

Denial mechanisms as a deviant consumer behavior: the role of cognitive processing

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**Denial mechanisms as a deviant consumer behavior:The
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Denial Mechanisms as a Deviant Consumer Behavior: The Role of Cognitive Processing

Abstract

Purpose: This study investigates how denial mechanisms influence consumer behavior by heightening visual cognitive processing, using eye-tracking to explore these effects across scenarios involving deviant consumer behavior, such as choosing copycat or illegal brands. The study aims to deepen understanding of the cognitive dynamics behind defensive consumer responses.

Design/methodology/approach: The study comprises three experiments across different scenarios: deviant behavior with wine selection, copycat brands versus leading brands, and legal versus illegal streaming services. The last two studies assess how denial mechanisms impact visual cognitive processing and shape subsequent behavioral intentions by measuring eye fixation and gaze duration.

Findings: The results reveal that denial mechanisms intensify visual cognitive processing, especially when consumers face morally ambiguous choices. Heightened cognitive engagement correlates with stronger behavioral intentions toward deviant choices, confirming that denial is a defensive process that prompts greater focus and influences decision-making under ethically challenging conditions.

Originality: This research pioneers linking denial mechanisms to visual cognitive processing in consumer behavior. Using eye-tracking to quantify denial's cognitive effects offers a novel methodological approach. It contributes to a nuanced understanding of consumer defensive behaviors, adding practical insights for marketing strategies in morally complex environments.

Keywords: Denial mechanisms, deviant consumer behavior, behavioral intentions, cognitive processes, eye tracking.

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4 **1. Introduction**
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7 Consumers often seek to protect their choices through denial mechanisms (Sherman &
8 Cohen, 2006; Harris & Daunt, 2011; Sweeney & Moyer, 2015). Denial mechanisms refer to
9 avoiding an unacceptable emotion or truth (Fein & Spencer, 1997) and can create a defensive
10 response against situations or circumstances that are potentially painful (Herz &
11 Diamantopoulos, 2017; Howie et al., 2018; Gaustad et al., 2020). In practical terms,
12 consumers’ denial mechanisms usually manifest in avoiding brands with a bad reputation
13 (Page & Fearn, 2005; Johnson et al., 2019), counterfeit products (Eisend, 2019), or
14 dissociative groups (White & Dahl, 2007). Denial is a mechanism that many consumers use in
15 deviant consumer behavior (DCB) situations (Harris & Daunt, 2011). Some types of DCBs
16 are associated with a perceived low risk of being caught and punished (Dootson et al., 2017).
17 In these cases, the denial argument is a form of cognitive dissonance, alleviating punishment
18 concerns (Dootson et al., 2018). Hence, understanding how denial mechanisms operate in
19 visual cognitive processing is key for companies anticipating consumer behavior outcomes.
20 Visual processing refers to the cognitive operations that allow us to perceive, analyze, and
21 interpret visual stimuli from our environment (Schendan & Ganis, 2015).
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34 Thus far, the body of literature has attempted to identify the downstream effects of
35 denial mechanisms on consumer behavior (Dursun et al., 2019; Gaustad et al., 2020; Herz &
36 Diamantopoulos, 2017; Howie et al., 2018). These previous studies have shown that these
37 effects can lead to coping and alter consumers’ behavioral intentions. However, less is known
38 about the cognitive aspects of denial mechanisms. Therefore, this research is the first to
39 explore the role of visual cognitive processing involving denial mechanisms.
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46 Visual processing is an emerging dimension of consumer behavior analysis since eye
47 movements are essential for understanding visual attention and cognitive activity (Pieters &
48 Warlop, 1999; Choi et al., 2021). Since consumers tend to acquire and process cognitive
49 information through visual attention (Ladeira et al., 2020; Wang et al., 2020), visual cognitive
50 processing is responsible for most of the stimuli perception that drives consumer behavior
51 (Ares et al., 2013). Thus, visual cognitive processing might provide a deeper understanding of
52 how consumers engage in denial mechanisms to protect their self-integrity. Therefore, this
53 work addresses the following research question: *How does visual cognitive processing shape*
54 *denial mechanism responses and behavioral intentions?*
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To better understand consumers' denial mechanisms and their effects on consumption responses, this paper aims to analyze visual cognitive aspects that shape consumers' responses by denial mechanisms. Our overarching premise is that defensive denial can generate different cognitive processing levels, shaping denial mechanisms' effects on behavioral intentions. The current framework also draws from previous research on DCB (Harris & Daunt, 2011; Dootson et al., 2018), adding visual cognitive processing as a key variable to understand how denial mechanisms influence consumers' behavioral intentions. By doing so, our research helps address the gap in the studies on cognitive processes involved in defensive mechanisms by demonstrating that denial is a strategy that increases visual cognitive processing.

Based on three eye-tracking experiments, this paper demonstrates that: (1) the denial of a discredited product (wine) in a DCB (car accident) scenario alters the behavioral intentions (Pilot Study); (2) in situations of choice in front of the displays, the behavioral intention will be driven by cognitive processing that tends to increase when the consumer perceives the existence of copycat (vs. leading) brands (Study 1); and (3) the choice of streaming services changes in the presence of an illegal (vs. legal) brand due to denial mechanisms (Study 2).

Our study contributes to the literature in three different ways. First, we build on the theory of DCB (Harris & Daunt, 2011; Dootson et al., 2017; Dootson et al., 2018) and defensive reactions (Sherman & Cohen, 2006; Yuan et al., 2022), deepening the understanding that consumers change visual cognitive processing when denial mechanisms are salient. Second, we empirically test changes in consumption intent based on visual cognitive processing generated by denial mechanisms. Our results show that when consumers choose a product using defensive reactions, they tend to increase their visual cognitive processing. Third, this research contributes to understanding behavioral processing by denial mechanisms. Overall, our eye-tracking-based studies have demonstrated the value of visual processing in understanding better how people cognitively process different consumption scenarios and their responses. We reinforce the possible boundary conditions for denial mechanisms. In many real-consumer contexts, individuals use denial to alter visual cognitive processing to protect introspective thoughts. Our findings suggest that denial mechanisms may be proportional to the presence of visual cognitive processing, as measured by eye-tracking mechanisms. This means that eye-tracking mechanisms may analyze the denial process to understand better how consumers react. Measuring visual cognitive processing

becomes a crucial methodological-epistemological pathway for understanding defense mechanisms in consumption studies.

2. DCB and denial mechanism

DCB is inappropriate behavior that contradicts previously accepted social norms (Harris & Daunt, 2011; Dootson et al., 2018). DCB involves the violation of consumer laws, policies, or accepted norms of conduct, presenting a global problem that causes financial, physical, and/or emotional harm (Dootson et al., 2017). Harris and Daunt (2011) assert that DCB is like consumer misbehavior, as both manifest in actions where consumers violate the generally accepted norms of the setting. Some types of DCB are associated with a perceived low risk of being caught and punished (Dootson et al., 2017). A common mechanism consumers use in these types is denial (Harris & Daunt, 2011). The denial argument is a form of cognitive dissonance associated with performing DCB, alleviating punishment concerns (Dootson et al., 2018).

From a cognitive perspective, denial can arise to reduce cognitive dissonance—the psychological discomfort experienced when holding contradictory beliefs or when behaviors conflict with values (Cooper, 2019). Cognitive dissonance theory, developed by Festinger (1957), explains denial as a strategy individuals use to reduce psychological discomfort when their beliefs, attitudes, or behaviors conflict. Denial allows individuals to reject or reinterpret evidence contradicting their worldview to restore cognitive consistency. Harmon-Jones and Mills (1999) highlighted that denial operates as an emotional regulation tool, preventing dissonance-induced anxiety by avoiding acknowledgment of conflicting information. Aronson (1992) expanded this perspective by noting that denial is more likely when the dissonance involves core aspects of self-concept or moral values. Recent research by Cooper (2019) emphasizes that denial plays a significant role in maintaining mental equilibrium, especially when the cost of accepting dissonant information is perceived as too high.

