intentions.	The authors point out that the study context (Bacalhau consumption) is emotionally salient, which indicates that appetitive desire most likely plays an important role in determining intentions to consume this dish. The fact that AE

TABLE 1 (Continued)

Article reference	Desire type	Desire conceptualization	Desire study context(s)	Relevant findings	Research gaps/shortcomings
			(TPB) and the model of goal directed behavior (MGB)		was found to predict desire is evidence of this notion. However, this study used measures based on prior MGB studies, which operationalize desire with a rational, deliberative focus. The study lacks a direct examination of the role of appetitive desire.
(Perugini & Bagozzi, 2004)	V	A state of mind in which an agent has a personal motivation to perform an action or to achieve a goal based on an integration of different sources of appraisals (e.g., emotional, evaluative, social). Desire represents the first step toward a decision to act and leads to an intention to act.	To distinguish desires and intentions in goal-directed behavior	Desires are less specific and leave open or imply more ways to achieve their object compared to intentions. Desires are usually defined in a longer-term perspective, and thus they are relatively less affected by feasibility considerations.	The study relies on a volitional perspective of desire that overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when they accompany volitive desire.
(Bagozzi et al., 2003)	V	Volitive desire forms once a person's reasons and motives for acting are deliberatively processed as the antecedent to forming a self-commitment to act	To test a comprehensive model of individuals' enactment of nonroutine, effortful decisions	In the individual decision-making process, motivation is channeled through goal desire at the goal intention stage and through implementation desire at the implementation intention stage.	Although the authors recognize that "appetitive desires play some role, either by themselves or in tandem with volitive desires, for some types of effortful decisions," the study does not examine the influence of appetitive desire.
(Perugini & Bagozzi, 2001)	V	The motivational state of mind in which appraisals and reasons to act are transformed into the motivation to act and directly lead to intention formation.	Broadening and deepening the theory of planned behavior (TPB) via a model of goal directed behavior (MGB)	Desire mediated the effects of the antecedents (attitudes, social norms, anticipated emotions, and perceived behavioral control) on intentions.	The volitive desire focus overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when accompanying volitive desire.
(Perugini & Conner, 2000)	V	A motivational state of mind that transforms appraisals and reasons to act into a motivation to act.	To examine the interplay of goal and behaviors in a model including goal desires and goal perceived feasibility as additions to the Model of Goal Directed Behavior (MGB) constructs	Including goal desire and perceived goal feasibility significantly improved the prediction of behavioral desires and intentions over and above the MGB and TPB models.	The study implements a volitional perspective of desire that overlooks the potential positive role of appetitive desire in motivating goal-directed action intentions when accompanying volitive desire.

Note: A = Appetitive desire-focused conceptualization, V = Volitive desire-focused conceptualization, M = Mix of appetitive and volitive desire in conceptualization, G = general motivation conceptualization.

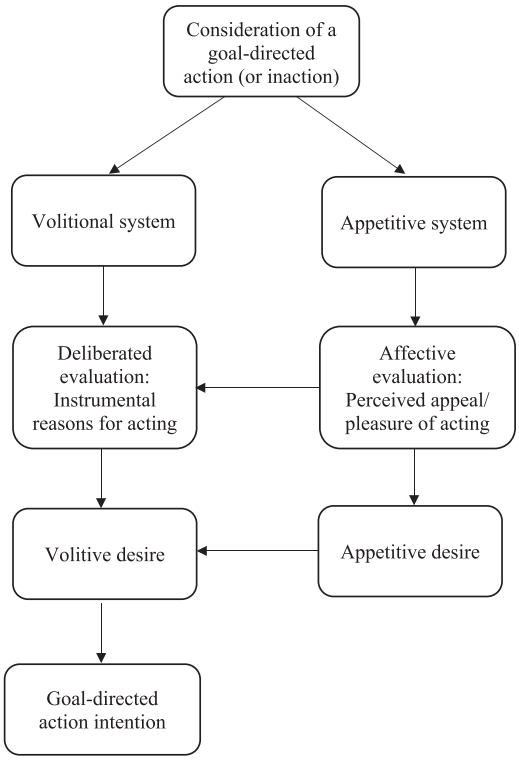

FIGURE 2 The distinction between appetitive desire and volitive desire toward goal-directed actions (goal means)

(e.g., Perugini & Bagozzi, 2001, 2004; Perugini & Conner, 2000). The TRGP echoes this view of volitive desire as a direct determinant of intention formation (Ajzen & Kruglanski, 2019). The emphasis in MGB and TRGP on the effect of volitive desire on goal-directed action intention formation is consistent with the prevalent view in self-regulation research that volitional processes drive goal-directed behavior (Baumeister et al., 2000; Binswanger, 1991; Kuhl & Kazen-Saad, 1989). However, the philosophy of action literature also suggests that appetitive desire can provide reasons based in the perceived pleasure or appeal of the action, which can bolster volitive desire toward goal-directed action (Davis 1984a, 1984b). For example, a person who is considering a garden salad with chicken as a healthy lunch option will form stronger volitive desire toward eating the salad if the person views it with pleasure (because it contains citrus-marinated, grilled chicken) than if the person views the salad with displeasure (because it contains plain, unseasoned boiled chicken). In the former example appetitive desire augments the person's volitive desire, in the latter example lack of appetitive desire reduces volitive desire.

Appetitive desire motivates individuals to approach actions that they perceive as pleasurable, and to avoid actions that they perceive as unpleasing or repulsive (Davis, 1984b). The object of appetitive desire is inherently appealing to the individual and is perceived as pleasurable even if it is not anticipated that obtaining or consuming it will actually bring about pleasure (e.g., appetitively desiring wine even though drinking it would trigger acid reflux; Shiffer, 1976). A related concept in psychology research known as "integral affect" refers to an affective response aroused by the genuine experience of an object through exposure to the stimulus itself, its representation, or the mere thought of it (Cohen et al., 2015). Such a response is deemed "integral" due to being triggered by the features of the object itself rather than by a pre-existing mood or an incidental emotion triggered by another cue in the person's environment. Research suggests that integral affect is associated with action tendencies, such as approach, avoidance, or withdrawal (Frijda et al., 1989). Furthermore, in the absence of a situational constraint and/or an overriding cognitive response, individuals are inclined toward acquiring and/or consuming integral affect-eliciting objects (Hofmann & Vohs, 2016; Hofmann et al., 2015). For instance, Shiv and Fedorikhin (1999) showed that when participants' cognitive resources were constrained by a short term memory task, participants tended to choose a snack option that triggers greater (chocolate cake) versus lesser integral affect (fruit salad). In this sense, consumer and psychology research agree with the philosophy of desire perspective that the integral affect (e.g., pleasure, arousal) a person experiences in response to an object motivates the person to form intentions to act through appetitive desire.

The affective motivation does not necessarily translate into impulsive actions. Although integral affect can automatically trigger motivation toward (or away from) an object, extensive research has also shown that people (cognitively) reflect on the integral feelings stimulated by an object of judgment while deliberating and use their feelings as input during judgment (affect-as-information; "How do I feel about it?" heuristic; Clore et al., 2001; Pham et al., 2001). Whereas early psychology research on affect-as-information focused on the effects of misattributing one's negative or positive mood (a diffuse feeling state) as a relevant input for a judgment (Schwarz & Clore, 1983), later studies in consumer research recognize that the initial feelings triggered by exposure to an object "frame subsequent thought generation through the spontaneous priming of feeling-consistent cognitions and the controlled retrieval of knowledge that helps explain the initial feeling response" (Pham et al., 2001, p. 186). The philosophy of action view would agree that integral affect shapes some of the reasons individuals contemplate while deliberating about an object or action, given that the perceived pleasure or pleasantness (or lack thereof) of a stimulus that is experienced as integral affect gains motivational energy through appetitive desire, and people tend to consider their appetitive desire for an object or action as a reason itself to act, which motivates intentions to act through volitive desire.

