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Consumption Habits in Revenge-Buying: A Conceptual Model Integrating Protection Motivation Theory and the Concept of Attitudes

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Abstract: Upon lifting lockdown measures, pent-up consumer demand resulted in a phenomenon known as "revenge-buying" that was influenced by cognitive and habitual factors. This study collected 629 samples from Beijing consumers using straightforward online random sampling methods, ensuring the sample's representativeness. Structural equation modeling was employed to investigate the impact of cognitive factors on revenge-buying after lockdowns and explain this phenomenon from the consumers' habitual behavior perspective. Specifically, we developed a novel model that incorporates insights from the concept of attitudes and habits literature within the framework of the protection motivation theory to address this research question. The results reveal that habit significantly affects all cognitive factors, except response cost. Cognitive factors such as perceived severity, perceived vulnerability, response efficacy, self-efficacy, and response cost all play a role in shaping consumers' attitudes and driving revenge-buying behavior. Furthermore, consumers' habits contribute significantly to their likelihood of revenge-buying. This study provides empirical evidence for revenge-buying, and the proposed theoretical model offers a more complete understanding of the cognitive factors and habits that drive this behavior. These findings can help businesses to attract consumers, improve satisfaction, and better compete in the context of revenge-buying, ultimately benefiting both consumers and businesses involved in this behavior.

Keywords: revenge-buying; cognitive factor; lockdown; habit; protection motivation theory; attitude

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1. Introduction

Johns Hopkins University declared that effective from 10 March 2023, it had stopped collecting and reporting data related to the new coronavirus pandemic. This announcement suggests that this once-global health crisis has, at least temporarily, subsided. In addition, as the global pandemic situation has improved, many countries have gradually lifted their mask mandates, indicating a relaxation of epidemic prevention, and control policies have been relaxed. The mandatory closure of cities is also now a thing of the past, and individuals are no longer restricted in their ability to purchase whatever they desire to satisfy their pent-up needs, and cities are no longer required to be shut down. As a result, the consumer economy has been resurgent. Revenge-buying is defined in the existing literature as engaging in the consumption of discrete goods after the relaxation of COVID-19 restrictions, to alleviate negative emotions caused by the lockdown [1]. Anxiety heightened by the risk perception of COVID-19 may influence an individual's post-COVID-19 consumption behavior, thereby affecting their propensity to engage in revenge-buying as a coping mechanism [2]. Therefore, revenge-buying may be viewed as an atypical consumption behavior resulting from external environmental factors and deliberate thought [3].

In contrast to the splurge on luxury goods observed during the pandemic, post-pandemic revenge-buying has now spread across multiple countries (China, India, Germany, Italy, and the United Kingdom) and multiple sectors (retail, travel, and luxury) [4,5].

Recent research studies have focused on the psychological and behavioral impacts of the pandemic and city closures on consumers [3]. The goal of these studies is to obtain insights into consumer reactions during and after the pandemic and to better prepare for any future health crises that may occur [6]. Reference [7] have identified revenge-buying as a consumer consumption behavior that is closely related to their psychology that can alleviate depression and help individuals to feel like their lives have returned to normal.

Due to the novelty of the concept of revenge-buying within the realm of economic literature, further theoretical and empirical research is required. Indeed, despite the significance of comprehending revenge-buying, the literature in this domain remains limited. It is crucial to gain a deeper understanding of the underlying motivations driving this behavior. Existing studies on revenge-buying focus mainly on emotional factors, such as fear, pain, and anxiety, and previous research has predominantly examined revenge-buying as an emotional response [1,4]. However, very few existing studies investigate only emotional and psychological factors, ignoring the crucial role of cognitive factors in behavioral intention. In addition, existing research disregards the impact of consumers' past consumption habits (impulsive/planned) on revenge-buying behavior. Prior research in the field of consumer behavior has demonstrated that current consumption behavior/intention is a result of past practices [8–11]. However, research on habit-based revenge-buying behavior in the context of revenge-buying is limited.

To address gaps in the existing research, this study incorporates the concept of attitude to better understand consumers' attitudes and opinions regarding revenge behavior. According to the concept of attitudes, behavioral intention is influenced by individuals' attitudes toward the behavior and their perceptions of the surrounding context [12]. Attitudes are shaped by beliefs about the behavior and evaluations of its outcomes [13]. The primary objective of introducing the key variable—attitude—is to investigate behavior by examining the potential underlying motivations behind individual actions [12,14,15]. Additionally, while emotions can quickly trigger immediate behavioral responses, cognitive factors often determine the long-term sustainability of behavior. Cognitive factors also provide a deeper decision-making basis, making the research findings more broadly applicable [4]. Therefore, this study introduces the protection motivation theory (PMT) to offer a profound cognitive perspective on revenge-buying. Lockdown measures during the pandemic may have heightened feelings of anxiety and helplessness, leading individuals to engage in excessive consumption to regain a sense of control over their lives [7]. The "threat appraisal" framework of PMT allows for a systematic analysis of how consumers perceive the severity of health crises and how this perception drives them to take mitigation measures, such as engaging in consumption behaviors to restore their sense of control [16]. Additionally, PMT's coping appraisal provides a cognitive framework for understanding consumer decision-making in revenge-buying. Consumers may perceive their consumption behavior as an effective means to restore normalcy, believing that revenge-buying can alleviate the negative emotions and psychological stress caused by the pandemic [17–19]. However, the theories of PMT and the concept of attitudes have traditionally neglected examining consumer habits. As a result, we have implemented the habits to investigate how consumers' past consumption habits influence their behavioral intentions.

Specifically, this study incorporates the concept of consumption habits to examine how consumers' past consumption behaviors influence their future actions. Individuals often draw on past experiences when engaging in new tasks. As Reference [10] demonstrate, there is a widely accepted belief that past behavior predicts future conduct. This is often attributed to the powerful influence of habits, which can significantly drive behavior [20].

This study aims to contribute to the investigation of the influence of habitual behavior and cognitive attitudes on post-lockdown revenge-buying behavior by enhancing the existing body of literature. The primary research question is how habits and various cognitive factors influence revenge-buying behavior by affecting attitudes. A new model is developed by integrating the concepts of attitude and habit within the framework of PMT to address the research question. This study employs PMT as a stimulus variable to

induce consumer revenge-buying behavior. The stimulus factors derived from PMT and the interaction between habit and attitude explain the origins of revenge-buying behavior.

This study makes several contributions. First, this study marks the inaugural exploration of consumer retaliatory purchasing behavior from the vantage points of consumer habits and perceptions. It examines the impact of consumer perceptions and habits on retaliatory purchases. Moreover, by integrating multiple theories, this study offers a novel and comprehensive perspective on retaliatory purchasing behavior. In conclusion, this study provides empirical evidence for revenge-buying following social isolation. The findings provide consumers and retailers with management insights for preparing for revenge purchasing in future social crises.

2. Literature Review

2.1. Revenge-Buying

At the onset of the coronavirus pandemic in 2020 and 2021, many countries witnessed a surge in revenge-buying, where consumers rushed to purchase goods and services after being in lockdown, as the demand for essential items increased globally [21]. Revenge-buying is an atypical consumption behavior triggered by external environmental factors and reflective thought, which motivates individuals to internalize these factors through consumption. Unlike general abnormal buying behaviors, revenge consumption is particularly a post-pandemic phenomenon, often emerging after the lifting of social isolation measures [5]. During the pandemic, governments imposed strict lockdown policies, significantly limiting consumer spending. However, once these restrictions were lifted, pent-up consumer demand led to revenge-buying [1,3]. This behavior mirrors the panic buying of essential items witnessed during the pandemic, where, despite assurances from retailers and producers of sufficient supplies, consumers were willing to pay higher prices to meet their needs. According to reference [21], revenge-buying is a cognitive behavior that offers additional utility to consumers. As a relatively new concept in the economic literature, its effects on social welfare—both theoretical and empirical—remain largely unexplored. Given the limited literature on revenge-buying behavior, it is critical to understand the underlying motives driving this phenomenon.

During the pandemic, social isolation and lockdown policies led to widespread panic buying and compulsive shopping, contributing to increased negative emotions such as anxiety, depression, loneliness, and anger, which in turn spurred revenge-buying [1,3]. Reference [6] explored revenge-buying through a psychological lens, applying the perception and personal emotions, which integrates both cognitive and habitual factors, alongside the Stimulus–Organism–Response (SOR) framework. Reference [1] analyzed the impact of five negative emotions—anxiety, fear, depression, anger, and boredom—on purchasing behavior, drawing on retail therapy and terror management theory. Reference [4] utilized the Reactance Theory and Self-Determination Theory to examine the psychological reactions and perceived pressure from the frustration of autonomy needs caused by COVID-19, which influenced consumers' revenge-buying intentions. Additionally, reference [22] adopted a phenomenological approach to explore post-pandemic travel behavior, shedding light on the psychological motivations behind revenge travel, and providing valuable insight into consumer behavior during a period of constraint and restraint.