Denial can be understood as a vital protective strategy in which the individual refuses to confront certain truths (Baumeister et al., 1998). Despite the contrary evidence, when faced with an unpleasant fact, a person in denial rejects it, maintaining that it is not true (Vaillant, 1992). The notion of denial is common to the daily life of human beings, as it appears at different moments in life. Alcohol or substance use disorders can generate a process of denial

of reality (Harris et al., 2007; Sweeney & Moyer, 2015). The unexpected death of a loved one can make the individual refuse to accept reality and deny the situation. Despite this denial being present in common sense, attempting to measure it by means of a construct is problematic (Howie et al., 2018). This is because denial is a process at the core of more internal and introspective thoughts (Baumeister et al., 1998; Herz & Diamantopoulos, 2017). Furthermore, the psychological aspects of denial are constructed through beliefs and attitudes generated by interacting with the social environment (Sweeney & Moyer, 2015). Because of this, denial has been analyzed by numerous paradigms with different underlying assumptions (Schwartz, 1977; Schwartz & Howard, 1980; Steele, 1988; Sykes, 1957).

Although most academic researchers agree that denial represents a refusal to confront reality, different paradigms can contribute to this concept through other theoretical premises. The neutralization theory is one of the first theoretical approaches to explain the negation process (Sykes, 1957). This approach demonstrates that the denial process can be associated with creating cognitive dissonance to minimize or devalue the merits of an issue (Howie et al., 2018). Initially, this theoretical premise was used to understand the behavior of delinquents without any negative or remorseful feelings about their value systems (Sykes, 1957).

Another approach that may explain the strategy of confronting certain truths is the process of defensive denial (Schwartz, 1977; Schwartz & Howard, 1980). This premise indicates that denial behavior is a defensive response that originates in the refusal to help the other when there is a high cost to the individual (Howie et al., 2018). In this line of thinking, people will distort reality to neutralize feelings of moral obligation (Schwartz & Howard, 1980).

Denial is a defense mechanism Freud described in his psychoanalytic theory. Freud (1923) first described this mechanism as a way for individuals to avoid acknowledging painful truths that threaten the conscious self. Anna Freud (1936) elaborated on denial in *The Ego and the Mechanisms of Defence*, identifying it as a primitive defense that blocks external reality from awareness, often associated with early developmental stages. Contemporary psychoanalytic scholars, such as Vaillant (1994), argue that denial serves an adaptive role by reducing acute distress, though prolonged use can lead to maladaptive outcomes. More recently, Erdelyi (2006) integrated denial into broader models of repression, emphasizing its unconscious and automatic nature as part of cognitive and emotional regulation. According to this framework, denial is an unconscious process the ego employs to protect itself from

anxiety caused by conflicts between the id, ego, superego, or external stressors. Denial helps individuals avoid the discomfort of acknowledging threatening realities, such as trauma or loss (Erdelyi, 2006).

Denial mechanisms can be understood as a vital protective strategy in which individuals refuse to confront certain truths (Baumeister et al., 1998). This strategy expresses the individual's refusal to accept threatening and unpleasant events (Vaillant, 1992). Denial mechanisms also involve maintaining an acceptable self-image in situations that provoke refusal to face specific facts (Herz & Diamantopoulos, 2017). This defense mechanism causes consumers to suppress, blank out, or deny some situations to maintain their self-image or self-esteem (Tyle et al., 1982; Baumeister et al., 1998). In a state of denial, the individual redefines the situation by believing it might be uncomfortable (Vaillant, 1992). This redefinition is a sign of rejection in which the individual insists that one of the situations is not true, minimizing the neediness or worthiness of the issue (Sykes & Matza, 1957; Patsiaouras et al., 2016).

2.1 Denial mechanisms and behavioral intentions

The need for defensive responses is a significant source of biased processing and can work automatically and unconsciously (Sherman & Cohen, 2006). Defensive responses in denial originate from resistance to accepting that an environmental problem threatens the self (Dursun et al., 2019). People often create mechanisms to deny, such as reinterpreting troubling information to make it compatible with their current views, focusing on other good parts of themselves that are important for their self-worth, or reacting defensively to defend their self-integrity (Reed & Aspinwall, 1998; Sherman & Cohen, 2006).

Denial is present in a process that leads to reflection on the fulfillment of self-esteem, self-consistency, social consistency, and social acceptance demands, which provide an overall favorable effect and stimulate consumer behavior (Steele, 1988; Dursun et al., 2019). The purpose of denial is to preserve general self-integrity, see oneself as worthwhile, and gather evidence that supports these views (Dootson et al., 2018).

According to a growing body of research, people are better equipped to tolerate challenges to the self when they can confirm, identify, and reflect on their values (such as

ideals they feel are essential to follow in daily life) (Sherman & Cohen, 2006). Defensive responses can lead to behavioral coping, such as reduced intentions to quit buying fake products or denial of the dangers and risks of such products. Significantly, denial reduces self-perceived threats (DeSarbo & Edwards, 1996). Previous studies also suggested that self-affirmation directly influences human behavior (Schwartz, 1968; DeSarbo & Edwards, 1996; Dursun et al., 2019).

The central issue is that denial mechanisms can be an adaptive response to difficulties encountered in contemporary decision-making, including efforts to minimize the impact of unpleasant ideas, such as choosing a wine knowing that there are accidents caused by excessive drinking, a copycat instead of leading brands, or illegal instead of legal streaming. We argue that to cope with self-threats (Sherman, 2013), consumers use defense mechanisms (Harris et al., 2007) such as denial. Thus, consumers use denial mechanisms to protect themselves, boosting acceptance of risky information (Howell & Shepperd, 2012) or increasing biased processing and promoting behavioral change (Reed & Aspinwall, 1998; Sweeney & Moyer, 2015). Hence, denial influences consumer behavior and reduces biases toward consumption actions that might be detrimental to one's self-image (DeSarbo & Edwards, 1996; Dursun et al., 2019), such as buying counterfeit products, being associated with unwanted brands, or using services from low-reputation companies.

To summarize, denial is a strategy for accepting defensive, biased information processing and influencing people's actions. Denial strengthens unacceptable consumption behaviors, such as compulsivity (DeSarbo & Edwards, 1996) or unsustainable consumption (Dursun et al., 2019). This means that the more people are associated with consumer misbehavior, the greater their tendency to use denial mechanisms to strengthen their behavioral intentions (DeSarbo & Edwards, 1996; Dursun et al., 2019). Considering that denial mechanisms are directly linked to consumer misbehavior in the purchase decision process, the first hypothesis to be studied is the following:

Hypothesis 1: *In situations of deviant consumer behavior, higher levels of the denial mechanism increase behavioral intentions, whereas lower levels decrease behavioral intentions.*

2.2 Denial mechanisms and cognitive processing

Recent studies demonstrate the relationship between cognitive processing and moral decision-making (Tan et al., 2024; Fronda et al., 2024). Moral decision-making requires individuals to evaluate the potential consequences of personal and social decisions (Yang & Guo, 2023; Gautheron et al., 2024; Because of this, cognitive processing is altered in moral decision-making situations (Tan et al., 2024; Fronda et al., 2024).

Denial research in consumer behavior has been characterized as fragmented and diffuse, as there are applications in several sectors (Dursun et al., 2019; Harris & Daunt, 2011; Herz & Diamantopoulos, 2017). However, these studies have common aspects, such as the skewed processing generated by negation reflected through cognitive processing. Skewed processing can occur consciously and subconsciously because of the urge to protect one's self-integrity through defensive reactions (Sherman & Cohen, 2006). In such responses, defensive mechanisms, or mental functions that inhibit unpleasant ideas and emotions from becoming conscious, may be engaged. One of its defining qualities is the involvement of defensive mechanisms as psychological strategies that may be used automatically to alter or even reject certain aspects of reality to preserve a socially acceptable self-image (Schacter et al., 2011). Our purpose in this session is to find theoretical evidence that supports greater cognitive processing in the relationship between denial and behavioral intention. To defend this argument, we outline and explain two guiding questions.

How may visual attention be considered a mechanism of visual cognition? Visual attention is considered a searchlight that helps to mentally process events, giving meaning to the visualized objectives (Chandon et al., 2009; Pieters & Warlop, 1999; Lee & Ahn, 2012). Eye movements are important for information acquisition because they are essential for cognitive processing and visual attention (Ares et al., 2013; Ladeira et al., 2020; Wang et al., 2020). As a result, visual cognitive processing is inextricably linked to eye movement, as visual attention is a critical tool for gathering information about brands and products in consumer decision-making (Pieters & Warlop, 1999).