The self-regulation regulation paradigm generally construes appetitive desires as indulgences or temptations that volitional processes must override because they can sometimes run counter to goal pursuit, such as dieters' unhealthy food temptations (Baumeister et al., 2000). In most consumer research studies appetitive desire is directed at goal-inconsistent objects or actions, such as cravings toward tempting foods, and must be overcome by self-control (e.g., Dholakia et al., 2005, 2006; Dholakia, 2000; Mead & Patrick, 2016; Moore & Konrath, 2015; see Table 1). In fact, cravings, which are intense appetitive desires directed toward food or drink, are the focus of attention in most consumer desire regulation studies

(Hildebrand et al., 2019; e.g., Hur et al., 2015; Mead & Patrick, 2016; Trudel & Murray, 2011). Yet, many appetitively desired objects are neither related to food or drink, nor do they inherently hinder self-regulation, such as the desire to listen to music, the desire to shop (for fun), or the desire to go on a vacation (Alba & Williams, 2012). Appetitive desire reflects what individuals latently long for. It is a source of motivation that energizes perceived pleasure of an action into intentions to act, and predisposes them to approach objects or actions perceived as intrinsically appealing (Davis, 1984b). Although at times one's appetitive desire contradicts an active goal, such as when a consumer possesses a strong volitive (willful) desire to exercise for weight loss but, at the same time, lacks the appetitive (latent) desire to exercise, appetitive desire is not only experienced toward actions that are contrary to goal attainment. On the contrary, appetitive desire benefits consumer goal pursuit when it provides reasons for volitive desire toward the goal means. If an individual has high volitive desire toward a goal-directed action, the stronger the appetitive desire the person experiences toward the action, the stronger the person's volitive desire will be toward the actions, such as when a consumer's volitive desire to practice yoga for health reasons is augmented by the person's appetitive desire for the yoga experience. The person's appetitive desire toward practicing yoga impacts action intentions indirectly given that "while appetitive desires are not themselves influenced by reasons, they generally provide reasons for volitive desires" (Davis, 1984a, 1984b p. 186). People perceive many volitively desirable stimuli as similarly appetitively desirable. For instance, recent research assuming an evolutionary mechanism shows that the same visually appetitive cues, color-saturated food product packaging, produces evaluations of foods as more tasty or appetizing, as well as more healthy (Kunz et al., 2020). The authors suggest that perceived freshness mediates the positive effect of appetitive product packaging on judgments of tastiness (appetitiveness) and healthiness (volitiveness). Thus, from an evolutionary perspective, it could be argued that people have developed a positive appetitive response toward certain object cues that also foster positive volitive cognitions and motivation.

Although action intentions directly derive their motivational energy from volitive desire, which is based in goal-centric reasons for acting, appetitive desire indicates whether an action will be pleasant or enjoyable, which also supplies reasons for acting (or not doing so). By generating reasons to act, appetitive desire can heighten or weaken volitive desire, thereby contributing to a person's motivation to perform (or abstain from) intentional actions. Given that appetitive desires provide reasons for volitive desires (Davis 1984b, 1984a), we theorize that the motivational impetus that appetitive desires contribute to volitive desire results in an indirect influence of appetitive desire on action intentions through their positive effect on volitive desire. In line with this theorizing, we predict that *as a consumer's appetitive desire toward a goal-directed action increases (decreases), volitive desire will increase (decrease), which in turn will increase (decrease) action intention strength* (see conceptual model in Figure 3).

To empirically test the causal sequence of appetitive desire→volitive desire→intentions, we implement a multi-method approach consisting of a measurement-of-mediation design (Study 1), a partial experimental-causal-chain design (Study 2), and a moderation-of-process design (Study 3), which are recommended methods for empirically testing this type of causal chain (Pirlott & MacKinnon, 2016). The studies use a goal-elicitation task (Study 1) and scenario-based experiments (Studies 2 and 3) conducted with undergraduate student participants (Studies 1) and Amazon Mechanical Turk participants (Studies 2 and 3). The first study elicits three different combinations of low/high appetitive desire and volitive desire by asking participants to write about a personal short-term goal to facilitate a measurement-of-mediation-based test of our prediction. The second study manipulates appetitive desire level using vignettes centered on two different product contexts (food and clothing) to observe the causal effects on volitive desire and intentions. The third study uses vignette-based manipulations of both the independent variable (appetitive desire level) and the mediator (volitive desire level) to provide converging evidence consistent with the proposed causal sequence of intention formation. Table 2 summarizes the design, causal evidence provided, and context of each study.

4 | STUDY 1: SHORT TERM GOAL ELICITATION STUDY

Study 1 implements a measurement of mediation design. In this study, participants write about their own short-term goals corresponding to three approach-oriented combinations of desire: high appetitive desire/high volitive desire, high appetitive desire/low volitive desire, and low appetitive desire/high volitive desire. The purpose of this task was to activate from memory self-relevant goal-directed actions associated with varying levels of appetitive desire, volitive desire, and action intentions to facilitate measurement of these three variables to test our causal model via statistical mediation.

4.1 | Method

Two hundred thirty undergraduate students (55% male, $M_{age} = 21$) participated in this study (as part of a larger experimental session

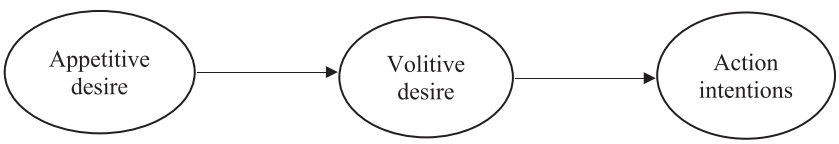

FIGURE 3 Conceptual model of the causal chain of appetitive desire and volitive desire in reasoned goal pursuit

TABLE 2 Summary of studies

	Study design	Inferential evidence provided	Study context
1	Measurement-of-mediation design	App. desire (IV_{obs})→Vol. desire (M_{obs}) →Intentions	Participants' own short-term goals
2	Experimental mediation using one randomized experiment	App. desire (IV_{man})→Vol. desire (M_{obs}) →Intentions	Clothing purchase, food consumption
3	Experimental mediation using process hypothesis testing by interaction	App. desire (IV_{man})→Intentions Vol. desire (M_{man})→Intentions App. desire (IV_{man}) * Vol. desire (M_{man})→Intentions	Clothing purchase

Note: App. = appetitive; Vol. = volitive; M = mediator; obs = observed (measured); man = manipulated.

with other unrelated studies) for course credit. Participants were randomly assigned to one of three approach-oriented desire groups: high appetitive desire/high volitive desire, high appetitive desire/low volitive desire, or low appetitive desire/high volitive desire. The experimenter distributed a questionnaire booklet that contained instructions for the desire state participants should write about, a space for their open-ended response, and the dependent measures.

We used a goal-elicitation task adapted from Perugini and Bagozzi (2004) that instructed participants to write three to five sentences about a short-term goal they were motivated to fulfill during the coming weekend. The instructions provided descriptions, based on Davis (1984a, 1984b), of the types and levels of desire that the short term goal must be linked to. Participants in the **high appetitive desire/high volitive desire** group read the following instructions: "…please write about something you are motivated to do that is desirable based on how pleasurable it is to you and is something you consider rational to do as well. The short-term goal can include things like eating, reading, spending time with friends, etc." The **high appetitive desire/low volitive desire** instructions stated: "… please write about something you are motivated to do that is desirable based on how pleasurable it is to you but is undesirable based on rational considerations. The short-term goal can include things like going to a party instead of studying for an upcoming exam, going shopping in spite of being short on funds, eating a dessert in spite of your diet, etc." **Low appetitive desire/high volitive desire** participants' instructions stated: "… please write about something you are motivated to do that is desirable based on rational considerations but is undesirable based on how unpleasurable it is to you. The short-term goal can include things like studying, chores, changing your car oil, cleaning up after your pet, etc." These instructions elicited a variety of relevant short-term behavioral goals of undergraduate students, such as going out to dinner at a restaurant instead of making food at home, purchasing a couple of new shirts, going shopping for a dress for a sorority formal, watching a baseball game on television, and working out and eating healthy.