Previous studies have applied consumer motivation theory to explain how individuals engaging in revenge-buying do so as a coping mechanism to alleviate sadness and restore a sense of normalcy [7]. This behavior, resulting in internalized consumption habits, is often triggered by external stimuli and introspection. The literature shows that key triggers for revenge-buying include emotions such as depression, anger, fear, and anxiety [1]. Additionally, policy measures like lockdowns and quarantines implemented during the COVID-19 pandemic have also contributed to this behavior [23]. Importantly, prior research has linked emotional relief, perceived stress, and psychological responses as precursors to revenge-buying [1,4]. However, this emphasis on emotional factors has led to the neglect of cognitive influences on consumer behavior.

Consumers are cognitive decision-makers who base their purchasing decisions on a combination of interests and preferences [24]. Emotional and attitudinal factors are not always the primary drivers of consumption decisions; often, these choices stem from cognitive calculations. As described by reference [25], human cognition operates in both reflective (deliberative) and automatic (intuitive) modes. Despite this, current research disproportionately focuses on emotional factors, examining revenge-buying mainly as a response to negative emotions [1,4]. Since consumers embody both cognitive and emotional dimensions, it is critical to explore how cognitive elements, in addition to emotional regulation, shape consumer behavior.

To address this gap in the literature, this study applies cognitive theories such as PMT, attitudes, and habits to provide a more comprehensive analysis of revenge-buying behavior, including cognitive influences. The PMT framework is considered a prerequisite for consumer engagement in protective behavior [26]. PMT explains how protective motivation factors influence behavioral changes, such as the shift toward health-centered behavior, mindful consumption, and local shopping [27]. The cognitive processes underlying decisions to adopt protective behaviors are shaped by threat assessment—comprising perceived vulnerability, threat severity, and maladaptive rewards—and coping assessment, which includes response efficacy (REF), self-efficacy (SEF), and response cost (RCO).

2.2. Consumption Habits in Revenge-Buying

Habits are defined as behaviors that individuals typically engage in when they find them pleasurable, leading to repeated actions [28]. Research has demonstrated that the strength of a habit lies in the regularity with which individuals perform certain behaviors. Once a habit becomes ingrained, people often disregard external information or engage in less cognitive comparison when making decisions. Habits frequently form because individuals perceive these habitual behaviors as consistent with their personal cognitions, societal norms, or as socially acceptable actions. During lockdown periods, new habits may have developed as a result of individuals' cognitive perceptions shaped by internal subjective norms and external societal pressures. Repeated engagement in certain behaviors may occur because individuals perceive that either societal or personal norms dictate these actions. In this sense, habitual behavior can be seen as a response to and manifestation of subjective societal or personal norms. Existing research on information system adoption and technology acceptance has established a direct link between habit and both behavior and behavioral intention [9–11].

Existing research has also indicated that the determinants of purchase intention are influenced by shopping habits. Specifically, habit is a learned behavior shaped by experience, and it directly affects the intention to make repeat purchases [8,29]. Reference [29] further confirmed that habit significantly impacts repeat purchase intention, while reference [30] demonstrated that habit can moderate the relationship between prior behavior and future purchase intentions. Despite these findings, limited research has explored the role of habitual behavior in the context of revenge-buying. During the pandemic, individuals likely developed consumption habits while in lockdown, driven by both cognitive perceptions and the constraints imposed by external circumstances. As restrictions were lifted, these established habits likely influenced perceptions of efficacy and response, contributing to revenge-buying behavior. Thus, this study seeks to analyze how the consumption habits formed during lockdown impacted revenge-buying intention and its determinants, such as perceived efficacy and behavioral responses, once restrictions were lifted.

3. Conceptual Framework and Hypothesis

This study uses a theoretical model that integrates PMT, the concept of habit, and attitude to investigate the factors influencing people's revenge-buying behavior, as illustrated in Figure 1. The following sections offer a thorough overview of the adopted theories and the twelve hypotheses proposed in this study.

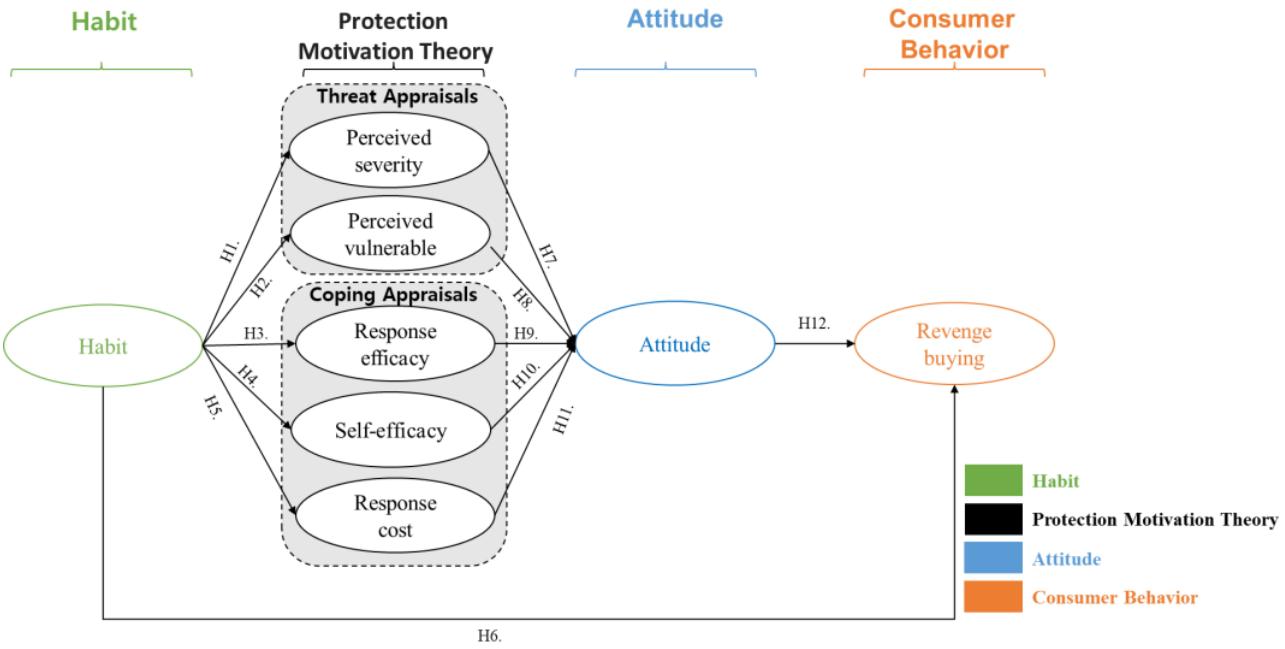


Figure 1. Conceptual framework.

Consumption habits are automated responses formed through long-term repetitive behavior [20]. During the pandemic, lockdowns disrupted normal consumption patterns, leading to changes or reinforcement of habits. Habits not only influence consumers' daily behavior but also affect threat assessments through cognitive variables such as perceived severity (PSE) and perceived vulnerability (PVU) [31,32]. Additionally, these cognitive factors in the PMT model directly influence consumers' attitudes towards revenge-buying. Specifically, the "threat appraisal" framework of PMT systematically analyzes how consumers perceive the severity of health crises, while the coping appraisal component of PMT provides a cognitive framework for understanding consumers' decision-making in revenge-buying. These cognitive evaluations help consumers to assess the intensity of threats and the effectiveness of their coping strategies, shaping their attitudes. Attitudes, as key determinants of behavior/intention, play an important role in predicting revenge-buying. Finally, consumers may use consumption behavior to regain a sense of control over their lives [16]. Especially after the pandemic, consumers employ revenge-buying as a coping mechanism to alleviate psychological stress and uncertainty [7]. Habitual consumption behavior makes consumers more likely to view revenge-buying as a reasonable coping strategy, which further reinforces their purchasing attitudes. This theoretical framework, through the progressive relationships among habits, cognition, attitudes, and revenge-buying, provides a coherent explanation of the psychological and behavioral drivers behind revenge-buying.

3.1. The Relationship between Habit and PMT

Habits, particularly those developed during periods of stress or crisis, can significantly shape how individuals perceive threats. According to PMT, PSE refers to an individual's assessment of the seriousness of a given threat [31,33]. When consumers develop consumption habits during unprecedented situations, such as COVID-19 lockdowns, these behaviors become conditioned responses to the perceived gravity of the situation. As habits form in response to frequent exposure to societal pressures, the consistent repetition of consumption behaviors reinforces the perception of the severity of the threat, such as the potential unavailability of essential goods [32]. On the other hand, habits emphasize the automation of behavior and contextual triggering mechanisms, particularly in the context of behavior changes brought about by the pandemic. For instance, consumers habitually engaged in

bulk purchasing or hoarding during the pandemic likely internalized these behaviors as essential, driven by heightened awareness of potential scarcity and risk. Therefore, the ingrained habit of preparing for perceived threats will amplify the perception of the threat's seriousness. This leads to the following hypothesis:

Hypothesis 1. *Habit positively increases perceived severity.*

PVU is another core construct of PMT, which refers to how susceptible an individual feels to a particular threat [34,35]. Habits formed in response to external stressors, such as social isolation and lockdown, can heighten an individual's awareness of their vulnerability to future threats. During the pandemic, frequent engagement in specific consumption behaviors (e.g., hoarding or panic buying) likely became a habitual response to the uncertainty of availability. This habitual consumption serves as an adaptive mechanism in which consumers perceive themselves as vulnerable, constantly preparing for potential scarcity [36]. The more entrenched the habit becomes, the stronger the individual's perception of vulnerability, as habitual behavior often reflects the perceived need for ongoing protection or risk mitigation. Consequently, we propose that habitual consumption positively influences PVU.