Visual attention can be better understood through Selective Visual Attention Theory, a neurological approach to visual processing. Selective visual attention is a cognitive mechanism that allows the brain to filter and prioritize relevant visual stimuli while disregarding irrelevant information (Duncan & Humphreys, 1989; Schupp et al., 2007). It is

critical in enabling individuals to focus their resources on processing specific elements of a complex visual environment, such as identifying a target object in a cluttered scene (Schupp et al., 2007). This process is influenced by both bottom-up and top-down factors, where the sensory properties of the stimuli drive bottom-up attention, like brightness or contrast, and top-down attention is guided by task relevance and prior knowledge (Duncan & Humphreys, 1989). Neural studies have shown that the inferotemporal (IT) cortex is heavily involved in discriminating and retaining stimuli features, emphasizing selective attention's role in cognitive tasks (Fuster, 1990). Selective attention optimizes the brain's limited processing resources by focusing on salient aspects of the visual scene (Duncan & Humphreys, 1989).

Selective visual attention operates through dynamic neural mechanisms that enhance the processing of relevant stimuli while suppressing irrelevant ones (Duncan & Humphreys, 1989). This involves a balance between bottom-up processes, which are driven by sensory salience, and top-down processes, which rely on cognitive control and task demands (Deco & Zihl, 2001). In the IT cortex, neurons exhibit selective responses to behaviorally relevant features, such as specific shapes or colors, which are modulated by the task's context and relevance (Fuster, 1990). Emotional relevance further strengthens attentional focus by enhancing neural responses in early perceptual stages and during evaluative processes (Schupp et al., 2007). Competition between stimuli is resolved through parallel processing and the activation of specific target templates, as proposed by Duncan and Humphreys (1989). This integrated approach allows the brain to dynamically allocate resources to optimize visual processing and decision-making in complex and changing environments (Duncan & Humphreys, 1989; Schupp et al., 2007).

Consumers tend to use scan path patterns in their cognitive strategies when performing goal-oriented tasks (Ladeira et al., 2020), using visual attention for cognitive processing (Wang et al., 2020). Eye-tracking has been used to interpret several consumer behavior phenomena (Wedel et al., 2009; Kim & Lee, 2021). Eye movements are closely associated with cognitive processing (Lee & Ahn, 2012; Ares et al., 2013; Choi et al., 2021). Academic research with eye-tracking devices has used measures associated with scan path patterns (e.g., fixation count, fixation duration, and visit count) as indicators of visual attention (Choi et al., 2021). For this reason, eye-tracking techniques are significant in analyzing cognitive processing (Ares et al., 2013; Huddleston et al., 2015).

Visual cognition is an important stage of cognitive processing and internal thought generation (Huddleston et al., 2015; Wedel & Pieters, 2017). The interaction between the eye and the mind is investigated, with the eyes leaving a dynamic trail where attention is directed (Wedel & Pieters, 2007). Although studies show mixed results, it is widely believed that eye movements and attention are linked during a complex information-processing task, such as buying something significant (Duchowski, 2017) or activating a consumer's defensive response.

As a result, visual cognitive processing is inextricably linked to eye movement, as visual attention is a critical tool for gathering information about brands and products in consumer decision-making (Pieters & Warlop, 1999). However, there is limited study on the relevance of usage denial information in determining consumer product predictions and purchase intentions; it has been used to describe the usage denial cue in terms of theoretical and practical power, raising the question of whether existing methodological techniques are sufficient to capture usage denial to their maximum degree (Herz & Diamantopoulos, 2017).

How does denial promote cognitive processing? Visual cognition is an important stage of cognitive processing and internal thought generation (Huddleston et al., 2015; Wedel & Pieters, 2017). For instance, visual cognitive processing can be associated with mechanisms as triggers for engaging or refusing an idea or brand (Ladeira et al., 2021). Evidence for defensive responses and visual cognitive processing can be justified in three ways. First, individuals produce cognitions (thoughts, elaborations) in response to stimuli that provoke discomfort (Petty & Cacioppo, 1986). Second, cognitive responses influence persuasion and attitude changes (Petty & Briñol, 2011). Third, subjects produce more favorable cognitive responses when processing information with strong rather than weak arguments (Cacioppo & Petty, 1982). Thus, visual attention can highlight the cognitive processing of consumers' denial mechanisms.

However, despite the relevance of denial mechanisms in determining consumer behavior, existing methodological techniques are insufficient to capture denial to its maximum degree (Herz & Diamantopoulos, 2017). Therefore, we extend the previous knowledge (e.g., Wakslak & Trope, 2009) by suggesting that denial mechanisms might positively affect visual cognitive processing and that eye tracking can capture this effect. Previous studies have used eye-tracking devices to analyze cognitive processing (Ares et al., 2013; Wang et al., 2020; Choi et al., 2021). These studies have demonstrated the superiority

of analyzing eye movements over traditional research, such as surveys, as eye-tracking devices are tools capable of analyzing unconscious actions generated by attention deviations that can consequently generate changes in cognitive processing (Ares et al., 2013; Choi et al., 2021). This cognitive processing is responsible for distinguishing object features and improving tasks that require superordinate and structured thinking (Wakslak & Trope, 2009). Interestingly, this research posits denial mechanisms might enhance visual cognitive processing. Thus, from an empirical perspective, considering that denial is an extrinsic cue in the purchase decision process that might reinforce one's cognitive processing, we hypothesize the following:

Hypothesis 2: *Visual cognitive processing moderates the effect of the denial mechanism on behavioral intentions. Specifically, high levels of visual cognitive processing are associated with greater behavioral intentions when the denial mechanism is high and smaller behavioral intentions when the denial mechanism is low.*

3. Empirical Studies

The effects of denial on visual cognitive processes and behavioral intentions were analyzed in three studies. Participants visualized three scenarios that aimed to stimulate denial mechanisms via DCB when offered a catalog of wines for a party with prior information about a car accident (Pilot Study - online experiment), choosing copycat brands (Study 1 - laboratory experiment), and selecting an app for illegal streaming (Study 2 - laboratory experiment). We predicted that performance in these experiments would induce activation mechanisms of denial, directly influencing behavioral intentions (Pilot Study tests H1) and being moderated by cognitive processing (Studies 1 and 2 test H2).

4. Pilot Study - Car accident and wine choice: DCB and denial

The pilot study's goal was to provide a preliminary test of the effects of the mechanisms of denial on behavioral intentions. The basic approach to testing this hypothesis was to show research participants a product catalog of different types of wines. Before that, participants read one of two randomly chosen reports about car accidents (caused by drinking vs. caused by a hole in the track). Respondents were asked to indicate the probability of

choosing the wines in the product catalog. This experimental manipulation aimed to stimulate the perception of DCB by comparing low and high levels of denial among participants.

Pretest to develop stimuli. We conducted one pretest to develop stimuli for the experiment. Forty-eight participants took the pretest. The objective was to manipulate DCB scenarios. We did a one-factor pretest (accident due to people driving drunk vs. accident due to very heavy rain vs. accident due to exceeding the speed limit vs. accident due to poorly marked road vs. accident due to a hole in the track) with 48 undergraduate business students to determine who was at fault in the accident. Participants were required to indicate who was most to blame for causing the car accidents in a single-item seven-point semantic differential from Government (1) to Citizens (7). An ANOVA was conducted to check the differences in means ($M_{\text{accident due to a hole in the track}} = 2.01$; $SD_{\text{accident due to a hole in the track}} = 1.54$; $M_{\text{accident due to poorly marked road}} = 2.43$; $SD_{\text{accident due to poorly marked road}} = 1.58$; $M_{\text{accident due to very heavy rain}} = 3.75$; $SD_{\text{accident due to very heavy rain}} = 1.29$; $M_{\text{accident due to exceeding the speed limit}} = 5.56$; $SD_{\text{accident due to exceeding the speed limit}} = 1.76$; $M_{\text{accident due to people driving drunk}} = 5.83$; $SD_{\text{accident due to people driving drunk}} = 1.46$; $F(4;235) = 62.32$; $p < .01$). The ANOVA results are summarized in Table 1. Accidents caused by drunk driving had the highest average attribution of fault to citizens, so they were chosen to represent the presence of DCB. Accidents caused by a hole in the track had the lowest average attribution of fault to citizens, so they were chosen to represent the absence of DCB.