Based on Davis' (1984a, 1984b) conceptualization of appetitive desire and volitive desire, measures of appetitive desire and volitive desire were developed to assess whether the goal-elicitation task conditions manipulated the designated levels of appetitive and volitive desire. The extent to which participants experienced the level of appetitive corresponding to their assigned desire group was measured by "A craving is a motivation to do or get something because it is pleasurable. How great is your craving to carry out the short-term goal you wrote about?" (1 = "very weak craving", 7 = "very strong craving"). Another item measured the extent to which the participants' short-term goal was motivated by the level of volitive desire corresponding to their assigned desire group: "Wants are a motivation to do or get something because the person considers it rational or reasonable to do. To what extent do you want to carry out the short-term goal you wrote about?" (1 = "Want it very weakly", 7 = "Want it very strongly"). Participants' action intentions toward their short-term goal measured by a single item: "How likely are you to carry out the short-term goal you wrote about?" (1 = "very low likelihood", 7 = "very high likelihood").

4.2 | Results

Manipulation checks: A one-way analysis of variance indicated that appetitive desire ratings differed significantly between the short-term goal conditions ($F(2, 228) = 28.7$, $p < 0.001$), and were stronger for the high appetitive/high volitive desire condition ($M = 4.81$) then the low appetitive desire/high volitive desire condition ($M = 3.35$; $t(155) = 5.0$, $p < 0.001$). Appetitive desire ratings were also significantly stronger for the high appetitive desire/low volitive desire condition ($M = 5.30$) than the low appetitive desire/high volitive desire condition ($M = 3.35$; $t(144.8) = 7.44$, $p < .001$). The task successfully elicited the designated appetitive desire levels.

Next, a one-way analysis of variance showed that volitive desire differed significantly between short-term goal conditions ($F(2, 228) = 30.2$, $p < 0.05$). Volitive desire ratings were significantly stronger, as expected, for the high appetitive/high volitive desire group ($M = 5.84$) relative to the high appetitive desire/low volitive desire group ($M = 5.32$; $t(143.43) = 2.44$, $p < 0.05$). However, volitive desire ratings did not differ between the low appetitive desire/high volitive desire group ($M = 5.46$) relative to the high appetitive desire/low volitive desire group ($M = 5.32$; $t(153.5) = 0.61$, $p = 0.55$), consistent with the notion that appetitive desires also provide reasons for acting, which in turn, increase volitive desire. The volitive desire manipulation was partially successful.

4.2.1 | Mediation analysis

To rule out any differences in the indirect effect of appetitive desire on intentions through volitive desire between desire group types, we used PROCESS (Model 8; Hayes, 2018) to test a moderated mediation model with a bootstrap sample of 5000% and 95% confidence intervals (CIs). The model, with appetitive desire as a continuous independent variable, volitive desire as a continuous mediator, desire group as a multicategorical moderator, action intentions as the dependent variable, and gender as a covariate, revealed that the indirect effect of appetitive desire did not differ significantly between desire groups (b = −0.009, CI = [−0.06, 0.03]). Next, we examined the unconditional indirect effect of appetitive desire using PROCESS (Model 4; see Table 3). Consistent with our predictions, the analysis revealed a significant positive indirect effect of appetitive desire on intentions (b = 0.04, CI = [0.01, 0.08]), consisting of a positive association between appetitive desire and volitive desire (b = 0.19) and a positive association between volitive desire and intentions (b = 0.29). The direct effect of appetitive desire was not significant (b= 0.03, CI = [−0.06, 0.13]). Figure 4 depicts the statistical mediation model.

4.3 | Results discussion

Study 1 provides initial causal evidence consistent with our theorizing that appetitive desire positively influences volitive desire, which in turn positively influences intention strength. However, given that the dependent variable, action intention, was measured after appetitive desire and volitive desire were measured, the action intention measure may have been unduly influenced by the measurement procedure. Also, this study uses a measurement-based approach to test the effect of appetitive desire on action intentions via volitive desire. This correlation-based method does not provide strong evidence that the proposed cause preceded the effect (Stone-Romero & Rosopa, 2011). Thus, to provide stronger support of the hypothesized causal sequence, we conducted Studies 2 and 3 as part of an experimental-causal-chain design. Study 2 randomly assigns participants to the manipulated independent variable, appetitive desire, first and then measures resulting intentions (dependent variable) and volitive desire (mediator). Study 3 manipulates the independent variable and the mediator simultaneously, which addresses the lack of a full factorial design in Study 1 due to the focus on approach-

TABLE 3 Study 1: PROCESS results

Study 1: Ordinary least squares regression-based mediation (n = 230)						
Outcome variable: Volitive desire						
Model summary						
R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
0.17	0.03	1.75	3.36	2	227	0.036
Predictor variable	*b*	*SE*	*t*	*p*	*Lower*	*Upper*
Constant	5.09	0.25	20.21	0.001	4.59	5.59
Appetitive desire	0.11	0.05	2.45	0.015	0.02	0.21
Gender (cov)	−0.11	0.18	−0.64	0.521	−0.46	0.23
Outcome variable: Action intentions						
Model summary						
R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
0.33	.11	1.82	9.40	3	226	0.001
Predictor variable	*b*	*SE*	*t*	*p*	*Lower*	*Upper*
Constant	3.84	0.43	8.94	0.001	2.99	4.68
Appetitive desire	0.03	0.05	0.65	0.519	−0.06	0.13
Volitive desire	0.34	0.07	5.06	0.001	0.21	0.48
Gender (cov)	−0.06	0.18	−0.34	0.738	−0.41	0.29
Direct effect of the independent variable (appetitive desire) on the dependent variable (Action intentions)						
	b	*SE*	*t*	*p*	*Lower*	*Upper*
	0.03	0.05	0.65	0.519	−0.06	0.13
Indirect effect of the independent variable (appetitive desire) on the dependent variable (Action intentions)						
	b	*BootSE*			*BootLower*	*BootUpper*
Volitive desire	0.04	0.02			0.01	0.08

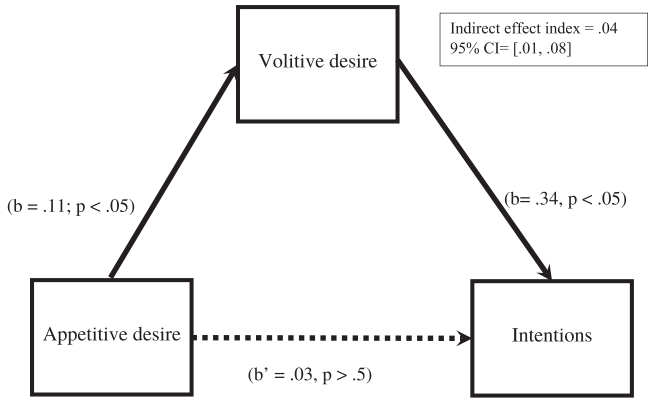

FIGURE 4 Study 1: Statistical mediation model

oriented desire combinations, which excluded a low appetitive desire/low volitive desire cell.

5 | STUDY 2: APPETITIVE DESIRE MANIPULATION STUDY

Study 2 consists of an experimental mediation design using one randomized experiment (Stone-Romero & Rosopa, 2011). We manipulate low versus high appetitive desire via vignettes about clothing or food-related consumer goal-directed actions. The clothing-related goal involves obtaining a sweater for an outdoor party, whereas the food-related goal involves eating a healthy salad. We then measure the impact on volitive desire and action intentions. This procedure ensures that the effect of appetitive desire precedes the effect of volitive desire on participants' goal-directed action intention ratings.