Hypothesis 2. *Habit positively increases perceived vulnerability.*

REF refers to an individual's belief that the recommended behavioral response effectively mitigates a threat [34,35]. When habits are developed in response to threat perceptions, consumers may believe that their habitual actions, such as purchasing specific products or engaging in protective behaviors, effectively shield them from the perceived threat. During COVID-19, habitual bulk purchasing or reliance on online shopping provided consumers with a sense of control and security, reinforcing the belief that these behaviors are effective responses to the perceived risk of scarcity or isolation. Research on habitual behavior suggests that once habits are formed, they are perceived as effective because they provide psychological reassurance [20]. Thus, habit formation positively correlates with an increase in perceived response efficacy.

Hypothesis 3. *Habit positively increases response efficacy.*

SEF refers to the belief in one's ability to perform a behavior that mitigates a threat [35]. Habits, being automatic behaviors that develop over time through repetition, can increase an individual's confidence in their ability to cope with similar threats in the future. During the pandemic, consumers may have developed habitual behaviors such as consistently stocking up on essential goods or shifting to digital platforms for shopping. Regularly practicing these behaviors reinforces the individual's belief in their competence to handle future disruptions [35]. As a result, these habitual responses strengthen perceived SEF, as consumers feel more adept at managing adverse conditions [37]. This leads us to hypothesize that habits positively influence SEF in the context of revenge-buying.

Hypothesis 4. *Habit positively increases self-efficacy.*

RCO refers to the perceived barriers or costs associated with performing a behavior [31,35]. While habits generally facilitate behavior by reducing cognitive effort, habitual behaviors can also lead to an increase in perceived RCO, particularly if the behavior is resource-intensive or inconvenient over time. For instance, during the pandemic, consumers may have engaged in excessive online shopping or bulk purchasing, which required considerable financial expenditure and effort. Although these behaviors were initially perceived as protective, over time, they could also be viewed as costly, both financially and emotionally. As habits become ingrained, individuals may become more aware of the ongoing resources required to maintain these behaviors [35]. Thus, the hypothesis is that habit positively correlates with an increase in perceived RCO.

Hypothesis 5. *Habit positively increases response cost*.

Revenge-buying, which refers to the phenomenon where consumers make up for lost consumption opportunities post-crisis, can be strongly influenced by habitual consumption patterns formed during the crisis. According to habit theory, once consumers establish a habit, they are likely to continue that behavior even when the original stimulus is removed [8,35]. During the pandemic, habitual consumption behaviors such as frequent shopping or hoarding became ingrained as responses to restrictions and scarcity. Once these restrictions are lifted, consumers may engage in revenge buying as a way to compensate for the constrained experiences they previously endured [6]. As habits often operate on an automatic level, they can persist even in the absence of the initial stimulus. This habitual behavior is likely to amplify revenge-buying tendencies, as consumers seek to regain a sense of normalcy and control. Therefore, we hypothesize that habit has a positive influence on revenge-buying.

Hypothesis 6. *Habit positively increases revenge-buying*.

3.2. PMT and Attitude

PSE plays a critical role in shaping consumers' attitudes toward protective behaviors, particularly in the context of significant threats such as social isolation during COVID-19. According to PMT, individuals assess the severity of a threat when deciding whether to adopt protective measures [34,35]. The more severe an individual perceives a threat to be, the more likely they are to develop positive attitudes toward actions that mitigate that threat [38]. In the case of COVID-19-induced lockdowns, consumers who perceive lockdown as a serious threat to their physical, emotional, and economic well-being are likely to form more favorable attitudes toward protective consumption behaviors, such as the increased purchasing of goods that provide a sense of security and control [39]. The perception of the high severity of lockdown consequences triggers cognitive processes that lead consumers to view protective actions, such as revenge-buying, as necessary for mitigating the perceived negative impacts. Thus, we hypothesize that PSE positively influences consumers' attitudes toward such behaviors.

Hypothesis 7. *Perceived severity positively increases attitude*.

PVU refers to an individual's belief in the likelihood of being personally affected by a specific threat, which significantly influences their attitudes and intentions to engage in protective behaviors [34]. Affected by COVID-19 pandemic, PVU manifested as individuals feeling particularly susceptible to the consequences of lockdowns, such as social isolation, scarcity of resources, and disruption of daily life [40]. According to PMT and the concept of attitudes, when individuals perceive themselves as vulnerable to a threat, they are more likely to adopt a favorable attitude toward behaviors that reduce that vulnerability [38]. Consumers who feel vulnerable to the disruptions caused by lockdowns may perceive behaviors such as increased purchasing or hoarding as protective measures that provide a buffer against future uncertainties. As PVU heightens, it strengthens the individual's motivation to adopt protective attitudes, which, in turn, positively influences their behavior. Therefore, we hypothesize that PVU positively impacts consumer attitudes toward protective actions like revenge-buying.

Hypothesis 8. *Perceived vulnerability positively increases attitude*.

REF refers to an individual's belief in the effectiveness of the recommended actions to mitigate or eliminate a threat [38]. In the context of revenge-buying during the pandemic, consumers may perceive revenge-buying as an effective means to regain control over their disrupted lives, reduce emotional stress, or address concerns about future shortages

due to lockdowns [26]. According to PMT, when individuals believe that their actions can significantly reduce the perceived threat, they are more likely to develop positive attitudes toward engaging in those actions [40]. For instance, during COVID-19, consumers who view revenge-buying as an effective coping mechanism for alleviating anxiety or uncertainty will be more inclined to adopt a favorable attitude toward this behavior. Therefore, a higher perception of REF enhances the likelihood that individuals will engage in protective behaviors like revenge-buying, driven by their confidence in the positive outcomes associated with such actions. Based on these considerations, we hypothesize that REF positively influences consumer attitudes toward revenge-buying.

Hypothesis 9. *Response efficacy positively increases attitude.*

SEF refers to an individual's belief in their ability to successfully perform the recommended protective behaviors [34]. In the case of revenge-buying, consumers with a high SEF are more likely to believe they can effectively engage in consumption behaviors that offer a sense of normalcy and control in response to the uncertainties caused by the pandemic [39]. During lockdowns, when social and economic activities were restricted, consumers with strong confidence in their ability to navigate the challenges of the pandemic—by securing essential goods or engaging in retail therapy—were more likely to develop a positive attitude toward revenge-buying. According to PMT, the higher the individual's SEF, the more inclined they are to take protective actions since they believe they possess the ability to succeed in mitigating the perceived threat [41]. Thus, we hypothesize that SEF positively influences attitudes toward revenge-buying.

Hypothesis 10. *Self-efficacy positively increases attitude.*

RCO refers to the perceived costs or barriers associated with engaging in the recommended protective behaviors [38]. While PMT suggests that a higher RCO often discourages protective behaviors, it can also increase the motivation to adopt these behaviors when the PSE of the threat is high. In the context of revenge-buying, consumers may view the potential costs—such as time, financial expenditure, or even the risk of stockouts—as necessary sacrifices to maintain psychological well-being and regain control during uncertain times [40]. This is particularly relevant in situations where consumers are faced with scarce resources due to lockdowns and perceive the risks associated with not engaging in revenge-buying as greater than the costs themselves. Therefore, even though RCO may be high, individuals who perceive the benefits of revenge-buying as outweighing these costs are likely to form positive attitudes toward the behavior [39]. Based on this logic, we hypothesize that RCO positively influences consumer attitudes toward revenge-buying.

Hypothesis 11. *Response cost positively influences attitude.*

3.3. Attitude and Revenge-Buying

According to the concept of attitudes, an individual's attitude toward a behavior is a key determinant of their behavioral intention, which in turn predicts actual behavior [12]. Attitude reflects the individual's overall evaluation of behavior, influenced by their beliefs about the potential outcomes and the desirability of those outcomes [13]. Attitude is defined as consumers' positive or negative evaluation of social isolation and external stimuli, specifically reflected in their inclination and assessment of consumption behavior [42]. In the context of revenge-buying, attitude plays a crucial role, as consumers evaluate the behavior in light of their emotional, cognitive, and social experiences during the pandemic. A positive attitude toward revenge-buying emerges when individuals perceive the behavior as a means of regaining control, reducing stress, or compensating for lost experiences during lockdowns [43].

Studies have demonstrated that individuals who form positive attitudes toward a behavior are more likely to engage in that behavior, especially when it aligns with their personal beliefs and values [44]. Revenge-buying is driven by pent-up consumer demand, emotional relief, and a desire to restore a sense of normalcy following social isolation. Thus, consumers who hold positive attitudes toward revenge-buying are more likely to engage in it, perceiving it as a valid response to the restrictions and emotional challenges posed by the pandemic. Reference [13] also highlighted that a person's attitude becomes an essential determinant of their behavior when they believe the outcomes of the behavior are favorable. In line with the concept of attitudes, the positive relationship between attitude and behavioral intention underscores that consumers who view revenge-buying as beneficial or necessary will exhibit a higher intention to participate in it, eventually translating into actual purchasing behavior. Therefore, we hypothesize that attitude positively influences consumer behavior, particularly in the context of revenge-buying.