- - - Insert Table 1 here - - -

Participants and Design. Ninety-three participants (43 females and 50 males, between 18 and 42 years old, with an average age of 24.04) participated in this experiment. The present study examined H1 by investigating the role of DCB (presence vs. absence) and the levels of denial (low vs. high) on the probability of purchasing wines.

Procedure and Stimuli. The participants were randomly assigned to one condition in a 2 (type of accident: caused by drinking vs. caused by a hole in the track) $\times$ 2 (levels of denial: low vs. high) $\times$ purchase intention (measured) design. Participants were initially asked to randomly choose and read one of two newspaper articles, each describing a different car accident scenario. We developed two newspaper article scenarios describing a car accident like Gaustad et al.'s (2020) study. In the first scenario, the article described an accident caused by drinking. In this scenario, the aim was to stimulate the presence of DCB.

*A car accident left two people injured, police said. According to authorities, the crash happened around 10 pm on Sunday. One of the cars tried to overtake the other when the driver lost control and crashed into the other car, police said. **Officers witnessing the accident said the car that crashed was being driven by a drunk person.** "I saw the two cars on the road traveling at high speed. They were cutting corners at extreme speed," an eyewitness said. The injured persons were transported to University Hospital. According to hospital sources, they have life-threatening injuries.*

In the second scenario, the article described an accident caused by a hole in the track. In this scenario, the aim was to stimulate the absence of DCB.

*A car accident left two people injured, police said. According to authorities, the crash happened around 10 pm on Sunday. One of the cars tried to overtake the other when the driver lost control and crashed into the other car, police said. **Officers witnessing the accident said the car's tire went over a hole in the road, and the driver lost control.** "I saw the two cars on the road traveling at high speed. They were cutting corners at extreme speed," an eyewitness said. The injured persons were transported to University Hospital. According to hospital sources, they have life-threatening injuries.*

After reading the newspaper articles, a manipulation check was conducted to assess DCB intentions (adapted from Dootson et al., 2023). Participants answered the question, "Do you believe that people are largely to blame for car accidents?" on a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7). An ANOVA was conducted to check manipulation. Participants in the accident-caused-by-drinking scenario had higher levels of perception of DCB ($M = 4.76$; $SD = 1.28$) than in the accident-caused-by-a-hole-in-the-track scenario ($M = 3.95$; $SD = 1.79$; $F(1;91) = 6.141$; $p < .01$).

After this stage, participants responded to a scale that measured three factors of denial, each with three items: effectiveness (1 – "In principle, individuals on their own cannot contribute to the reduction of car accidents"; 2 – "The solution to accidents is not in the hands of the common citizen"; and 3 – "One person's efforts are useless if governments refuse to make sacrifices to protect the roads") ($\alpha = .872$); problem (1 – "The seriousness of car accidents is generally exaggerated in the media"; 2 – "The issue of car accidents has been greatly exaggerated"; and 3 – "The issue of car accidents is a low priority compared to a lot of other issues") ($\alpha = .785$); and responsibility (1 – "I do not feel responsible for car accidents"; 2 – "Households like mine should not be blamed for problems caused by traffic accidents"; and 3 – "Because my contribution is very small, I do not feel responsible for car accidents") ($\alpha = .889$) (adapted from Dursun et al., 2019). The scales were anchored from

completely disagree (1) to completely agree (7). The median of the sum of the means of these items generated two groups that gave rise to our independent variable: low vs. high level of denial.

Appendix A presents the image used in the experiment to represent the choice of wines in the product catalog. The dependent variable was purchasing intention, adapted from Dodds et al. (1991) and Herz & Diamantopoulos (2017). This variable was evaluated on a single-item scale (*The likelihood that I purchase one of these brands is very high*), anchored by very low (1) to very high (7). Finally, the control variables to measure familiarity were as follows: (1 – “*These brands are very familiar to me*”; 2 – “*I’m very knowledgeable about these brands*”; and 3 – “*I have seen many advertisements about these brands in the mass media*”) ($\alpha = .774$) (adapted from Steenkamp et al., 2003, and Zhou et al., 2010); self-declared importance (1 – “*A wine’s brand is important to me*”; 2 – “*The wine brand has an impact on my evaluations*”; and 3 – “*Within the product category of wine, a brand is important to me*”) ($\alpha = .852$) (adapted from Liu et al., 2005); category involvement (1 – “*I have a strong interest in wine*”; 2 – “*For me, wine does not matter*”; and 3 – “*Choosing a wine is an important decision for me*”) ($\alpha = .902$) (adapted from Mittal, 1989); concentration (1 – “*I am deeply engrossed in the activity*”; 2 – “*I am absorbed intensely in the activity*”; 3 – “*My attention is focused on the activity*”, and 4 – “*I concentrate fully on the activity*”) ($\alpha = .785$) (adapted from Ghani & Deshpande, 1994); and scenario authenticity (“*The perceived overall authenticity of a scenario*” in a single-item seven-point semantic differential of not at all authentic (1) to very authentic (7) (adapted from Herz & Diamantopoulos, 2017).

4.1 Results

Control variable. An ANOVA was conducted to test the control variables. The results showed no significant difference in relation to familiarity ($M_{\text{accident caused by drinking}} = 4.06$; $DP_{\text{accident caused by drinking}} = 1.82$; $M_{\text{accident caused by a hole in the track}} = 4.15$; $DP_{\text{accident caused by a hole in the track}} = 1.51$; $F(1;91) = .0648$; $p = .7996$). The self-declared importance levels in relation to the task were statically similar, showing no differences ($M_{\text{accident caused by drinking}} = 3.72$; $SD_{\text{accident caused by drinking}} = 1.52$; $M_{\text{accident caused by a hole in the track}} = 3.65$; $SD_{\text{accident caused by a hole in the track}} = 1.44$; $F(1;91) = .0531$; $p = .8181$). When evaluating category involvement, no significant difference was found either ($M_{\text{accident caused by drinking}} = 2.78$; $SD_{\text{accident caused by drinking}} = 1.98$; $M_{\text{accident caused by a hole in the track}} = 3.04$; $SD_{\text{accident caused by a hole in the track}} = 1.84 = 1.26$; $F(1;91) = .4136$; $p = .5212$).

The concentration levels in relation to the task were statically similar, showing no differences ($M_{\text{accident caused by drinking}} = 4.04$; $SD_{\text{accident caused by drinking}} = 1.85$; $M_{\text{accident caused by a hole in the track}} = 4.28$; $SD_{\text{accident caused by a hole in the track}} = 1.91$; $F(1;91) = .377$; $p = .5406$). Finally, the authenticity scenario was no different for the three groups ($M_{\text{accident caused by drinking}} = 3.91$; $SD_{\text{accident caused by drinking}} = 1.71$; $M_{\text{accident caused by a hole in the track}} = 3.93$; $SD_{\text{accident caused by a hole in the track}} = 1.74$; $F(1;91) = .0031$; $p = .954$).

Purchase intention. To evaluate H1, we analyzed separately the accident-caused-by-drinking scenario ($N_{\text{low denial}} = 21$; $N_{\text{high denial}} = 24$) and the accident-caused-by-a-hole-in-the-track scenario ($N_{\text{low denial}} = 22$; $N_{\text{high denial}} = 26$). In the hole-in-the-track scenario, no significant difference was noticed between low and high denial in purchase intention ($M_{\text{low denial}} = 3.68$; $SD_{\text{low denial}} = 1.46$; $M_{\text{high denial}} = 3.53$; $SD_{\text{high denial}} = 1.79$; $F(1;46) = .089$; $p = .7651$). However, in the drinking scenario, the high level of denial had greater purchase intention than the low level of denial ($M_{\text{low denial}} = 3.71$; $SD_{\text{low denial}} = 1.41$; $M_{\text{high denial}} = 4.79$; $SD_{\text{high denial}} = 1.66$; $F(1;43) = 5.367$; $p < .05$). These results demonstrate that in scenarios of perception of DCB intentions, consumers with high levels of denial tend to have greater purchasing intentions than consumers with low levels of denial. Thus, the results found in the pilot study support H1.

- - - Insert Figure 1 here - - -

5. Study 1 - Copycat and leading brands: The moderating effects of cognitive processes

Study 1's goal was to test H1 again. Furthermore, we analyzed the moderating effect of cognitive processes on the relationship between denial and behavioral intentions (H2). The basic approach to testing these hypotheses was to have the research participants visualize and choose between copycat products and leading brands. When choosing these products, participants responded to a denial scale adapted from Dursun et al. (2019).