5.1 | Method

One hundred twenty-six U.S. residents recruited from Amazon Mechanical Turk (age range: 23–72, male = 77%) were randomly assigned to one of four conditions in a 2 (context: food item vs. clothing item) ×2 (appetitive desire: low vs. high) between-subjects design web study. After reading the welcome screen, participants responded to demographic questions including gender, which determined the gender of the protagonist featured in the appetitive desire vignette. Then, participants read a scenario about a protagonist matching participant's self-disclosed gender named Joe (male), Mary (female), or River (gender neutral, nonbinary, prefer not to answer) facing a choice (purchasing a sweater or eating lunch) involving (high/low) appetitive desire. Participants assigned to the clothing item context read the following scenario adapted from (Dholakia et al., 2006): "[*Name*] is a 21-year-old college student with a part-time job. [*Name*] has been invited to an outdoor evening get-together with close friends this weekend. With only two days remaining before getting the next paycheck, [*Name*] has only $25 left for necessities like food and to buy a sweater for the weekend get-together. After work, [*Name*] goes to the store to purchase the sweater." Next, participants in the high (low) appetitive desire condition in the sweater purchase context read the following appetitive desire-related scenario descriptions, which were based on Davis' (1984a, 1984b) appetitive desire conceptualization: "While walking through the clothing store, [*Name*] sees a great-(ordinary-) looking sweater on sale and tries it on. [*Name*] looks in the mirror and sees that the sweater looks fantastic (style and color look a bit outdated) and fits incredibly well (a bit too loose). Participants assigned to the food item context read the following scenario adapted from (Dholakia et al., 2006): "[*Name*] is a 21-year-old college student who is twenty pounds overweight. On a typical weekday morning, after a busy and productive morning at work, [*Name*] feels hungry and would like to eat a healthy, low-calorie salad for lunch. [*Name*] goes to Panera Bread to eat a salad for lunch around noon time." Then, participants in the high (low) appetitive desire condition in the food context read the following appetitive desire-related scenario descriptions based on Davis' (1984a, 1984b) appetitive desire conceptualization: "While browsing the menu, [*Name*] sees an image of a very tasty- (untasty-) looking salad option: a mouth-watering Fuji apple salad with a tangy, sweet Fuji apple salad dressing, toasted pecan pieces, and diced, roasted chicken (a mixed salad with spinach, green and red leaf lettuce, balsamic salad dressing, and diced chicken)." Participants then assessed the protagonist's action intentions with two bipolar items adapted from Bagozzi et al. (2004), which rate the likelihood that the protagonist intends to purchase the sweater or eat the salad: "very unlikely" (1)/"very likely" (7) and "very improbable" (1)/"very probable" (7) (Pearson's $r = 0.75$, $p < 0.01$; $M = 5.03$, $SD = 1.67$). Next, two items based on Davis (1984a, 1984b) measured volitive desire: How weakly or strongly does [*Name*] desire to [purchase the sweater/eat the salad] because [*Name*] has reason(s) to do so?" "very weak desire" (1)/"very strong desire" (7); "How weakly or strongly does [*Name*] want to [purchase the sweater/eat the salad] because to [*Name*] it is rational to want it?" "very weakly" (1)/"very strongly" (7) (Pearson's $r = 0.57$, $p < 0.01$; $M = 4.45$, $SD = 1.58$). Additionally, two items based on Davis (1984a, 1984b) measured appetitive desire: "How weakly or strongly does [*Name*] want to [purchase the sweater/eat the salad] because it seems pleasurable to [*Name*]? "very weak desire" (1)/"very strong desire" (7); "How weakly or strongly does [*Name*] want to [purchase the sweater/eat the salad] because it is appealing to [*Name*]?" "very weakly" (1)/"very strongly" (7) (Pearson's $r = 0.50$, $p < 0.01$; $M = 4.02$, $SD = 1.73$). Last, given that prior research attributes choice and behavior toward affect-laden options to the predominance of affective responses over cognitive responses, we asked participants to assess the affective versus cognitive basis for the protagonist's intentions with five items used by Shiv and Fedorikhin (1999): "prudence" (1)/"impulse" (7), "rationality" (1)/"emotionality" (7), "willpower" (1)/"passion" (7), "thoughts" (1)/"feelings" (7), "head" (1)/"heart" (7) ($\alpha = 0.89$; $M = 4.57$, $SD = 1.54$).

5.2 | Results

5.2.1 | Manipulation check

To ensure that the vignettes elicited the intended levels of appetitive desire, a 2 × 2 analysis of covariance (ANCOVA) was

conducted on the appetitive desire ratings controlling for participant gender. The interaction effect of context and appetitive desire was nonsignificant ($F(1, 120) = 0.37$, $p > 0.5$), indicating that the appetitive desire effect did not differ significantly between product contexts. However, the main effect of appetitive desire was significant ($F(1, 120) = 26.43$, $p < 0.001$). As expected, the high appetitive desire vignette resulted in greater appetitive desire ratings ($M = 4.66$, $SD = 1.59$) than the low appetitive desire vignette ($M = 3.19$, $SD = 1.59$). There were no significant gender effects.

5.2.2 | Volitive desire

A 2 × 2 ANCOVA on volitive desire controlling for participant gender revealed only a significant main effect of appetitive desire ($F(1, 121) = 7.29$, $p < 0.01$). High appetitive desire resulted in greater volitive desire ($M = 7.52$, $SD = 1.55$) than low appetitive desire ($M = 6.52$, $SD = 1.55$), supporting our prediction. The nonsignificant interaction effect indicates that the effect of the independent variable (appetitive desire level) on volitive desire effect did not differ significantly between product contexts ($F(1, 121) = 0.76$, $p > 0.3$; see Table 4 Panel A for ANOVA results, Panel B for means). Gender did not exert any significant effects.

5.2.3 | Intentions

A 2 × 2 ANCOVA on action intentions controlling for participant gender revealed only a significant main effect of appetitive desire ($F(1, 121) = 19.24$, $p < 0.001$). High appetitive desire resulted in greater intentions ($M = 5.56$, $SD = 1.57$) than low appetitive desire ($M = 4.32$, $SD = 1.58$), supporting our prediction. The nonsignificant interaction effect indicates that the pattern of appetitive desire's effect on intentions did not differ significantly between product contexts ($F(1, 121) = 0.10$, $p > 0.7$; see Table 5 Panel A for ANOVA results, Panel B for means). There were no significant effects associated with participant gender. Given that product context did not significantly affect the relationship of appetitive desire with volitive desire or appetitive desire with intentions, this variable is not considered in any further statistical analyses.

We used Hayes (2018) PROCESS macro (Model 4; 95% CIs; 5000 bootstrap samples) to test whether volitive desire mediates the effect of appetitive desire on action intentions. The model with dummy coded appetitive desire as the dichotomous independent variable (0 = low appetitive desire, 1 = high appetitive desire), volitive desire as the continuous independent variable, intentions as the dependent variable, and participant gender as covariate revealed a significant indirect effect of appetitive desire on intentions ($b = 0.33$, CI = [0.07, 0.65]). Consistent with our prediction, appetitive desire level positively influenced volitive desire ratings ($b = 0.76$), and volitive desire ratings positively influenced intention

TABLE 4 Study 2: Tests of between-subjects effects on volitive desire ratings

Panel A				
Dependent variable: Volitive desire ratings				
Source	***df***	***F***	**Sig.**	**Type III sum of squares**
Corrected model	4	2.31	0.061	22.118[a]
Intercept	1	90.09	0.001	215.397
Gender	1	0.46	0.500	1.096
Applvl	1	7.29	0.008	17.424
contxt	1	0.66	0.418	1.576
Applvl × contxt	1	0.76	0.384	1.825
Error	121			289.297
Total	126			2804.750
Corrected total	125			311.415

Panel B			
Study 2: Estimates			
Dependent variable: Volitive desire			
Condition	**Mean**	***SD***	***N***
Low appetitive desire	4.023[b]	1.55	55
High appetitive desire	4.775[b]	1.55	71

Note: "Applvl" = appetitive desire level.