Hypothesis 12. *Attitude has a positive influence on revenge-buying*.

4. Methodology

To empirically validate the proposed model and hypothesis, this study employs structural equation modeling as the method of data analysis, utilizing data gathered from China, which has implemented stringent social distancing measures. According to reference [23], empirical evidence suggests that measures and policies implemented to contain the spread of COVID-19, such as lockdowns and isolation, may trigger revenge-buying. Furthermore, with the lifting of social distancing measures, the phenomenon of revenge-buying is widespread in China [18,21]. For example, according to a report by Louis Vuitton, the lockdown resulted in a 50 percent increase in sales in China, which the CEO and founder of Coresight Research Deborah Weinswig called "pent-up demand" [21]. China is therefore a prime example for studying revenge-buying. A survey was conducted online to collect subjective opinions regarding revenge-buying goods during the pandemic. Structural equation modeling was performed to analyze the data collected.

4.1. Transparency and Openness

We described our sampling plan, all data exclusions, all manipulations, and all measures in the study, and we adhered to the *Journal of Applied Psychology* methodological checklist. All data, analysis code, and research materials are available from the corresponding author upon reasonable request. Data were analyzed using AMOS, version 29, and SPSS, version 26. This study's design and its analysis were not preregistered.

4.2. Questionnaire Design

Through a questionnaire survey, empirical data were collected. To ensure a high level of internal consistency, this study extracts validated measurement items from prior research to assess the research model's constructs. Attitude, revenge-buying, PSE, and PVU are common constructs in prior research [3,8,41]. Consequently, their measurement items are derived directly from [8,35,45]. The SEF, REF, and RCO measurement items are adapted from previous research in conjunction with the specific context of retaliatory purchasing. Although the number of measurement items for the variables in this study is limited, multiple studies were referenced to ensure the validity and applicability of the scale. The items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) (strongly agree). Table 1 lists the measurement items and their sources for all constructs. In addition, the questionnaire collects demographic data from consumers, such as their gender, age, income, and shopping preferences. In addition, respondents were informed of the purpose of the survey at the outset of the questionnaire and were assured that their responses would be used solely for academic and research purposes.

Table 1. Measurement and source.

Construct	ID	Measurement	Source
Habit (HAB)	HAB1	I often buy things and then find that I may not need them	[8,29,30,35]
	HAB2	I usually buy what I need at once instead of buying in batches	
	HAB3	I usually buy more items than planned	
Perceived severity (PSE)	PSE1	Lockdown affected my life	
	PSE2	Lockdown affected my career development	
Perceived vulnerable (PVU)	PVU1	I felt threatened during the lockdown	
	PVU2	I felt vulnerable during the lockdown	
	PVU3	Compared to others, I was easily influenced by the lockdown	
Response efficacy (REF)	REF1	I think revenge-buying helps to relieve pressure during the lockdown period	[35,41,45,46]
	REF2	I think revenge-buying helps to adjust a negative emotional mood	
	REF3	I think revenge-buying is good for my mood	
	REF4	I think revenge-buying can replenish supplies and thus enhance the sense of security	
	REF5	I think revenge-buying can compensate for suppressed consumption desire during lockdown	
Self-efficacy (SEF)	SEF1	I feel I have the ability to pay for revenge-buying	
	SEF2	I don't think it is hard for me to buy more items than usual	
	SEF3	I feel like I can afford to buy more items	
	SEF4	I feel like I can afford to buy better items	
Response cost (RCO)	RCO1	Revenge-buying will increase my expenses	
	RCO2	Revenge-buying will take my time	
Attitude (ATT)	ATT1	I think it is acceptable to revenge-buy after lockdown	[41]
	ATT2	I think it is feasible to revenge-buy after lockdown	
	ATT3	For me, revenge-buying after lockdown was helpful	
	ATT4	For me, revenge-buying after the lockdown was a good choice	
Revenge-buying (RBU)	RBU1	I spent much more than usual after the lockdown	[3,7]
	RBU2	After the lockdown, I bought many items in the store even if they were not essential	
	RBU3	After the lockdown, I went out several times and purchased high-value items	
	RBU4	After the store closed, I purchased items in the store that I had previously been reluctant to purchase	
	RBU5	After lockdown, when I took an expensive item, I didn't want to put it down	

4.3. Data Collection and Sample Characteristics

Credamo, a professional survey company, and subject matter experts collaborated on developing the questionnaire for this study. The survey participants were obtained through simple online random sampling methods. A small pretest was conducted among 100 consumers before the formal questionnaire was distributed to identify ambiguous questions requiring additional revision based on respondent feedback. Following some minor revisions, the survey questionnaire was administered online for ten days from 17–27 December 2022. The survey was created online by a reputable survey company. In the beginning, we received 500 questionnaires. We were left with 450 valid questionnaires following a thorough review and elimination of invalid, duplicate, and incomplete responses. To account for the loss caused by these invalid responses and to further improve the quality

and representativeness of our sample, thereby ensuring more precise and reliable statistical inferences, a second survey was conducted between 2 May and 4 May 2023. We collected 179 valid samples from 200 online survey responses during this phase. We conducted a proportion difference test to examine proportional differences for sample representativeness. The two sample groups exhibit similar proportional characteristics. In the end, 629 valid surveys were collected. The questionnaire's threshold significantly exceeded the recommendations (5 to 10 times the number of questionnaire items) in the existing literature [47,48]. The survey site for this study is limited to Beijing. The professional survey platform distributes questionnaire links to potential Beijing respondents and prohibits repeat participation. In the formal survey, two attention-checking questions were included in the questionnaire. Respondents who did not correctly answer the attention check test questions were automatically disqualified.

First, we conducted a run test to verify whether the sample in this study was random. The run test is a method to assess the sample data's randomness by analyzing the sample data's continuity concerning the population data [49]. We conducted run tests on the sample using gender, mean, median, and mode as splitting points. The total number of cases was 629. The results indicate that all p-values are greater than 0.05, which supports the null hypothesis that the sample data in this study are indeed random.

Additionally, we conducted a chi-square test and a contingency table chi-square test to examine proportional differences for sample representativeness. The chi-square test is a statistical method used to measure the difference between the actual observed values and the theoretical expected values of a sample. The magnitude of the chi-square value is determined by the degree of deviation between the observed values and the expected values. A higher chi-square value indicates a higher degree of deviation, whereas a lower value indicates a lower degree of deviation. When the two values are identical, the chi-square value is 0, indicating that the theoretical values match completely. The chi-square test is a popular method for testing hypotheses, particularly in the statistical inference of categorical data and comparing two proportions or two composition ratios. The chi-square test for contingency tables can achieve various comparison goals depending on the formulas used to calculate the chi-square value. The test results reject the null hypothesis that there is no difference between the two sample groups (the coefficient and p-value of the chi-square test are 1.149 and 0.227; the coefficient and p-value of the contingency table chi-square test are 1.156 and 0.239, respectively). The results show no significant differences in the sample groups, which means that the sample of groups and total sample proportions conform to the population characteristics of Beijing.

t-tests were conducted between the early and late questionnaires to examine the possibility of response bias caused by the timing of the surveys. In addition, the questionnaires were collected in the same measurement environment, and Harman's single-factor test was conducted to investigate whether a common-method bias existed. The results of the t-tests indicated that the significant levels were significantly greater than 5%. The single factor represented 32.558% of the total variance, which was below the critical threshold of 50% [50,51]. This suggests that the response and common-method biases were not major issues in this study. Furthermore, the absolute kurtosis and skewness values for the sample were less than 10 and 3, respectively, indicating that the sample largely complied with a normal distribution. The maximum likelihood technique's conditions were met [52]. Therefore, this study used the maximum likelihood method to estimate SEM.

Table 2 presents the sample's demographic characteristics. The sample consisted of 629 respondents, of which 317 were female and 312 were male. The male-to-female proportions in the sample are comparable to those in Beijing. Second, respondents aged 20 to 29 years accounted for 40.2% of the respondents. Respondents aged 30–39 accounted for a total of 46.3%. It is acceptable that the proportion of minors and the elderly in the sample is lower than their actual representation in the population, given that the questionnaire was collected through an online survey. More than 30.7% of respondents reported a monthly income between RMB 10,001 and 15,000, while 49.6% had an income of less than RMB

10,000. Given that the majority of revenge consumers are between the ages of 20 and 40, it is acceptable for the proportion of this age group to be greater than their actual representation in the population. As for educational attainment, more than 52 percent of respondents have not completed high school. In total, 42% of the respondents have a bachelor's degree and more than 6% have a master's degree or higher. The sample's educational attainment is consistent with the educational characteristics of the Beijing population. Furthermore, the questionnaire also investigated the usual shopping habits of the respondents. More than 70% of the respondents indicated that they shop less than six times a week. Only 26.4% of the respondents reported purchasing more than six times a week. A total of 52.2 percent of the sampled respondents reported a weekly consumption amount between RMB 300 and 1000, 26.6 percent reported a weekly consumption amount between RMB 1000 and 2000, and 13.2 percent reported a weekly consumption amount over RMB 2000. In total, 8.3% of respondents spend under RMB 300 weekly.