Pretest to identify DCB. We conducted one pretest to classify the choice of copycat and leading brands into levels of DCB. The choice of copycat and leading brands for the pretest were chocolates, as used in Van Horen and Pieters' (2012) study. We presented three choices: (1) Milka (leading brand), (2) Lecha (copycat brand), and (3) Milka and Lecha (leading and copycat brand). We separated them into three groups because previous research evaluated the choice between leading and copycat scenarios in these formats (e.g., Van Horen

& Pieters, 2017; Kelting et al., 2019). The objective was to analyze DCB in these three choices. We used a scale adapted from Dootson et al. (2023) to assess DCB intentions. Participants answered the question, “Do you believe that people are largely to blame for the existence of copycat brands?” through a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Sixty-two participants took the pretest and were randomly selected for just one of the choices. An ANOVA was conducted to check the levels of DCB intentions in the three choices. Participants who made only leading brand choices had lower averages of DCB ($M = 3.47$; $SD = 1.36$) than consumers who chose only copycat brands ($M = 5.09$; $SD = 1.7$) or leading and copycat brands together ($M = 5.7$; $SD = 1.59$; $F(2;59) = 11.24$; $p < .001$). These results demonstrate that choices involving copycat brands are classified with higher levels of DCB, probably generating greater denial mechanisms.

Participants and Design. Seventy-four participants (39 females and 35 males, between 19 and 61 years old, with an average age of 32.06) participated in this experiment. The present study examined how cognitive processes moderate the levels of denial in behavioral intentions toward brands.

Procedure and Stimuli. The approach to testing the hypothesis was to have some participants visualize and choose at least one product on a screen. Participants were informed that they should perform three tasks. In the first task, participants were asked to choose three products. Participants were asked to sit in front of a computer screen. Thirteen products were displayed on a shopping site divided between copycat and leading brands): Frosted Flakes (Frosties Flakes), Stern (Heineken), Best Foods (Hellmann’s), Bullfighter (Red Bull), Anti-dandruff (Head & Shoulders), Power Force (Mr. Muscle), Big Soft (Baby Soft), Lecha (Milka), Cremosa (Nutella), Neo (Oreo), Nutters (M&M), Sainsbury’s Classic Cola (Coca-Cola), and Lepin Cities (Lego City). After this stage, participants were divided into three groups according to the choices made: (1) participants who chose only leading brands ($N_{leading} = 15$), (2) participants who chose only copycat brands ($N_{copycat} = 28$), and (3) participants who chose leading and copycat brands ($N_{leading\ and\ copycat} = 31$).

This sample was chosen for its location near the neuroscience laboratory where the eye-tracking data was collected. Participants were selected based on inclusion criteria requiring normal vision or corrected vision (via glasses or contact lenses) to ensure consistent visual capacity throughout the experiments. All participants had normal or corrected-to-normal vision. We utilized the Tobii X3-120Hz eye-tracking device, widely used is

experimental studies (Ladeira et al., 2023, 2024a, 2024b, 2024c) to evaluate cognitive processes, which measures fixation frequency. The setup included a mounted eye-tracking system to capture participants' gaze as they viewed images. Upon arrival, participants entered the laboratory and were seated at a computer. They were informed that their task involved viewing images. The eye-tracking system recorded fixation points and gaze durations at a frequency of 120 Hz. Calibration and instructions were provided, typically taking about one minute. During calibration, participants were positioned approximately 75 cm from the computer screen, with the center of the screen aligned to their eye level. The distance between their eyes and the screen was maintained at 60 cm. An infrared camera positioned below the screen recorded eye movements for analysis. The fixation frequency was used in our model as the moderating variable. Ladeira et al. (2021) used the same procedure to account for fixation frequency as a cognitive process. The fixation count was collected in the areas of interest (AOIs) of the products chosen by the participants. Fixation count refers to the number of times a participant's gaze pauses on specific areas of interest during a visual task (Võ & Henderson, 2010). To process the data, we applied AOI to remove artifacts and ensure robust gaze fixation measurements. This approach aligns with best practices in eye-tracking research. Tobii Pro Lab was used to analyze the data. This software allows for the recording, visualization, and analysis of gaze patterns, fixation durations, and other eye-tracking metrics. Appendix B presents the scenarios used in the experiment and the visual attention heat map.

The second task assessed levels of denial using a multi-item scale (effectiveness $\rightarrow \alpha = .798$; problem $\rightarrow \alpha = .804$; and responsibility $\rightarrow \alpha = .824$) adapted from Dursun et al. (2019) and purchasing intention adapted from Dodds et al. (1991) and Herz & Diamantopoulos (2017). The use of these scales followed the same procedures as the pilot study. The scales were anchored from completely disagree (1) to completely agree (7). The median of the sum of the means of these items of denial generated two groups that gave rise to our independent variable: low vs. high level of denial. The purchasing intention was used as a dependent variable and evaluated on a single-item scale (*The likelihood that I purchase one of these brands is very high*), anchored by very low (1) to very high (7).

In the third task, we evaluated the control variables' familiarity ($\alpha = .876$) adapted from Steenkamp et al. (2003) and Zhou et al. (2010), category involvement ($\alpha = .893$) adapted from Mittal (1989), concentration ($\alpha = .769$) adapted from Ghani & Deshpande (1994), and

scenario authenticity adapted from Herz & Diamantopoulos (2017). The format of these scales followed the pilot study procedures.

5.1 Results

Control variables. We conducted an ANOVA to measure differences in brand familiarity across the three choices made and found no significant difference across the three groups ($M_{\text{leading}} = 3.47$; $SD_{\text{leading}} = 1.04$; $M_{\text{copycat}} = 3.19$; $SD_{\text{copycat}} = 1.03$; $M_{\text{leading and copycat}} = 3.05$; $SD_{\text{leading and copycat}} = 1.05$; $F(2;71) = .4102$; $p = .904$). When evaluating category involvement, no significant difference was found either ($M_{\text{leading}} = 3.14$; $SD_{\text{leading}} = 1.38$; $M_{\text{copycat}} = 2.85$; $SD_{\text{copycat}} = 1.23$; $M_{\text{leading and copycat}} = 2.7$; $SD_{\text{leading and copycat}} = 1.26$; $F(2;71) = .6162$; $p = .5432$). The concentration levels in relation to the task were statically similar, showing no differences ($M_{\text{leading}} = 3.95$; $SD_{\text{leading}} = 1.83$; $M_{\text{copycat}} = 4.28$; $SD_{\text{copycat}} = 1.38$; $M_{\text{leading and copycat}} = 3.9$; $SD_{\text{leading and copycat}} = 1.51$; $F(2;71) = .3502$; $p = .706$). Finally, the authenticity scenario showed no difference between the three groups ($M_{\text{leading}} = 4.19$; $SD_{\text{leading}} = 1.83$; $M_{\text{copycat}} = 4.28$; $SD_{\text{copycat}} = 1.45$; $M_{\text{leading and copycat}} = 4.3$; $SD_{\text{leading and copycat}} = 1.86$; $F(2;71) = .0247$; $p = .9758$).

Manipulations checks. An ANOVA showed significant results for denial. High levels of denial were found when the participant chose a mix of leading and copycat products ($M_{\text{leading}} = 3.40$; $SD_{\text{leading}} = 1.59$; $M_{\text{copycat}} = 3.25$; $SD_{\text{copycat}} = 1.92$; $M_{\text{leading and copycat}} = 4.59$; $SD_{\text{leading and copycat}} = 2.12$; $F(2;71) = 4.41$; $p < .05$). A possible explanation for the higher level of denial in choosing the mix of leading and copycat is that this format promotes greater comparison between products, making it possible to perceive similarities and dissimilarities between brands more easily. Previous studies demonstrate that comparing leading and copycat products improves the perception of imitation through similarity (Pieters, 2010; Van Horen & Pieters, 2017).