[a]$R^2 = 0.071$ (adjusted $R^2 = 0.040$).

[b]Covariates appearing in the model are evaluated at the following values: Gender = 1.21.

TABLE 5 Study 2: Tests of between-subjects effects on intention ratings

Panel A				
Dependent variable: Intention ratings				
Source	***df***	***F***	**Sig.**	**Type III sum of squares**
Corrected model	4	5.20	0.001	51.26[a]
Intercept	1	146.88	0.001	361.99
Gender	1	0.92	0.339	2.27
Applvl	1	19.24	0.001	47.42
Contxt	1	0.57	0.452	1.40
Applvl × contxt	1	0.10	0.752	0.25
Error	121			298.21
Total	126			3532.89
Corrected total	125			349.47

Panel B			
Study 2: Descriptive statistics			
Dependent variable: Intention ratings			
Condition	**Mean**	***SD***	***N***
Low appetitive desire	4.32[b]	1.58	55
High appetitive desire	5.56[b]	1.57	71

Note: "Applvl" = appetitive desire level.

[a]$R^2 = 0.147$ (adjusted $R^2 = 0.118$).

[b]Covariates appearing in the model are evaluated at the following values: Gender = 1.21.

ratings ($b = 0.43$) (see Table 6). The direct effect of appetitive desire on intentions was also significant ($b = 0.90$, CI = [0.07, 0.65]; see statistical mediation model in Figure 5).

5.2.4 | Alternative explanation

To examine affective/cognitive response influence as an alternative explanation to our appetitive desire→volitive desire→intention account for the effect of appetitive desire level manipulations on action intentions in this study, we conducted a 2 × 2 ANCOVA on the affective-cognitive influence measure, controlling for gender. Results showed no statistically significant main effects ($F_{AD}(1, 121) = 1.26$, $p > 0.2$; $F_{Context}(1, 121) = 2.40$, $p > 0.1$), nor interaction effect ($F(1, 121) = 1.44$, $p > 0.2$), ruling out this alternate explanation.

5.3 | Results discussion

Study 2 provides additional evidence in support of our account of the positive influence of appetitive desire on goal-directed action intentions through volitive desire and ruled out the alternative explanation of a direct influence by affective or cognitive responses on intentions. The experimental mediation approach of Study 2 allowed for stronger inference that appetitive desire influences volitive desire and intentions relative to the measurement-only approach used in Study 1. However, in Study 2 the mediator and the dependent variable were both measured, which engenders some uncertainty about the causal sequence between volitive desire and intentions (Stone-Romero & Rosopa, 2011). Study 3 addresses this shortcoming by manipulating both the independent variable and mediator variable.

6 | STUDY 3: APPETITIVE AND VOLITIVE DESIRE MANIPULATION STUDY

Study 3 implements a testing-a-process-hypothesis-by-an-interaction strategy in which we experimentally manipulate the independent variable (appetitive desire) and mediator (volitive desire) to jointly examine the causal effect of appetitive desire on intentions and of volitive desire on intentions (Pirlott & MacKinnon, 2016). Given that product context did not alter the appetitive desire effect in Study 2,

TABLE 6 Study 2: Mediation results

Study 2: Ordinary least squares regression-based mediation ($n = 126$)						
Outcome variable: Volitive desire						
Model summary						
R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
0.24	0.06	2.38	3.81	2	123	0.025
Predictor variable	*b*	*SE*	*t*	*p*	*Lower*	*Upper*
Constant	3.02	0.63	4.84	0.001	1.78	4.26
Appetitive desire	0.76	0.28	2.72	0.008	0.21	1.31
Gender (cov)	0.20	0.34	0.61	0.546	−0.46	0.87
Outcome variable: Intentions						
Model summary						
R	*R-sq*	*MSE*	*F*	*df1*	*df2*	*p*
0.55	0.30	2.01	17.39	3	122	0.001
Predictor variable	*b*	*SE*	*t*	*p*	*Lower*	*Upper*
Constant	2.17	0.63	3.48	0.001	0.94	3.41
Appetitive desire	0.90	0.26	3.44	0.001	0.38	1.42
Volitive desire	0.43	0.08	5.23	0.001	0.27	0.60
Gender (cov)	−0.40	0.31	−1.29	0.200	−1.01	0.21
Direct effect of the independent variable (appetitive desire) on the outcome variable (intentions)						
	b	*SE*	*t*	*p*	*Lower*	*Upper*
	0.90	0.26	3.44	0.001	0.38	1.42
Indirect effect of the independent variable (appetitive desire) on the outcome variable (intentions)						
	b	*BootSE*			*BootLower*	*BootUpper*
Volitive desire	0.33	0.15			0.07	0.65

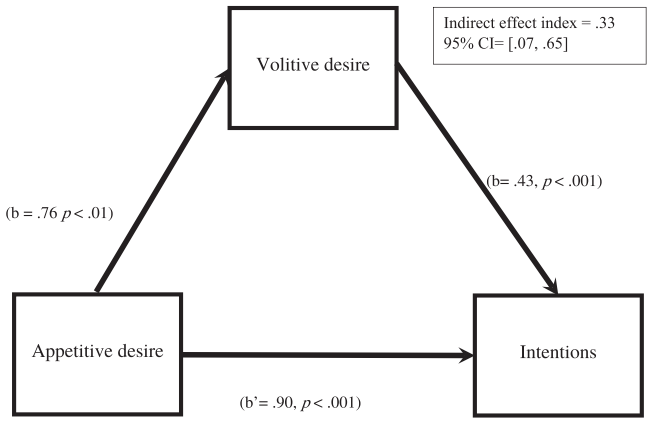

FIGURE 5 Study 2: Statistical mediation model

Study 3 uses only the sweater purchase context to enable generalization of appetitive desire effects beyond food craving situations.

6.1 | Method

One hundred sixteen U.S. residents recruited from Amazon Mechanical Turk (age range: 19–73; male = 62%) were randomly assigned to one of four conditions in a 2 (appetitive desire: low vs. high) × 2 (volitive desire: low vs. high) between-subjects design web study. The procedure was identical to that used in the sweater purchase context in Study 2 except that after reading the low or high appetitive desire scenario description the next screen provided participants with a scenario description designed to evoke low or high volitive desire based on the rationality of wanting to purchase the sweater based on the functionality of the sweater (e.g., warmth) and the affordability of the price based on the protagonist's budget. Participants in the low volitive desire condition read that: "The sweater doesn't feel very warm and, even with the price discount from the store sale, the price is outside of [*Name*]'s spending budget." Participants in the high volitive desire condition read: "The sweater feels warm and, because of the sale, it has a significant price discount. So, it fits within [*Name*]'s spending budget." Next, participants completed the same measures of action intentions, appetitive desire, and volitive desire used in Study 2. Appetitive desire was measured last as a manipulation check.

6.2 | Results

6.2.1 | Manipulation checks

A 2 × 2 factorial ANCOVA on the appetitive desire ratings controlling for participant gender showed significant main effects of appetitive desire level ($F(1, 111) = 13.15$, $p < 0.001$) and volitive desire level ($F(1, 111) = 9.49$, $p < 0.01$). No other effects were statistically significant. As expected, appetitive desire ratings were greater in the high appetitive desire level ($M = 4.87$, $SD = 1.46$) than in the low appetitive desire level ($M = 3.87$, $SD = 1.48$), indicating the effectiveness of the independent variable manipulation. Interestingly, appetitive desire ratings were also generally significantly greater in the high volitive desire level ($M = 4.79$, $SD = 1.50$) than in the low volitive desire level ($M = 3.95$, $SD = 1.46$). Nonetheless, in the high volitive desire condition appetitive desire ratings were significantly greater in the high appetitive desire condition ($M = 5.20$, $SD = 1.47$) than in the low appetitive desire condition ($M = 4.39$, $SD = 1.47$). However, the mean appetitive desire rating in the low appetitive desire level ($M = 4.39$, $SD = 1.47$) is high (significantly above the scale neutral point of 4; $t(39) = 1.67$, $p < 0.05$).