Table 2. Respondents' profile.

Characteristics	Items	Frequency (n = 629)	Percentage (%)	Beijing Data (%)
Gender	Male	312	49.6	51.14
	Female	317	50.4	48.86
Age (years)	<20	12	1.9	23.1
	20–29	253	40.2	11.9
	30–39	291	46.3	15.8
	40–49	55	8.7	14.7
	>50	18	2.9	34.5
Monthly income (RMB)	<5000	136	21.6	29.3
	5001–10,000	176	28	41.7
	10,001–15,000	193	30.7	12.7
	15,001–20,000	65	10.3	6
	>20,001	59	9.4	7.3
Education	Below high school	213	33.8	33.7
	High school	111	17.6	17.5
	Bachelor's degree	264	42	41.9
	Master's degree or higher	42	6.6	7
Shopping frequency	1–3 times/week	217	34.5	/
	4–6 times/week	265	42.1	/
	7–9 times/week	84	13.4	/
	10–12 times/week	16	2.5	/
	>12 times/week	47	7.5	/
Weekly shopping amount (RMB)	<300	52	8.3	/
	301–500	166	26.4	/
	501–1000	162	25.8	/
	1001–1500	105	16.7	/
	1501–2000	62	9.9	/
	>2000	82	13	/

Note: Data proportions for Beijing were calculated based on population statistics reports from the National Bureau of Statistics of China and the Beijing Municipal Bureau of Statistics.

As shown in Table 2, this study provided Beijing population demographic data for comparison with survey data to determine their representativeness according to China's National Bureau of Statistics "Seventh National Population Census Bulletin" [1] and the Beijing Municipal Bureau of Statistics [2]. We performed a statistical analysis of the sample's demographic characteristics, including frequencies and percentages, and compared them with the population characteristics of Beijing. The results showed that all other demographic

characteristics were comparable to the Beijing population except for age and income. Because the survey was conducted online, it is acceptable that the proportion of minors and seniors in the sample is lower than their actual representation in the population. As the primary age group for revenge-buying is between 20 and 40 years old, it is acceptable to include a larger proportion of this age group in the sample than their actual representation in the population. In conclusion, the general frequency and proportion of the sample align with the characteristics of retaliatory consumption in Beijing.

5. Empirical Results

5.1. Reliability Test

Before evaluating the structural model, a reliability test was conducted to ensure the accuracy of the measurement model. The results of the reliability examination are shown in Table 3. Table 3 reveals that the Cronbach's alpha values for each factor are all above 0.8, exceeding the recommended threshold of 0.75 by a wide margin. This suggests that the research constructs have a high internal consistency and reliability. Additionally, the range of corrected item-total correlation for each construct is greater than 0.6, well above the recommended threshold of 0.5, confirming that all items measure the underlying dimensions adequately [53]. Given that both the Cronbach's alpha values and the range of corrected item-total correlation satisfy the standards, it is evident that the reliability of this study is satisfactory [50].

Table 3. Reliability test result.

Factors	Number of Items	Alpha	Mean	Range of Corrected Item-Total Correlation
Habit (HAB)	3	0.852	5.166	0.601~0.706
Perceived severity (PSE)	2	0.869	5.452	0.6~0.726
Perceived vulnerable (PVU)	3	0.838	5.25	0.692~0.778
Response efficacy (REF)	5	0.921	5.138	0.671~0.74
Self-efficacy (SEF)	4	0.892	5.074	0.713~0.909
Response cost (RCO)	2	0.868	5.548	0.72~0.809
Attitude (ATT)	4	0.914	4.782	0.692~0.927
Revenge-buying (RBU)	5	0.89	4.43	0.872~0.905

5.2. Confirmatory Factor Analysis

Before evaluating the research model, a confirmatory factor analysis (CFA) was conducted to ensure the reliability and validity of the measurement model. Table 4 presents the results of the CFA, which revealed that the empirical data and measurement model fit well. As shown in Table 4, the CFI and TLI values were lower than 0.95, while the SRMR and RMSEA values were below the recommended value of 0.08 [54]. The measurement model's reliability was evaluated by examining the standard factor loading values of all measurement items and the composite reliability (CR) values of each factor. According to the validity analysis results, most factor loadings exceed the benchmark value of 0.60. Even though the CR value for PSE is slightly below the recommended threshold, it is close enough to the standard to indicate an association [50].

Furthermore, the convergent and discriminant validities were evaluated. Convergent validity was confirmed by verifying that each factor's average variance extracted (AVE) exceeded the threshold of 0.5, as demonstrated in Table 4. Furthermore, discriminant validity was assessed using the criterion suggested by reference [55], which compares the square of the correlation between factors to the AVE values. Table 5 shows that the correlation between any two constructs is smaller than the respective square root of the AVE values. Therefore, this indicates a good discriminant validity for the measurement model.

Table 4. Confirmatory factor analysis results.

Construct	Item	λ	AVE	CR
Habit (HAB)	HAB1	0.67	0.59	0.81
	HAB2	0.82		
	HAB3	0.80		
Perceived severity (PSE)	PSE1	0.80	0.52	0.69
	PSE2	0.64		
Perceived vulnerable (PVU)	PVU1	0.66	0.64	0.78
	PVU2	0.81		
	PVU3	0.72		
Response efficacy (REF)	REF1	0.87	0.73	0.93
	REF2	0.90		
	REF3	0.86		
	REF4	0.73		
	REF5	0.80		
Self-efficacy (SEF)	SEF1	0.81	0.68	0.89
	SEF2	0.81		
	SEF3	0.89		
	SEF4	0.78		
Response cost (RCO)	RCO1	0.66	0.65	0.78
	RCO2	0.93		
Attitude (ATT)	ATT1	0.77	0.73	0.91
	ATT2	0.85		
	ATT3	0.87		
	ATT4	0.91		
Revenge-buying (RBU)	RBU1	0.72	0.69	0.92
	RBU2	0.79		
	RBU3	0.84		
	RBU4	0.81		
	RBU5	0.72		

Note: Model fit indices: $\chi^2/df = 2.04$, ($p < 0.001$); CFI = 0.96; TLI = 0.95; RMSEA = 0.05; SRMR = 0.04.

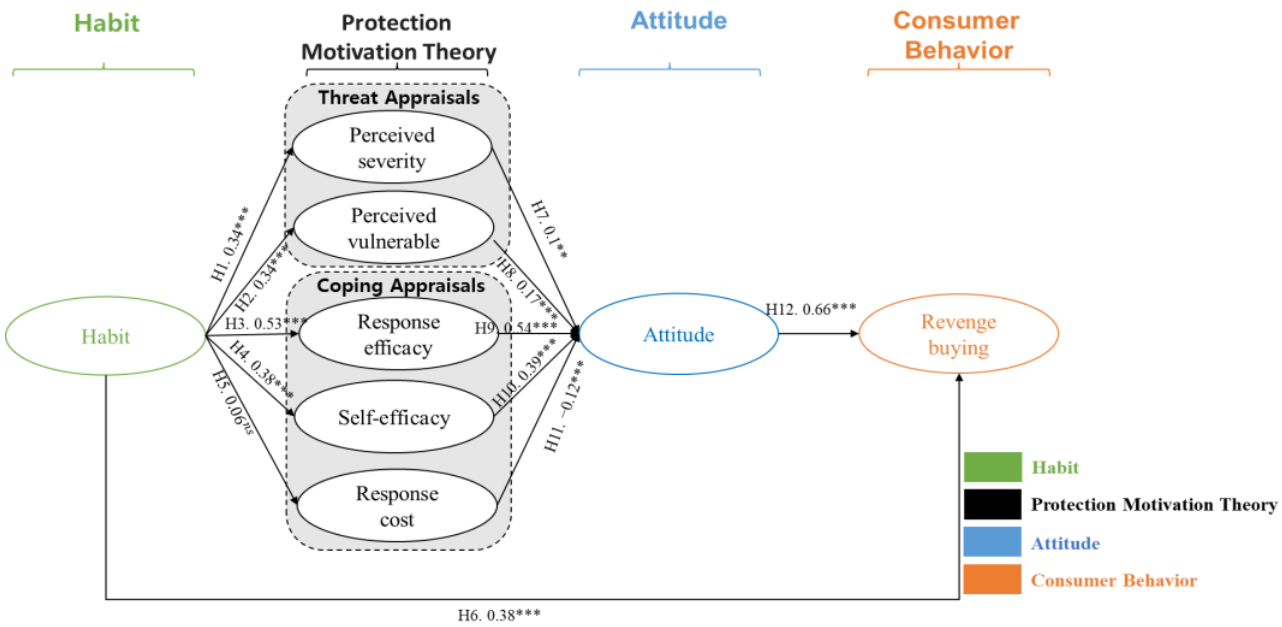
Table 5. Discriminant validity test results.