Purchasing intention. An ANOVA showed an interaction between behavioral intentions in the three groups. High levels of behavioral intention were found when the participant chose a mix of original and copycat products ($M_{\text{leading}} = 4.6$; $SD_{\text{leading}} = 2.16$; $M_{\text{copycat}} = 4.25$; $SD_{\text{copycat}} = 1.96$; $M_{\text{leading and copycat}} = 5.62$; $SD_{\text{leading and copycat}} = 1.07$; $F(2;71) = 5.28$; $p < .01$). The ANOVA results help to uphold the results found in the pilot study that validate H1. The choices of leading and copycat brands together had higher averages of behavioral intention than those of leading and copycat brands separately. Furthermore, as

shown in the manipulation checks, the choices of leading and copycat brands together had higher levels of denial than those of leading and copycat brands separately. This information can be seen in Figure 2.

--- Insert Figure 2 here ---

Cognitive process. The ANOVA results showed a significant difference in the cognitive process (count fixation). Higher levels of the cognitive process were found when the participant chose leading and copycat products ($M_{leading} = 60.13$; $SD_{leading} = 25.55$; $M_{copycat} = 61.96$; $SD_{copycat} = 24.72$; $M_{leading\ and\ copycat} = 85.97$; $SD_{leading\ and\ copycat} = 30.65$; $F(2;71) = 7.341$; $p < .01$). Hayes' PROCESS procedure (Model 1; bootstrapped with 5000 samples) was used to provide more information about cognitive processing in Study 1 and to test H2. Results showed that the interaction between usage denial and behavioral intention level produced an acceptable fitting model, as $R^2 = 0.3615$, $F(3;71) = 3.558$, $p = .0185$. The coefficient of the interaction between usage denial and behavioral intention was negative and significant ($b = -.028$, $p < .05$). The finding revealed the effect of the cognition process based on fixation count for copycat products on behavioral intention was significant for medium levels of general cognitive process ($b = -1.0187$ ($SE = .4194$); 95% CI [-1.8549; -.1825], $p = .018$) and high levels of general cognitive process ($b = -2.1502$ ($SE = .7662$); 95% CI [-3.6779; -.6225], $p = .006$) but not for lower levels of cognition process ($b = -.1951$ ($SE = .5921$); 95% CI [-1.3757; .9856]; $p = .743$).

--- Insert Table 2 here ---

6. Study 2 – Legally and illegally streaming: The moderating effects of cognitive processes

The objective of Study 2 was to gather more evidence of how denial levels influence behavioral intention and are moderated by cognitive processes in a context other than DCB. The basic approach to testing these hypotheses was to have the research participants visualize and choose an app for legally streaming or an app for illegally streaming.

Participants and Design. Seventy-five participants (40 females and 35 males, aged between 19 and 61 years, with an average age of 32.25 years) participated in this experiment. These participants were separated into two groups based on their video streaming service

choice: an app for legal streaming vs. an app for illegal streaming. The present study examined the low vs. high level of denial and the cognitive process involved in choosing illegal streaming services.

Procedure and Stimuli. The approach to testing the hypothesis was to have some participants visualize and choose at least one streaming app service on a screen containing six streaming apps (one of which was an illegal streaming app). The illegal streaming service offered the content of all the other services for the same price. Participants were told that they had to perform three tasks. The first task was to choose a streaming app. In these studies, 39 participants chose an illegal streaming app (Smart IPTV) and 36 chose a legal streaming app (Netflix, HBO Max, Disney +, Prime Video, or Apple TV). When they chose, an eye-tracking device (Tobbi X3-120Hz) collected fixation count and fixation duration on the images of the six streaming services: Netflix, HBO Max, Disney +, Prime Video, Apple TV +, and Smart IPTV. The cognitive process was used in our model as the moderating variable. The cognitive process was measured through the percentage that the illegal video streaming service represented in the gaze duration on the screen. Gaze duration, also known as fixation duration, measures the time a participant’s gaze remains focused on a particular point or object, providing insights into cognitive processing and interest levels (Holmqvist et al., 2011). Ladeira et al. (2021) used the same procedure to account for gaze duration as a cognitive process. The cognitive processing collection procedures using the Tobii X3-120Hz eye-tracking device were the same as in Study 1. Data analysis used the streaming app’s AOIs. Appendix C presents the scenarios used in the experiment and the visual attention heat map.

In the second task, respondents evaluated the independent and dependent variables. The independent variable was denial. The participants, after choosing the video streaming service, responded to an item that evaluated the denial: *“Watching or downloading online movies through illegal ways is harmful to the movie industry”* (on a 7-point Likert scale: strongly disagree to strongly agree). This statement was adapted from Dursun et al. (2019). The median of the sum of the means of these items of denial generated two groups that gave rise to our independent variable: low vs. high level of denial. The purchasing intention was used as a dependent variable and evaluated on a single-item scale (*The likelihood that I purchase this streaming app is very high*), anchored by very low (1) and very high (7), adapted from Dodds et al. (1991) and Herz & Diamantopoulos (2017). Finally, the last task

included the answer to a control variable of how many hours the participants spent watching movies or series per month.

6.1 Results

Control variables. Regarding the hours spent watching movies or series, there is no significant difference between the groups ($M_{app \text{ for illegally streaming}} = 4.80$; $SD_{app \text{ for illegally streaming}} = 4.44$; $M_{app \text{ for legally streaming}} = 6.64$; $SD_{app \text{ for legally streaming}} = 8.39$; $t(74) = -.675$; $p = .502$).

Manipulation checks. Our results show that usage denials have significant differences according to the service the participants chose ($M_{app \text{ for illegally streaming}} = 5.40$; $SD_{app \text{ for illegally streaming}} = 1.96$; $M_{app \text{ for legally streaming}} = 3.79$; $SD_{app \text{ for legally streaming}} = 1.92$; $t(74) = 2.471$; $p < .05$).

Purchasing intention. An ANOVA showed an interaction between behavioral intentions and choices (app for illegally streaming vs. app for legally streaming). High levels of behavioral intentions were found when the participant chose an app for illegal streaming ($M_{app \text{ for illegal streaming}} = 5.36$; $SD_{app \text{ for illegal streaming}} = .99$; $M_{app \text{ for legally streaming}} = 4.12$; $SD_{app \text{ for legally streaming}} = 1.82$; $F(1,73) = 12.92$; $p < .01$). These data confirm H1.

Cognitive process. The t-test indicated that participants had a higher cognitive process when they chose the illegal streaming service ($M_{app \text{ for illegally streaming}} = 0.33$; $SD_{app \text{ for illegally streaming}} = 0.19$; $M_{app \text{ for legally streaming}} = 0.13$; $SD_{app \text{ for legally streaming}} = 0.09$; $t(74) = 2.439$; $p < .05$). Hayes' PROCESS procedure (Model 1; bootstrapped with 5000 samples) was used to analyze the variation in the cognitive process and tested H2. The multiple regression model tests the main effects and interaction between cognitive process and illegal/legal service when defense activation mechanisms of usage denial are considered a decision-making process. This model demonstrated the significant regression equation and found ($F[3,72] = 11.5431$; $p < .001$; $R^2 = 0.3248$).

- - - Insert Table 3 here - - -

As expected, the app for illegally/legally streaming significantly predicts cognitive process in the decision-making process ($b = -2.3903$ (SE = 1.264); 95% CI [-.49101; -.1294]; $p < .001$). A multiple regression model found that the effect of an illegal/legal service on the cognitive process was significant for middle levels of defense activation mechanisms of usage

denial ($b = -10.1110$ (SE = 2.8774); 95% CI [-15.8469; -4.3750], $p < .001$) and high defense activation mechanisms of usage denial ($b = -16.5171$ (SE = 3.0826); 95% CI [-22.6621; -10.3720], $p < .001$) but not for low levels of defense activation mechanisms of usage denial ($b = -5.3303$ (SE = 4.7245); 95% CI [-14.7485; 4.0879], $p = .263$). Figure 3 shows the interaction patterns.

- - - Insert Figure 3 here - - -

7. Discussion

This research enhances our understanding of how denial mechanisms influence consumer decision-making through visual cognitive processing. Previous studies have shown that denial helps individuals protect their self-image and mitigate cognitive dissonance (Sherman & Cohen, 2006). Our findings extend this understanding by demonstrating that heightened cognitive processing plays a central role in shaping behavioral intentions in ethically ambiguous consumption scenarios.