A 2 × 2 ANCOVA on the volitive desire ratings controlling for participant gender showed significant main effects of volitive desire level ($F(1, 111) = 5.92$, $p < 0.05$) and appetitive desire level ($F(1, 111) = 5.06$, $p < 0.05$). No other effects were statistically significant. As expected, volitive desire ratings were greater in the high volitive desire level ($M = 4.64$, $SD = 1.57$) than in the low volitive desire level ($M = 3.94$, $SD = 1.52$), which indicates that the mediator manipulation was effective. Further, volitive desire ratings were also greater in the high appetitive desire level ($M = 4.61$, $SD = 1.53$) than in the low appetitive desire level ($M = 3.97$, $SD = 1.55$).

6.2.2 | Intentions

The results of a 2 × 2 ANCOVA, controlling for participant gender, revealed statistically significant main effects of appetitive desire level ($F(1, 111) = 9.35$, $p < 0.01$) and volitive desire level ($F(1, 111) = 27.18$, $p < 0.001$), as well as their statistically significant interaction effect ($F(1, 111) = 4.12$, $p < 0.05$; see Table 7, Panel A). The effect of participant gender was nonsignificant ($F(1, 111) = 0.03$, $p > 0.8$). The main effect of appetitive desire level demonstrates that, overall, high appetitive desire ($M = 5.54$, $SD = 1.50$) results in greater intentions than low appetitive desire ($M = 4.68$, $SD = 1.52$), The main effect of volitive desire shows that high volitive desire ($M = 5.85$, $SD = 1.53$) results in greater action intentions than low volitive desire ($M = 4.37$, $SD = 1.49$). These results reveal the causal effect of both appetitive desire level and volitive desire level on action intention strength (see Table 7, Panel B).

Next, we examine the interaction between the independent variable and mediator to make inferences about the mediation relationship (see interaction graph in Figure 6). The pattern of findings demonstrate that the strongest action intentions occur in the high appetitive desire/high volitive desire condition ($M = 5.99$, $SD = 1.51$) and the weakest action intentions occur in the low appetitive desire/low volitive desire condition ($M = 3.65$, $SD = 1.49$; $t(49) = 5.59$, $p < 0.05$). In these conditions, the levels of appetitive desire correspond with the appropriate levels of volitive desire that would jointly arise in the causal chain where greater (lower) appetitive desire results in greater (lower) volitive desire, which results in greater (lower) intentions. Furthermore, in the low volitive desire condition, the high appetitive desire level results in greater action intentions ($M = 5.09$,

TABLE 7 Study 3: Tests of between-subjects effects on intention ratings

Panel A Dependent variable: Intention ratings				
Source	***df***	***F***	**Sig.**	**Type III sum of squares**
Corrected model	4	10.06	0.001	89.56
Intercept	1	157.18	0.001	349.70
Gender	1	0.03	0.865	0.06
Appetitive level (AL)	1	9.35	0.003	20.80
Volitive level (VL)	1	27.18	0.001	60.46
AL × VL	1	4.12	0.045	9.17
Error	111			246.95
Total	116			3409.00
Corrected total	115			336.51

Panel B Study 3: Intention estimates Dependent variable: Intentions			
Condition	**Mean**	***SD***	***N***
Low appetitive desire	4.68[a]	1.52	66
High appetitive desire	5.54[a]	1.50	50
Low volitive desire	4.37[a]	1.49	53
High volitive desire	5.85[a]	1.53	63
Dependent variable: Intentions	**Mean**	***SD***	**Cell size**
Low appetitive desire			
Low volitive desire	3.65[a]	1.49	27
High volitive desire	5.70[a]	1.49	26
High appetitive desire			
Low volititve desire	5.09[a]	1.52	40
High volitive desire	5.99[a]	1.51	24

Note: $R^2 = 0.27$ (adjusted $R^2 = 0.24$).

[a]Covariates appearing in the model are evaluated at the following values: Gender: = 1.33.

SD = 1.49) than the low appetitive desire level ($M = 3.65$, $SD = 1.49$; $F(1, 111) = 12.40$, $p < 0.001$). Conversely, in the high volitive desire condition there is no statistically significant difference between the low versus high appetitive desire levels ($M_{Low} = 5.70$, $SD = 1.52$; $M_{High} = 5.99$, $SD = 1.51$; $F(1, 111) = 0.53$, $p > 0.4$).

6.2.3 | Discussion

Consistent with the appetitive desire-as-antecedent account of the causal chain leading to action intention formation, this study shows that the manipulated independent variable (appetitive desire) positively influenced the dependent variable (intentions) and that the manipulated mediator (volitive desire) positively influenced the dependent variable (intentions). Taken together, these findings provide convergent evidence of both paths of the causal chain under inquiry following a concurrent double randomization approach to experimental mediation (Pirlott & MacKinnon, 2016). Furthermore, the moderation-of-process design used in this study resulted in an interaction of appetitive desire level and volitive desire in which action intentions were strongest in the high appetitive/high volitive desire condition, whereas the weakest intentions were in the low appetitive/low volitive desire, corresponding to the proposed causal chain of high (low) appetitive desire→ high (low) volitive desire→ high (low) action intentions. Moreover, in the low volitive desire condition action intentions were greater when appetitive desire was high versus low, which suggests that appetitive desire is contributing reasons for acting beyond just the weak rational considerations (the sweater's lack warmth and lack of affordability) presented in the vignette. Intention ratings did not differ significantly between the low versus high appetitive desire levels within the high volitive desire condition. This may be due to the fact that, overall, the appetitive desire ratings were higher in the high volitive desire condition relative to the low volitive desire condition. As a result, intentions were high (significantly above the scale neutral point of 4) even in the low appetitive desire level ($M = 5.70$, $SD = 1.52$; $t(39) = 7.07$, $p < 0.001$). It is likely that appetitive desire, which is high (above neutral) in the low appetitive desire level contributed appetitive reasons to volitive desire, thereby boosting intentions in the low appetitive desire/high volitive desire cell to a similarly high level as high appetitive desire/high volitive desire cell.

7 | GENERAL DISCUSSION

Our research contributes to the growing literature about the role of desire as the motivational antecedent of intentions toward goal-directed behavior. Prior research supports the notion that consumer desire comprises the motivation to enact specific goal-directed actions and thus, plays a central role in understanding intention formation. The importance of desire as the motivational antecedent to intentions is established in the social psychology literature in the MGB (Perugini & Bagozzi, 2001, 2004) and, recently, in the TRGP (Ajzen & Kruglanski, 2019; Kruglanski et al., 2015, 2018). Although these research streams shed light on the role of desire in motivating goal-directed action intentions, the MGB and TRGP focuses on the role of volitive desire as the most proximal predictor of action intentions (Perugini & Conner, 2000), overlooking the important, positive motivational influence of appetitive desire (Davis 1984b, 1984a). The goal of this study was to shed light on the positive influence of appetitive desire in goal-directed action intentions.