	HAB	PSE	PVU	REF	SEF	RCO	ATT	RBU
HAB	**0.77** [a]							
PSE	0.27 [b]	**0.72**						
PVU	0.28	0.53	**0.8**					
REF	0.51	0.15	0.37	**0.85**				
SEF	0.33	0.08	0.17	0.51	**0.82**			
RCO	0.07	0.09	0.23	0.04	−0.13	**0.81**		
ATT	0.43	0.02	0.32	0.71	0.64	−0.08	**0.85**	
RBU	0.63	0.14	0.37	0.63	0.62	−0.04	0.81	**0.83**

Note: [a] Squared root of AVE is along the main diagonal; [b] Correlations between constructs below the main diagonal.

5.3. Structural Equation Modeling

After validating the measurement model, we examined the hypotheses using structural equation modeling. Figure 2 and Table 6 displays the results of the analysis. In general, the fit indices of the model shown in Figure 2 and Table 6 suggested that the empirical data fit well with the research model proposed in this study. Specifically, all of the goodness of fit indices ($\chi^2/df = 2.32$ ($p < 0.001$); CFI = 0.93; TLI = 0.94; RMSEA = 0.05; SRMR = 0.06) met the recommended criteria [54], indicating a strong fit between the data and the model.



Note: Structural model fit indices: $\chi^2/df = 2.32$, ($p < 0.001$); CFI = 0.93; TLI = 0.94; RMSEA = 0.05; SRMR = 0.06; ***, **represent 1%, 5% significance levels, respectively.

Figure 2. Results of the hypothesis test.

Table 6. Results of hypotheses testing.

Hypothesis		Estimate	*p*	
H1	HAB → PSE	0.34	***	Supported
H2	HAB → PVU	0.34	***	Supported
H3	HAB → REF	0.53	***	Supported
H4	HAB → SEF	0.38	***	Supported
H5	HAB → RCO	0.06	NS	Not Supported
H6	HAB → RBU	0.38	**	Supported
H7	PSE → ATT	0.1	***	Supported
H8	PVU → ATT	0.17	***	Supported
H9	REF → ATT	0.54	***	Supported
H10	SEF → ATT	0.39	***	Supported
H11	RCO → ATT	0.12	***	Supported
H12	ATT → RBU	0.66	***	Supported

Structural model fit indices: $\chi 2/df = 2.32$, ($p < 0.001$); CFI = 0.93; TLI = 0.94; RMSEA = 0.05; SRMR = 0.06; ***, **represent 1%, 5% significance levels, respectively.

The study findings indicate that habit has a significant positive influence on PSE (0.34***), PVU (0.34***), REF (0.53***), and SEF (0.38***) towards revenge-buying. Habit (0.38***) has a significantly positive effect on revenge-buying. However, there is no significant effect on RCO (0.06^{ns}), which led to H5 not being accepted, while the null hypotheses for H1–H4 and H6 were not rejected. The insignificant relationship between habit and RCO contradicts prior research, particularly reference [35], which found that habitual behaviors typically reduce perceived barriers and costs by reinforcing automaticity in actions. The likely explanation is that consumers with unplanned consumption habits might have a skewed perception of costs. These consumers are typically more reactive to external stimuli and less likely to thoroughly

evaluate the consequences of their purchases, including the associated costs. Therefore, there is a weaker relationship between habits and cost perceptions.

PSE (0.10***), PVU (0.17***), REF (0.54***), and SEF (0.39***) can exert a significant positive influence on attitude, while RCO (−0.12**) can have a significant negative impact on attitude. Therefore, H7–H11 were not rejected, which is in line with PMT and the research findings of previous studies [8,35]. PSE and PVU are evaluations of external threats, accompanying negative emotions triggered by the external environment. These negative emotions motivate consumers to urgently seek coping behaviors, resulting in favorable attitudes toward revenge-buying. REF, SEF, and RCO are evaluations of the response effect's influence. In the context of this study, coping evaluation refers to the evaluation of retaliatory consumption's viability, which is manifested in three aspects: the effectiveness of alleviating negative emotions, the costs of coping, and the sense of effectiveness of the behavior performed. The higher the feasibility of the behavior, the easier it is to form a positive attitude toward revenge-buying.

As supported, H12 was not rejected, and attitude (0.66***) was found to have a significantly positive effect on revenge-buying. Various cognitive behavior theories center on the relationship between attitude and behavior, with the premise of behavior motivation being the maintenance of a positive attitude toward the behavior. Thus, consumers with unplanned consumption habits are more likely to make retaliatory purchases without cognitive deliberation. Except for H5, all hypotheses were supported by the results of this study.

6. Discussion

First, this study highlights the significant impact of consumer habits on their perceptions of threat and coping appraisals, which aligns with and extends previous findings [35]. Vance and colleagues previously demonstrated the connection between habitual behaviors and cognitive processes and employee intention for future compliance. However, our study contributes by applying this relationship to the context of revenge-buying in a pandemic-induced environment. Specifically, we demonstrate that past purchasing habits significantly shape cognitive processes, especially in evaluating threats and coping responses, during periods of heightened uncertainty like the COVID-19 pandemic. These findings emphasize that unplanned consumers, who are more influenced by external stimuli, are prone to engage in retaliatory purchases as a coping mechanism. This insight echoes prior studies [32], which suggested that habits play a key role in guiding behaviors under stress, particularly when consumers resort to automatic or habitual responses in unfamiliar situations.

Second, this study provides evidence for the simultaneous influence of threat and coping assessments on consumer attitudes toward revenge-buying behavior. Threat evaluation, which involves an individual's assessment of potential risks and negative consequences, plays a crucial role in shaping consumers' behavioral responses [40]. Similarly, coping evaluations, or the perceived availability of resources to manage the consequences of these threats, also drive retaliatory behavior [56]. These findings are consistent with reference [39], which emphasizes how consumers' threat appraisals shape their attitudes. Our study adds value by connecting this cognitive evaluation process to retaliatory consumption behavior, suggesting that consumers who perceive heightened threats are more likely to adjust their attitudes accordingly. If the perceived threat of revenge-buying is deemed severe or the individual feels unprepared to cope with it, negative attitudes will emerge, leading to a more conservative consumer response.

Finally, this study contributes to the broader conversation about the relationship between attitudes and habits in influencing retaliatory purchasing behavior, showing that attitudes have a more substantial influence than habits. Prior research on rational action theories has heavily emphasized the role of attitudes in shaping consumer intentions [14,42]. However, our study highlights the overlooked role of habitual behavior in the context of revenge-buying, an area that has received little attention in the literature. Behavioral habits, which are repetitive and automatic responses, often bypass deliberate decision-making processes [28]. Research on technology adoption and information systems has also

confirmed the direct link between habit and behavior [9–11]. By validating the influence of past purchasing habits on revenge-buying behavior, we contribute new insights into how habits can drive consumer behavior in emotionally charged situations like retaliatory purchasing. Thus, our study enriches the current understanding of how both cognitive and habitual factors interact to influence consumer behavior in crisis contexts, adding depth to the existing revenge-buying literature.

7. Conclusions

The present study aims to investigate the influence of cognitive factors on revenge-buying behaviors after lifting lockdown measures and explain the phenomenon from the perspective of consumer habits. Based on PMT, and the concept of consumption habits and attitudes, a novel theoretical framework is proposed to explain the motivation behind revenge-buying. A survey was conducted online, and 629 individuals responded to the study. CFA and structural equation modeling were utilized to evaluate the collected data. The results indicate that cognitive factors, such as PSE, PVU, REF, SEF, and RCO, influence consumer attitudes and stimulate revenge-buying. Furthermore, except for RCO, habit has a significant positive impact on all cognitive factors. Additionally, habit has a significant positive impact on revenge-buying behavior. Finally, consumers' attitudes significantly positively impact revenge-buying behaviors. The findings of this study provide a unique interpretation of revenge-buying, fill a research gap on cognitive factors in revenge-buying, and enhance the comprehension of nonconventional buying behaviors.

7.1. Theoretical Contribution

This study contributes to the understanding of revenge-buying behaviors by addressing the gaps in the existing literature and providing a novel perspective. First, this study uniquely analyzes the direct effect of consumer habits and attitudes on revenge-buying in the context of COVID-19-induced social isolation. Consumer habits in the field of revenge-buying represent an understudied area. Previous research has predominantly focused on revenge-buying as a coping mechanism for alleviating anxiety and fear, emphasizing the role of perceived psychological pressure, emotional alleviation, and enjoyment from shopping in influencing revenge-buying [1,4,6]. This study fills a critical gap by exploring how past consumer habits, which have been underexplored in prior studies, shape post-pandemic consumer behavior, particularly retaliatory consumption, thus enriching the understanding of habits in this domain.

Furthermore, this study advances the theoretical discussion by validating the relationship between consumer habits and the cognitive processes outlined in the PMT model. Empirical evidence from this research demonstrates that habitual, repetitive consumer behavior can significantly influence consumers' threat and coping appraisals during periods of social isolation, which is consistent with reference [35]. This finding reveals that pre-existing habits are vital in shaping consumer perceptions and reactions in revenge-buying scenarios. In addition, the research confirms that consumer habits exert an indirect impact on retaliatory consumption behaviors via PMT constructs like PSE, PVU, REF, SEF, and RCO, thereby broadening the scope of habit-related research in the context of revenge-buying.