Across three experiments, we found that denial mechanisms increased cognitive effort, which, in turn, strengthened behavioral intentions toward deviant consumer choices. Specifically, Study 1 showed that consumers who selected both copycat and leading brands exhibited heightened cognitive processing, likely as a justification strategy. Study 2 demonstrated that individuals who acknowledged the negative consequences of illegal streaming but still chose it engaged in higher cognitive processing, indicating an internal conflict resolution process. These results suggest that when faced with moral dilemmas, consumers employ denial mechanisms that drive visual cognitive engagement, influencing decision-making.

7. 1 Theoretical Implications

This study advances research on consumer defensive behaviors (Harris & Daunt, 2011; Sherman & Cohen, 2006; Dootson et al., 2017) by highlighting the role of visual cognitive processing in activating denial as a defensive response. It underscores the conditions under which denial mechanisms are triggered. In real-world consumer contexts, denial often

protects introspective thoughts by altering cognitive engagement with visual stimuli. Our findings also contribute to understanding defensive behaviors by demonstrating that denial can be measured through visual cognitive processing, as evidenced by eye-tracking data.

We provide theoretical support for the role of self-integrity protection in fostering denial and influencing behavioral intentions. This process can be linked to consumers' desire to avoid violating societal moral norms, which leads to cognitive distortions (Ryoo, 2022). Previous research established that denial impacts human behavior (Harris & Daunt, 2011; Dootson et al., 2017), and our findings extend this by showing how increased visual cognitive processing strengthens denial's effects. Specifically, our results support H2 by demonstrating that denial enhances cognitive processing, which, in turn, fosters stronger behavioral intentions. Experiments 1 and 2 reveal that denial drives higher behavioral intentions when cognitive processing is elevated. Tables 2 and 3 illustrate that at low cognitive processing levels, there are minimal differences in behavioral intentions between leading and copycat brands or legal and illegal streaming. However, copycat brands and illegal streaming exhibit stronger behavioral intentions at medium and high cognitive processing levels than their leading and legal counterparts.

7.2 Practical Implications

The findings of this research offer critical insights for marketing practitioners, particularly in managing consumer denial mechanisms and visual cognitive processing. The evidence suggests that denial influences consumer choices through cognitive engagement, which can be strategically leveraged by brands to shape purchasing decisions. Leading brands should employ marketing strategies that stimulate higher cognitive engagement to differentiate themselves from copycat products. By designing advertisements and packaging that prompt deeper thought—such as comparative messaging, transparency in ingredient sourcing, or authenticity narratives—brands can encourage consumers to reject imitation products and reaffirm trust in original brands.

Another practical implication of this study is associated with retail strategy optimization. Retailers can use insights from visual cognitive processing to enhance product placement and store layout. Placing authentic products in prime visual locations, integrating interactive displays that require cognitive engagement, and utilizing contrast-based visual

cues can make genuine products more salient and appealing. Digital platforms can incorporate augmented reality or side-by-side product comparisons to increase consumer cognitive effort in differentiating authentic and copycat products. Additionally, brands facing competition from counterfeit or unethical alternatives should frame their communications around the ethical consequences of purchasing decisions. Campaigns emphasize the long-term benefits of choosing legitimate products, such as brand warranties, product safety, and ethical sourcing, can heighten cognitive processing and reduce consumer tendencies to justify deviant behavior through denial mechanisms.

Marketers can integrate eye-tracking technology to analyze consumer attention patterns and optimize advertisements, websites, and product packaging. Understanding which visual elements trigger heightened cognitive engagement can help brands refine their marketing strategies to either reinforce positive consumer behavior or mitigate decision-making biases linked to denial mechanisms.

Finally, strategies to neutralize the appeal of deviant consumer behavior can be implemented. Businesses in industries vulnerable to consumer misbehavior, such as digital streaming services, can implement strategies that highlight the risks and disadvantages of unethical choices. For example, legal streaming platforms can use visual cues, such as warnings about potential cybersecurity threats or loss of content quality, to increase cognitive processing and deter consumers from choosing illegal alternatives. Marketing campaigns should move beyond generic messaging and instead use targeted communication that encourages self-reflection. For instance, sustainability-focused brands can use storytelling techniques that highlight real-life consequences of unethical consumer choices, fostering cognitive dissonance that motivates consumers to align their behavior with ethical standards. By strategically leveraging denial mechanisms and cognitive processing, brands and businesses can not only enhance consumer decision-making but also promote ethical consumption patterns, brand loyalty, and long-term customer engagement.

7.3 Limitations and directions for future research

This study is not without its limitations. First, the participants did not recognize some copycat products as copycats precisely because of their premise that the design deceives the

consumer. Consequently, some might not have paid enough attention to the details in the Study 2 scenario, which might have affected our results. Since, in every case, the participants were simulating purchases and not making them, the behavioral intention might have differed from reality. Due to the use of an eye-tracking device in the experiments, the sample size was necessarily limited. Data collection requires each participant to be physically present before the device. However, this setup offers the advantage of allowing precise control over the environment and the manipulation of variables in a manner specifically designed for the experiments.

Another limitation is the sample sizes, as smaller sample sizes can limit generalizability. Two practical and methodological factors influenced this decision. First, precision in data collection. Eye-tracking research prioritizes collecting high-quality, granular data. Our study's focus on measuring denial mechanisms required careful and controlled experimental setups to ensure data reliability and minimize noise. This level of precision often necessitates smaller, more manageable sample sizes. Second, generality across scenarios. While the sample size in each experiment was limited, using three distinct scenarios aimed to enhance the robustness of our conclusions by testing the phenomena across varied contexts. This approach strengthens the reliability of our findings but does not remove the limitation of using small samples. Despite these two factors, future studies could expand upon this work by incorporating larger and more diverse samples to validate and extend our findings.

Future studies could be conducted in other countries to investigate whether cultural aspects interfere with the effects of usage denial and cognitive processing. It would also be interesting to test the impact of other defensive mechanisms on cognitive processing in other marketing studies. An important limitation of our work is that the discussion of cognitive aspects influencing behavioral intentions through denial mechanisms ignores the breadth of variables that could impact intentions. Therefore, future research that discusses additional factors such as emotional responses, social influences, and situational contexts could provide a more comprehensive understanding of consumer decision-making processes. In this study, we mixed the copycats and original products, but the original and the copycat were not on the same screen. It would be interesting to replicate this study by placing the copycats and the original products in the same environment, making it easier for the participant to realize that the copycat is false. We also recommend copycat studies that consider other product categories. There are limited studies in marketing involving usage denial, so we encourage

other researchers to test this defense mechanism with other marketing constructs. Researchers could also undertake new studies focused on marketing using eye-tracking and face-reader devices, considering how products and prices are placed on the screen, and conditional buying, such as pay for one, take two. Another avenue that could be explored is to replicate these studies with expensive products that implicate higher consumer risks.

Future studies could expand upon eye-tracking and apply this methodology to more diverse consumer contexts, such as e-commerce, augmented reality, and virtual reality environments. These settings could provide richer insights into how visual attention and denial mechanisms operate in dynamic and digitally mediated interactions. Investigating how different product categories or digital interfaces influence consumer decision-making through eye-tracking metrics would offer valuable contributions to the field. Additionally, further research could explore a broader range of defensive mechanisms beyond denial, such as justification, rationalization, or avoidance behaviors. These mechanisms may uniquely interact with cognitive processes, shaping consumer responses differently across various scenarios. Examining these mechanisms with eye-tracking technology could yield a more holistic understanding of how consumers navigate ethical dilemmas and deviant behaviors in marketing contexts.

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Table 1. Pre-test results

Cause of car accident	Mean	Standard deviation	ANOVA Results
Accident due to a hole in the track	2.01	1.54	F (4;235) = 62.32; p < .01
Accident due to poorly marked road	2.43	1.58	
Accident due to very heavy rain	3.75	1.29	
Accident due to exceeding the speed limit	5.56	1.76	
Accident due to people driving drunk	5.83	1.46	

Table 2. Results of Study 1 for the test of the conditional effect of cognition process based on fixation count for copycat products on behavioral intention.

Cognitive process level	Effect	SE	t	p	LLCI	ULCI
Low	-.1951	.5921	-.3294	.7428	-1.3757	.9856
Middle	-1.018	.4194	-2.4291	.0177	-1.8549	-.1825
High	-2.151	.7662	-2.8065	.0065	-3.6779	-.6225

Abbreviations: LLCI = lower level for confidence interval; ULCI = upper level for confidence interval; SE = standard error.