Our theoretical framework builds on the philosophy of action perspective to test the antecedent role of appetitive desire in the causal chain leading to goal-directed action intentions. In line with

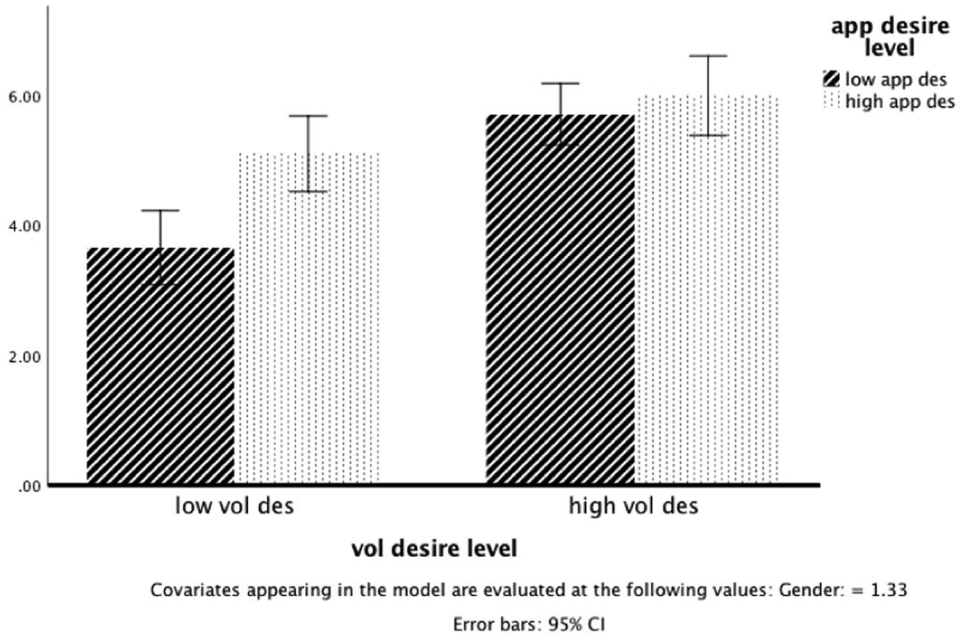

FIGURE 6 Study 3: Appetitive desire × volitive desire interaction effect on intentions

this theoretical foundation, our three studies systematically demonstrate that greater (vs. lesser) appetitive desire results in greater (vs. lesser) volitive desire, which in turn produces stronger (vs. weaker) action intentions. Although extensive consumer and psychology research examines the motivational impact of appetitive desires such as cravings, these studies assume that appetitive desire is a barrier for consumer pursuit of instrumental goals such as healthy eating. To the authors' knowledge, the present research is the first to demonstrate a goal-directed role of appetitive desire in an instrumental (non-hedonic) target goal context. Even recent research that examines affect- and reason-based motivation in the context of helping behavior regards appetitive desire as a positive influence but still as a potential hindrance to the enactment of helping (i.e., charitable donation) when such desire is weak or absent (Kossowska et al., 2020). The authors propose that low appetitive desire ("want") can be overcome by expectancy-based motivation regarding the perceived effectiveness of providing help given that perceiving something as attainable increases its (affect-based) desirability. While Kossowska et al. (2020) demonstrate that in some cases expectancy-based motivation can compensate for weak appetitive motivation, our framework points to a positive influence of appetitive desire on a broader type of reason-based motivation, volitive desire, which subsumes expectancy-based motivation and directly impacts action intentions.

7.1 | Theoretical contributions

Taken together, we believe this research presents several contributions to the literature on goals, motivation, and intention formation. First, our findings increase the understanding of goal-directed action intention formation by exploring the potentially beneficial role of appetitive desire in increasing the strength of action intentions engendered by an individual's volitive desire. Although prior research on self-control over temptations accentuates the negative role of appetitive desires in potentially derailing an individual's goal progress (Dholakia, 2000; Hofmann et al., 2012), we have shown that appetitive desire is not solely directed at motivating a person's intention formation toward temptations but that it can also help volitive desire motivate intentions toward actions that are congruent with a person's current, active goals, such as participants' self-reported short term goals (Study 1), eating a healthy meal (Study 2), and purchasing clothing for an instrumental goal (Studies 2 and 3). Thus, there is a potential self-regulatory role for appetitive desire in boosting motivation to form intentions toward volitively desired goal-consistent actions, which mirrors the self-regulatory function of volitive desire when it lowers intentions toward enacting goal-conflictive appetitive desires or impulses (Dholakia, 2000). In fact, when appetitive desire serves to boost volitive desire, which in turn strengthens goal-directed action intentions, it is potentially a more powerful self-regulatory ally compared to when volitive desire serves to decrease intentions toward appetitively desired goal-dissonant actions. This is due to the fact that appetitive desires arise automatically and reflect what the individual experiences as latently pleasurable, and as such they can provide strong reasons to volitive desire for motivating goal-directed action. Furthermore, research on visceral cross-domain effects of appetitive stimuli suggest that appetitive desire triggered in one domain increases appetitive desire toward appetitive stimuli in other domains (Otterbring, 2020). This effect may generalize to volitive desire-boosting effects, such that when an appetitively desired goal-directed action results in greater volitive desire in one goal domain, the likelihood of appetitively desiring to enact goal-directed actions in other goal domains increases. Future research should

explore this possibility. On the other hand, volitive desire lacks power to decrease strength of appetitive desire and thus, requires additional volitional resources, which are limited (Baumeister et al., 2000), to generate self-control tactics such as avoiding the temptation, approaching one's goal, or unspecific postponement of indulging (Dholakia et al., 2006; Mead & Patrick, 2016). Additionally, focusing on the appetitively desired aspects of a goal-directed action can complement either a promotion-focused or prevention-focused self-regulatory approach given that the individual can focus either on approaching the appealing aspects of the action (promotion focus) or on avoiding losing out on an appealing experience (prevention focus) (Higgins, 2002).

Second, our research contributes to a deeper understanding of the nature of volitive desire, which is recognized in prior research as a direct antecedent of action intentions (Ajzen & Kruglanski, 2019; Perugini & Bagozzi, 2001, 2004). The reasoned action perspective construes volitive desire as mainly a rationality-driven type of motivation. Deliberately processed reasons, or "cold" cognitions about the goal means, such as expectancy of attainability or success are the presumed source of the volitional drive toward action intentions (Ajzen & Kruglanski, 2019; Bagozzi et al., 2003). However, our findings support a more complex nature of volitive desire as a willful motivation to act on deliberated, instrumental reasons and/or appetitive reasons. This expanded view of the volitive desire construct is consistent with psychology and consumer research on the purposeful use of integral feelings toward an object as input while deliberating about the object (Clore et al., 2001; Pham et al., 2001). In certain contexts where appetitive motives are a diagnostic input, such as in consumer behaviors involving aesthetics or hedonically salient products or actions (Chitturi et al., 2008), volitive desire carries the effect of both deliberated and affective considerations onto intention formation. This notion is consistent with the evolutionary perspective that the same appetitive visual product cues inform consumers' assessments of a food's tastiness and healthiness (Kunz et al., 2020), which further accentuates the potentially instrumental role of appetitive desire in consumer goal pursuit.

Third, our findings concerning the role of appetitive desire also inform the relationship between affective processes and motivation. Research on automatic evaluation in goal pursuit suggests that people automatically evaluate the desirability or undesirability of objects, which facilitates reward-seeking and danger-avoidance as general goals (Ferguson & Bargh, 2004). Furthermore, psychology theorists assert that valence information is part of one's mental goal representation (Carver & Scheier, 1981; Young, 1961). This means that goal representations not only specify the state that is desired, but also include affective and evaluative perceptions of such a state. Custers and Aarts' (2005) found that individuals experienced greater motivation toward goal-directed behaviors that are associated with positive affect. The positive affect imbued in the mental representation of the action stimulates an automatic affective evaluation that manifests as desire motivation. Similarly, Shiv and Fedorikhin (1999) found that when cognitive resources were constrained, participants relied more on affect-based motives for choosing a more versus less indulgent snack option. These findings suggestively support the notion that automatic evaluations, which encapsulate latent affective perceptions and evaluations of liking or disliking, can exert automatic motivational influence on a person's behavioral intentions toward goal-consistent actions as appetitive desire. Given the affective-basis of appetitive desire, this type of desire may promote goal progress by bolstering the effect of volitive desire on goal-directed action intentions especially in circumstances when affective responses are most influential such as when utilitarian criteria is unavailable (Yeung & Wyer, 2004) when cognitive resources are constrained (Shiv & Fedorikhin, 1999), or when an individual's self-regulatory orientation is promotion-focused (Cesario et al., 2004). Regarding the latter circumstance, prior research shows that promotion focused individuals experience stronger appetitive desire than prevention focused individual when faced with a food temptation (goal-incongruent action) (Dholakia et al., 2006). Thus, it is possible that when considering a goal-congruent action, promotion focused individuals should be able to leverage the appetitive desire experienced toward the action, making them likely to form stronger intentions toward high appetitive desire/high volitive desire goal actions. Conversely, volitive desire should bear greater influence on the action intentions of prevention focused individuals. Future research should explore this possibility.