Finally, the study contributes to the theoretical integration of revenge-buying behavior by combining the concept of habits and attitudes with PMT innovatively. These three, while independent, also exhibit interdependent dynamics, offering an original, comprehensive framework for understanding how consumer perceptions and habits interact to drive revenge-buying behavior. This integrated model provides valuable insights into the complexity of consumer behavior during times of crisis. Additionally, it validates the explanatory power of the habit, PMT, and concept of attitudes, thus broadening their applications and contributing to a deeper understanding of retaliatory consumption during the COVID-19 pandemic. The integrated model enriches the literature by offering a more comprehensive approach to studying consumer revenge shopping behaviors.

7.2. Policy Contribution

With the modification of policies to prevent epidemics, the accumulated consumption across various industries is being released in a concentrated manner. The government and market managers must provide the correct guidance to regulate or predict consumer behavior to respond in advance to the impact of consumers' revenge consumption behavior. The government's macro-control responsibility should not be absent in transitioning from abnormal revenge consumption to normal new consumption. From the perspective of governments and market managers, this study's conclusion provides some implications and practical guidance.

Manage consumers' fear emotions. This study found that consumers engage in revenge-buying in response to perceived threats or negative emotions they are experiencing. Even though revenge-buying is an abnormal consumer behavior, it is necessary for eliminating unhealthy consumer psychology. Thus, government policymakers should introduce policies that aim to calm consumer sentiment and make consumers understand that the severity and threat are controllable. In addition, market managers should also severely punish retailers who store goods. Every retailer has faced long-term shortages from convenience stores to supermarkets to pharmacies due to consumer hoarding and a "bank runs" mentality during crises. Product scarcity can exacerbate consumer panic [57]. To optimize the consumption platform, industrial and commercial administration departments must be bolstered to provide better oversight and sanctions [58].

Optimize consumers' consumption habits. The results of this study indicate that revenge consumption is directly related to previous consumer behavior. After the pandemic, consumers who typically make impulsive purchases are more likely to make revenge purchases. To stimulate consumer demand and boost the economy, efforts should be made to revive and expand consumption, with the automotive, household appliances, catering, and home furnishing sectors serving as the main drivers of domestic demand. In addition, most consumers enjoy social networks and digital technology, and the impact of social networks on consumer behavior is significant and widespread in their daily lives [59]. How to embrace data technology and implement online and offline sales integration should receive attention from corporate leaders and marketing personnel, and action should be taken accordingly.

Analyze and forecast markets actively. Revenge purchases by consumers will inevitably be necessary when prevention and control policies gradually become lax. During this period, market forecasts and early warning measures should be implemented. Operations involving the supply chain, logistics, and warehousing are crucial functions that must be coordinated with demand fluctuations [60]. Consequently, supply chain, logistics, and warehousing operations must be adjusted following demand fluctuations. Additionally, when crises occur, such as the COVID-19 pandemic, formal processes often restrict companies from quickly adapting to these unexpected crises or opportunities [61]. Therefore, managers should bolster the company's emergency response capability, making its systems and processes more resilient in response to market opportunities.

7.3. Limitations

Although this study analyzed the impact of cognitive factors on revenge-buying, it must be admitted that there are limitations. Firstly, this research was conducted in Beijing from 17 December to 27 December 2022. Due to its unique political and socioeconomic characteristics, China has implemented relatively stringent isolation measures and procedures during the pandemic. Therefore, as the degree of epidemic isolation varies from region to region and country to country, it is difficult to extrapolate research findings to other countries or cities. To cross-validate the analysis results, subsequent surveys conducted in various nations or cultural contexts may produce varying results.

Secondly, based on the discussion of the role of perceived factors in revenge-buying, future research can develop multi-stage behavioral decision-making models to further explore and expand the complex relationships between perception, habit, attitude, and

consumer behavior. Additionally, consumer behavior is not only determined by the PSE of threats but also influenced by the perceived efficacy (REF and SEF) and perceived costs [27]. Future studies could design a multi-level model of perceived costs and benefits to investigate how consumers weigh perceived risks and perceived efficacy when making purchasing decisions in different consumption contexts.

Thirdly, this study examined revenge-buying behavior based on an isolated moment in time, lacking longitudinal analysis. Subsequent longitudinal evaluations and observations should be conducted to determine how the influencing factors change over time after lockdown measures have been implemented.

While we have diligently endeavored to collect random samples, achieving a truly random sample can be challenging. Moreover, with the constraints imposed by the pandemic, online data collection has become the most desirable method. Future research may embark on more expansive empirical studies when conditions permit.

Finally, during the epidemic prevention and control period, the lockdown significantly impacted both online and offline shopping. This study investigated general revenge-buying without distinguishing between online and offline purchases. Therefore, future studies could further investigate the differences in revenge-buying between online and offline consumers.

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Conflicts of Interest: The authors declare no conflicts of interest.

Notes

[1] China's National Bureau of Statistics. http://www.stats.gov.cn/sj/zxfb/202302/t20230203_1901086.html (accessed on 1 October 2024).

[2] https://www.beijing.gov.cn/zhengce/zhengcefagui/202303/t20230321_2941262.html (accessed on 1 October 2024).

References

1. Park, I.; Lee, J.; Lee, D.; Lee, C.; Chung, W.Y. Changes in consumption patterns during the COVID-19 pandemic: Analyzing the revenge spending motivations of different emotional groups. *J. Retail. Consum. Serv.* **2022**, *65*, 102874. [CrossRef]
2. Sit, K.J.; Ballantyne, E.E.; Gorst, J. Profiling shoppers' coping behaviours during a pandemic crisis: A regulatory focus perspective. *J. Retail. Consum. Serv.* **2022**, *64*, 102811. [CrossRef]
3. Liu, Y.; Cai, L.; Ma, F.; Wang, X. Revenge buying after the lockdown: Based on the SOR framework and TPB model. *J. Retail. Consum. Serv.* **2023**, *72*, 103263. [CrossRef]
4. Gupta, A.S.; Mukherjee, J. Decoding revenge buying in retail: Role of psychological reactance and perceived stress. *Int. J. Retail Distrib. Manag.* **2022**, *50*, 1378–1394. [CrossRef]
5. Kawaf, F.; Barsha, R.; Zhu, Z. The light at the end of the COVID-19 tunnel is revenge? Evidence from retailing in China. In *Colloquium on European Research in Retailing*; SKEMA Bussiness School: Lille, France, 2021; pp. 99–109.
6. Liu, Y.; Li, X.; Yuen, K.F. Revenge buying: The role of negative emotions caused by lockdowns. *J. Retail. Consum. Serv.* **2023**, *75*, 103523. [CrossRef]
7. Lins, S.; Koch, R.; Aquino, S.; de Freitas Melo, C.; Costa, I.M. Anxiety, depression, and stress: Can mental health variables predict panic buying? *J. Psychiatr. Res.* **2021**, *144*, 434–440. [CrossRef]
8. Cai, L.; Yuen, K.F.; Xie, D.; Fang, M.; Wang, X. Consumer's usage of logistics technologies: Integration of habit into the unified theory of acceptance and use of technology. *Technol. Soc.* **2021**, *67*, 101789. [CrossRef]
9. Pahnila, S.; Warsta, J. Online shopping viewed from a habit and value perspective. *Behav. Inf. Technol.* **2010**, *29*, 621–632. [CrossRef]
10. Pahnila, S.; Siponen, M.; Zheng, X. Integrating habit into UTAUT: The Chinese eBay case. *Pac. Asia J. Assoc. Inf. Syst.* **2011**, *3*, 2. [CrossRef]