Table 3. Results of Study 2 for the test of the conditional effect of cognition process based on fixation count for legal and illegal streaming.

Usage denial level	Effect	SE	t	p	LLCI	ULCI
Low	-5.3303	4.7245	-1.1282	.263	-14.748	4.087
Middle	-10.111	2.8774	-3.514	.0008	-15.846	-4.375
High	16.517	3.0826	-5.3582	.0001	-22.662	-10.372

Abbreviations: LLCI = lower level for confidence interval; ULCI = upper level for confidence interval; SE = standard error.

Figure 1. Study 1: Results of the level of denial, deviant consumer behavior, and behavioral intentions index

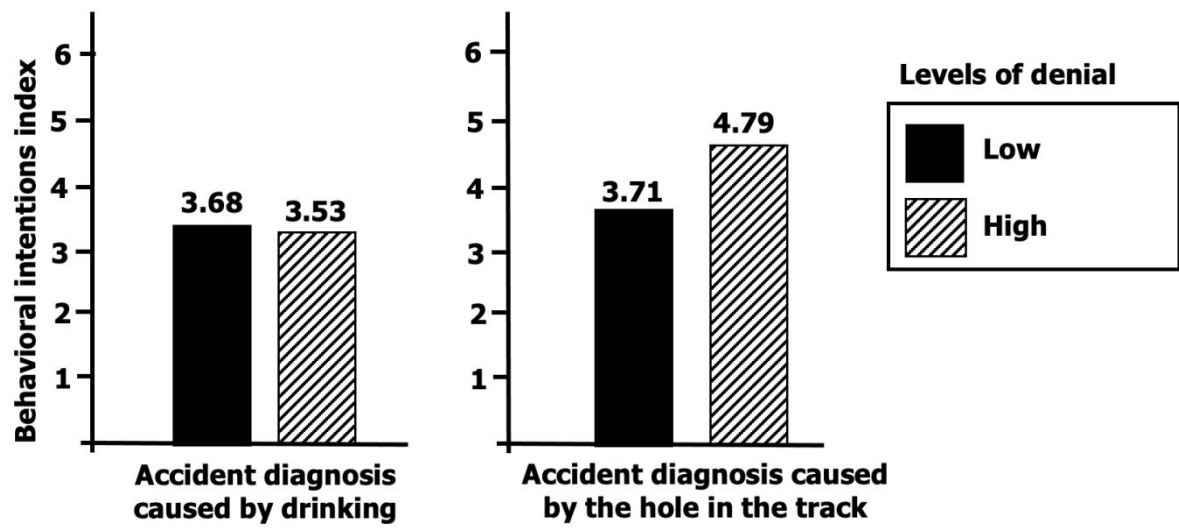


Figure 2. Study results of denial, cognitive processes, and behavioral intentions index

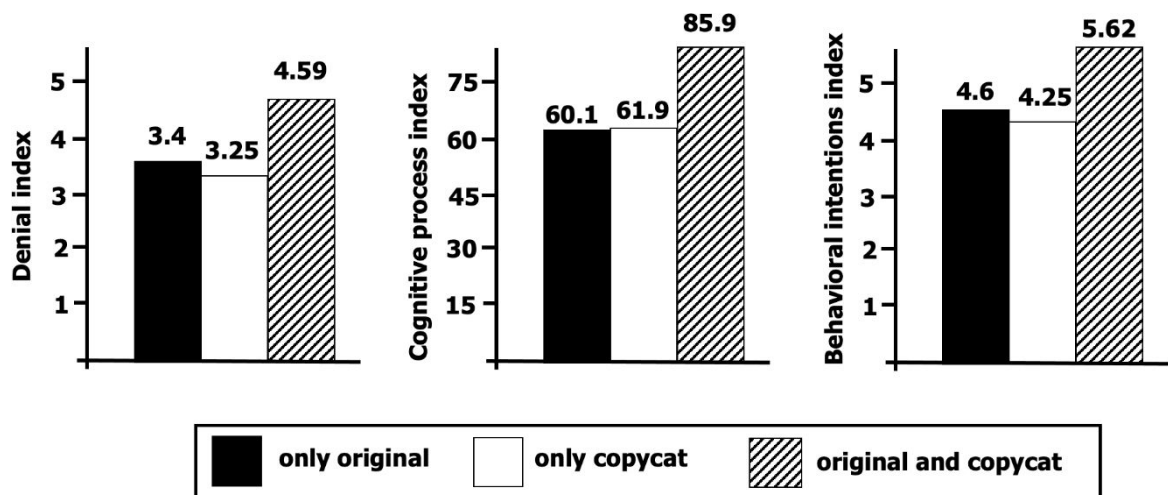
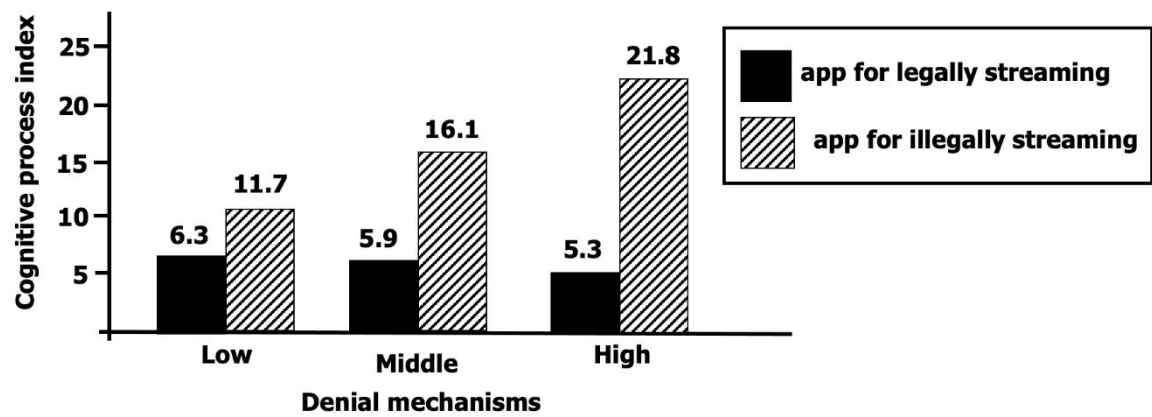


Figure 3. Study 2: Examining the interaction between cognitive processes and legal and illegal services in decision-making, particularly when considering the defense activation mechanisms of usage denial



Appendix A – The scenario of choice of wines in the product catalog.



WINE festival

copacabana
Supermarket

THE BEST WINES IN THE WORLD | THE LOWEST PRICES

 Domaine Ouled Thaleb 750ml un 3738.87 TAKE 3, PAY 2 Na compra de 3 unidades, pague 865.33	 Yellow Tail Shiraz 750ml 1779.64	 Black Tower Branco 750ml un 926.56	 Obikwa Pinotage 750ml 963.29 TAKE 4, PAY 3 Na compra de 4 unidades, pague 653.08	 Ishtar Domus + Aurum 750ml 2 un 899.99	 Único Tannat 750ml 799.99 TAKE 3, PAY 2 Na compra de 2 unidades, pague 479.99
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copacabana.com
[/copacabana](https://www.facebook.com/copacabana)
[copacabanasuper](https://www.instagram.com/copacabanasuper)

ou enquanto durarem os estoques. *Produto disponível nas lojas Zaffari CenterLar, Ipiranga, Higienópolis, Cavalhada, Cristóvão Colombo, Otto Niemeyer, Wallig, Hiper Caxias, ParkShopping Canoas e nos Boutões Hipermercados Assis Brasil, Ipiranga, Country, Canoas, São Leopoldo, Novo Hamburgo e Passo Fundo. • Em consideração aos nossos clientes, não vendemos por atacado. • As fotos deste anúncio são meramente ilustrativas. • Garantimos aos nossos clientes a quantidade mínima por loja de 50 quilos/10 unidades de cada um dos produtos anunciados.


Leia aqui e confira nossas ofertas
 Aponte o aparelho para o QR Code ao lado, confirme o envio da mensagem para ser direcionado ao nosso WhatsApp e veja nossas ofertas.

Appendix B – The scenario and the heat map of visual attention from Study 1



Appendix C – The scenario and the heat map of visual attention from Study 2