7.2 | Consumer and social marketing implications

Consumer goal pursuit is an important topic for consumers and society. It is advantageous for consumers to form intentions toward actions that benefit their well-being. For example, obesity is a prevalent problem among US children and adults that can be overcome by improving eating and exercise habits (Hales et al., 2017). However, volitively desirable actions at times are less appetitively desirable, such as eating a salad instead of pizza for lunch. Consumers can leverage the ability of appetitive desire to bolster the effect of volitive desire on intentions by forming implementation intentions for such situations (Sheeran et al., 2005). For example, if a volitively desirable food option, such as salad, seems unappetizing, then the consumer can implement the intention to add appetitive elements to the food item, such as sliced apples and walnuts, or to the meal, such as low-calorie sweet tea or a yogurt with berries. Another challenge to healthy eating arises when consumers encounter a highly appetitive food that is not volitively desirable, such as the temptation to eat a decadent dessert after a meal. In this situation also, consumers can benefit from implementation intentions formed beforehand, such as to carry a healthy, sweet treat in one's pocket to eat instead of eating an unhealthy option. This provides an alternate goal means for enjoying a sweet treat in which appetitive desire complements the deliberated health reasons for eating the healthy alternative, which are jointly energized by volitive desire into action intentions.

Social marketing ads can also help to shape consumers' appetitive perceptions of healthy foods by vivid imagery and classical conditioning. Research shows that visually appealing vivid imagery

arouses stronger integral affective responses (Shiv & Fedorikhin, 1999). Ads that present healthy foods such as fruits, vegetables, and lean meats with vivid, consummatory imagery would help to increase consumers' appetitive perceptions of such healthy foods. Ads should further promote the visual appeal and appetitiveness of the healthy foods depicted as appetitive reasons to eat healthy ("There are many ***appetizing*** reasons to eat healthy"). Doing so can help consumers strengthen their volitive desire with appetitive reasons to act and, in turn, increase intentions to eat healthy. Ads could also pair healthy food options with other appetitive images to condition consumers to perceive certain healthy foods (fruits, lean meats, whole grains) as appealing (Kim et al., 1998). In this manner, appetitive desire will spontaneously arise toward these healthy options and positively influence action intentions through volitive desire.

7.3 | Limitations and future research

This research has some limitations that raise fruitful questions for future research inquiry. First, our conceptualization and operationalization of appetitive desire consists of affective elements such as perceived pleasure and appeal toward an action, but this does not rule out the potential influence of other affective states including arousal or anticipatory emotions such as hope or fear. Baumgartner et al. (2008) found a significant effects of negative anticipatory emotions (worried, anxious, and uncomfortable), but not of positive anticipatory emotions (optimistic and confident) on action intentions. It is possible that contextual factors such as loss versus gain framing or individual inclinations toward promotion or prevention focus may determine the type of affective response to a stimulus that most strongly influences a person's appetitive desire. In loss framing or prevention focus cases, consideration of negative affective responses, and hence, negative appetitive desire (appetitive aversion) toward the stimulus may receive greater weight in terms of providing reasons to avoid the stimulus, which are energized by volitive desire to avoid the stimulus. For a negative affect-driven volitive desire account to be established, more research is needed to examine how negative anticipatory emotions affect action intention formation under loss versus gain framing and promotion versus prevention focus.

Second, our studies examine the influence of appetitive desire and volitive desire on intentions toward goal-directed actions involving functional considerations, but directed toward stimuli with salient hedonic characteristics. Actions involving hedonic stimuli may be more conducive than actions involving instrumental stimuli for stimulating strong appetitive desires based in the perceived pleasurable aspects of the action. The extent to which hedonic versus utilitarian dimension of product attributes and benefits are more salient depends on various factors, such as the type of product and consumer perception. For example, intentions toward actions such as eating a healthy salad for lunch and purchasing an attractive sweater to wear at a party are partly determined by pleasure-related responses toward the perceived taste of a food or perceived aesthetics of an article of clothing as well as utilitarian consideration of nutrition and function. In these examples involving food and fashion the hedonic dimensions of product acquisition and usage are salient. Pleasure-seeking is a chronic goal associated with food consumption-related and aesthetic domains of consumption (e.g., Chitturi et al., 2008; Kivetz & Zheng, 2017). In these types of contexts, the consumer's hedonic responses are energized by appetitive desire, which provide reasons for acting that increase volitive desire and, hence, action intentions. However, if the functionality of a product is more salient than its hedonics, such as using an electric toothbrush for dental hygiene, then it is less likely that appetitive desire would provide reasons *for* volitive desire in this context. This type of instrumental action that is not associated with experiential motives is unlikely to instantiate appetitive desire-based reasons for engaging in the action, resulting in greater cognitive, reason-based influence (vs. appetitive influence) on action intentions. Future research should explore this possibility by observing the differential influence of appetitive desire and volitive desire on action intentions toward primarily hedonic versus primarily instrumental goal-directed actions.

Third, this research focuses on predicting intentions toward individual goal-directed actions in isolation, without examining the effect of competing alternatives. According to goal systems theory, a goal can be served by several substitutable means (Kruglanski et al., 2002). Therefore, it is plausible that consumers contemplate multiple actions as goal means when forming intentions. These goal means most likely will differ in the extent of appetitive desire and volitive desire the consumer experiences toward each one. Therefore, the initial goal means being considered may serve to anchor the consumer's appetitive and volitive desire levels and could potentially bias consumer desire toward subsequent goal means under consideration (Mussweiler & Strack, 1999). Further research might compare appetitive desire, volitive desire, and intentions toward a goal means set anchored by a high appetitive desire/low volitive desire action versus a set anchored by a low appetitive desire/high volitive desire action as well as high/high and low/low combinations to determine the extent to which a biasing effect arises.

Last, Studies 2 and 3 implement an experimental mediation approach that triangulate the findings of Study 1, which uses a measurement-of-mediation design. In Study 2 we manipulate appetitive desire and measure the effect on volitive desire which is allowed to vary freely, whereas in Study 3 we manipulate both appetitive desire and volitive desire. However, logical reason-derived volitive desire is the focus of both of these studies. For instance, the volitive desire measure in Study 2 emphasizes that the protagonist desires to perform the action because "it is rational to want it." The volitive desire manipulations in Study 3 emphasize the rationality of the purchase decision based on the instrumental considerations of the sweater's warmth and affordability. This emphasis on rationality-driven volitive desire, to the exclusion of appetitive reason-driven volitive desire, although it disentangles the two sources of volitive desire, presents an incomplete picture of the dynamics of the causal chain of desire-driven action intention formation. In Study 2, the volitive desire measure is assumed to capture the appetitive reason-driven motivation in the item that refers to the desire to perform the action because the protagonist "has reason(s) to do so." However, future studies should

explicitly measure the appetitive as well as the rational sources of volitive desire. Likewise, future experimental studies should differentially manipulate appetitive reason-based volitive desire and rationality-based volitive desire. Doing so may allow closer examination of the impact of appetitive desire on intentions through volitive desire.

DATA AVAILABILITY STATEMENT

Research data are not shared. The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

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AUTHOR CONTRIBUTIONS

The first author collected the Study 1 data as part of the author's dissertation in Spring 2006 via a Questionpro web survey. The first author collected data for Studies 2 and 3 via Qualtrics surveys through Amazon Mechanical Turk in Summer 2021. The first author conducted statistical analyses for all studies.

ORCID

Alexandra Aguirre-Rodriguez http://orcid.org/0000-0002-4029-6550

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