11. Shiau, W.L.; Luo, M.M. Continuance intention of blog users: The impact of perceived enjoyment, habit, user involvement and blogging time. *Behav. Inf. Technol.* **2013**, *32*, 570–583. [CrossRef]
12. Ajzen, I.; Fishbein, M. Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychol. Bull.* **1977**, *84*, 888. [CrossRef]
13. Nguyen, H.M.; Khoa, B.T. The relationship between the perceived mental benefits, online trust, and personal information disclosure in online shopping. *J. Asian Financ. Econ. Bus.* **2019**, *6*, 261–270. [CrossRef]
14. Davis, F.D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS. Q.* **1989**, *13*, 319–340. [CrossRef]
15. Trongmateerut, P.; Sweeney, J.T. The influence of subjective norms on whistle-blowing: A cross-cultural investigation. *J. Bus. Ethics* **2013**, *112*, 437–451.
16. Fu, S.; Zheng, X.; Wang, H.; Luo, Y. Fear appeals and coping appeals for health product promotion: Impulsive purchasing or psychological distancing? *J. Retail. Consum. Serv.* **2023**, *74*, 103383. [CrossRef]
17. de Oliveira Campos, P.; do Nascimento, A.C.L.; de Santana, P.N.; da Costa, M.F. Making up for lost time: Analysis of revenge buying intention in the post-pandemic scenario. *REMark. Rev. Bras. Mark.* **2023**, *22*, 876–943.
18. Le, H.T.P.M.; Park, J. Drives of in-store revenge consumption in the post-pandemic: A study in China. *J. Retail. Consum. Serv.* **2024**, *79*, 103844. [CrossRef]
19. Turna, G.B.; Pekmezci, H.; Işik, O. *The Impact of Perceived COVID-19 Threat and Death Anxiety on Buying Behavior among Academics: A Comparison between Türkiye and Northern European Countries*; Türk Kooperatifçilik Kurumu: Ankara, Turkey, 2023.
20. Verplanken, B. Beyond frequency: Habit as mental construct. *Br. J. Soc. Psychol.* **2006**, *45*, 639–656. [CrossRef]
21. Nguyen, X.; Chao, C.C. Revenge consumption, product quality, and welfare. *Int. Rev. Econ. Financ.* **2021**, *76*, 495–501. [CrossRef]
22. Singh, S.; Srivastava, P. Vacation vengeance: An interpretive phenomenological analysis of revenge travel in India. *J. Hosp. Tour. Insights* **2023**, *7*, 272–290. [CrossRef]
23. Smith, L.; Jacob, L.; Yakkundi, A.; McDermott, D.; Armstrong, N.C.; Barnett, Y.; López-Sánchez, G.F.; Martin, S.; Butler, L.; Tully, M.A. Correlates of symptoms of anxiety and depression and mental wellbeing associated with COVID-19: A cross-sectional study of UK-based respondents. *Psychiatry Res.* **2020**, *291*, 113138. [CrossRef] [PubMed]
24. Torres, E.N.; Wei, W.; Ridderstaat, J. The adventurous tourist amidst a pandemic: Effects of personality, attitudes, and affect. *J. Vacat. Mark.* **2022**, *28*, 424–438. [CrossRef]
25. Thaler, R.H.; Sunstein, C.R. *Nudge: Improving Decisions about Health, Wealth, and Happiness*; Penguin: New York, NY, USA, 2009.
26. Foroudi, P.; Tabaghdehi, S.A.H.; Marvi, R. The gloom of the COVID-19 shock in the hospitality industry: A study of consumer risk perception and adaptive belief in the dark cloud of a pandemic. *Int. J. Hosp. Manag.* **2021**, *92*, 102717. [CrossRef]
27. Kim, J.; Yang, K.; Min, J.; White, B. Hope, fear, and consumer behavioral change amid COVID-19: Application of protection motivation theory. *Int. J. Consum. Stud.* **2022**, *46*, 558–574. [CrossRef] [PubMed]
28. Khoa, B.T. Electronic loyalty in the relationship between consumer habits, groupon website reputation, and online trust: A case of the groupon transaction. *J. Theor. Appl. Inf. Technol.* **2020**, *98*, 3947–3960.
29. Khalifa, M.; Liu, V. Online consumer retention: Contingent effects of online shopping habit and online shopping experience. *Eur. J. Inf. Syst.* **2007**, *16*, 780–792. [CrossRef]
30. Hsu, M.H.; Chang, C.M.; Chuang, L.W. Understanding the determinants of online repeat purchase intention and moderating role of habit: The case of online group-buying in Taiwan. *Int. J. Inf. Manag.* **2015**, *35*, 45–56. [CrossRef]
31. Floyd, D.L.; Prentice-Dunn, S.; Rogers, R.W. A meta-analysis of research on protection motivation theory. *J. Appl. Soc. Psychol.* **2000**, *30*, 407–429. [CrossRef]
32. Wood, W.; Neal, D.T. A new look at habits and the habit-goal interface. *Psychol. Rev.* **2007**, *114*, 843. [CrossRef]
33. Soltani, R.; Shamsi, M.; Moradi, A. Do perceived barriers, benefits, and severity have effect on mask-wearing habits during the coronavirus disease-2019 pandemic? *Asian J. Soc. Health Behav.* **2022**, *5*, 186–192. [CrossRef]
34. Vance, A.; Siponen, M.; Pahnila, S. Motivating IS security compliance: Insights from habit and protection motivation theory. *Inf. Manag.* **2012**, *49*, 190–198. [CrossRef]
35. Ouellette, J.A.; Wood, W. Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychol. Bull.* **1998**, *124*, 54. [CrossRef]
36. Rogers, R.W. Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection moti-vation. In *Social Psychophysiology*; Cacioppo, J., Petty, R., Eds.; Guilford Press: New York, NY, USA, 1983; pp. 153–176.
37. Stojanovic, M.; Fries, S.; Grund, A. Self-efficacy in habit building: How general and habit-specific self-efficacy influence be-havioral automatization and motivational interference. *Front. Psychol.* **2021**, *12*, 643753. [CrossRef]
38. Rogers, R.W.; Prentice-Dunn, S. Protection motivation theory. In *Handbook of Health Behavior Research 1, Personal and Social Determinants*; Gochman, D.S., Ed.; Plenum Press: New York, NY, USA, 1997; pp. 113–132.
39. Zhu, Y.; Wen, X.; Chu, M.; Sun, S. Consumers' intention to participate in food safety risk communication: A model integrating protection motivation theory and the theory of reasoned action. *Food Control* **2022**, *138*, 108993. [CrossRef]
40. Laato, S.; Islam, A.K.M.N.; Farooq, A.; Dhir, A. Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *J. Retail. Consum. Serv.* **2020**, *57*, 102224. [CrossRef]
41. Chen, M.F. To combine or not to combine? Applying protection motivation theory and the theory of reasoned action to explain and predict intention to reduce meat consumption. *J. Appl. Soc. Psychol.* **2022**, *52*, 115–130. [CrossRef]

42. Ajzen, I. (1991). The Theory of planned behavior. *Organizational Behavior and Human Decision Processes.* **1991**, *50*, 179–211. [CrossRef]
43. Glasman, L.R.; Albarracín, D. Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychol. Bull.* **2006**, *132*, 778. [CrossRef] [PubMed]
44. Petty, R.E.; Briñol, P.; Priester, J.R. Mass media attitude change: Implications of the elaboration likelihood model of persuasion. In *Media Effects*; Routledge: London, UK, 2009; pp. 141–180.
45. Hunter, E.; Röös, E. Fear of climate change consequences and predictors of intentions to alter meat consumption. *Food Policy* **2016**, *62*, 151–160. [CrossRef]
46. Woon, I.; Tan, G.W.; Low, R. A protection motivation theory approach to home wireless security. In Proceedings of the International Conference on Information Systems (2005), Las Vegas, NV, USA, 11–14 December 2005; pp. 367–380.
47. Bentler, P.M.; Chou, C.P. Practical issues in structural modeling. *Sociol. Methods Res.* **1987**, *16*, 78–117. [CrossRef]
48. Wang, Y.A.; Rhemtulla, M. Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Adv. Methods Pract. Psychol. Sci.* **2021**, *4*, 2515245920918253. [CrossRef]
49. Bujang, M.A.; Sapri, F.E. An application of the runs test to test for randomness of observations obtained from a clinical survey in an ordered population. *Malays. J. Med. Sci. MJMS* **2018**, *25*, 146. [CrossRef] [PubMed]
50. Li, X.; Zhou, Y.; Wong, Y.D.; Wang, X.; Yuen, K.F. What influences panic buying behaviour? A model based on dual-system theory and stimulus-organism-response framework. *Int. J. Disaster Risk Reduct.* **2021**, *64*, 102484. [CrossRef]
51. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879. [CrossRef]
52. Browne, M.W. Asymptotically distribution-free methods for the analysis of covariance structures. *Br. J. Math. Stat. Psychol.* **1984**, *37*, 62–83. [CrossRef]
53. Churchill, G.A.; Iacobucci, D. *Marketing Research: Methodological Foundations*; Dryden Press: New York, NY, USA, 2006; Volume 199.
54. Hu, L.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]
55. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]
56. Burns, A.J.; Posey, C.; Roberts, T.L.; Lowry, P.B. Examining the relationship of organizational insiders' psychological capital with information security threat and coping appraisals. *Comput. Hum. Behav.* **2017**, *68*, 190–209. [CrossRef]
57. Sheth, J. Impact of COVID-19 on consumer behavior: Will the old habits return or die? *J. Bus. Res.* **2020**, *117*, 280–283. [CrossRef]
58. Islam, T.; Pitafi, A.H.; Arya, V.; Wang, Y.; Akhtar, N.; Mubarik, S.; Xiaobei, L. Panic buying in the COVID-19 pandemic: A multi-country examination. *J. Retail. Consum. Serv.* **2021**, *59*, 102357. [CrossRef]
59. Verhoef, P.C.; Broekhuizen, T.; Bart, Y.; Bhattacharya, A.; Qi Dong, J.; Fabian, N.; Haenlein, M. Digital transformation: A multidisciplinary reflection and research agenda. *J. Bus. Res.* **2021**, *122*, 889–901. [CrossRef]
60. Choi, T.M. Fighting against COVID-19: What operations research can help and the sense-and-respond framework. *Ann. Oper. Res.* **2021**, *307*, 249–264. [CrossRef] [PubMed]
61. Ivanov, D.; Dolgui, A. Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability: A position paper motivated by COVID-19 outbreak. *Int. J. Prod. Res.* **2020**, *58*, 2904–2915. [CrossRef]

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