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**THE DEFENSE ACTIVATION MECHANISMS OF DENIAL AND BEHAVIORAL
INTENTIONS: THE ROLE OF COGNITIVE PROCESS**

Porto Alegre

2022

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Dissertação apresentada como requisito parcial para obtenção do título de Mestre em Administração, pelo Programa de Pós-Graduação em Administração da Universidade do Vale do Rio dos Sinos (UNISINOS).

Orientador: Prof. Dr. Wagner Junior Ladeira

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Education is the most powerful weapon
which you can use to change the world.

(Nelson Mandela)

RESUMO

Esta pesquisa tem como objetivo analisar aspectos cognitivos que influenciam as intenções comportamentais dos consumidores por meio de mecanismos defensivos de negação (ou seja, processamento cognitivo visual). Esta pesquisa propõe que a proteção da auto integridade causada pela negação impulsiona o processamento cognitivo e promove intenções comportamentais mais fortes. Três experimentos indicam que mecanismos de negação geram proteção de auto integridade em diferentes categorias de consumo: compra de vinhos desacreditados (estudo piloto), escolha de marcas imitadoras (estudo 1) e seleção de um aplicativo ilegal (estudo 2). Previmos que essas tarefas induziriam a ativação de mecanismos defensivos de negação, influenciando diretamente os processos cognitivos e as intenções comportamentais. Os resultados indicam que altos (vs. baixos) níveis de processamento cognitivo provocam mudanças nas intenções comportamentais por meio de mecanismos de negação. Apesar das evidências anteriores sugerirem que a negação é difícil de medir nas ações do consumidor, nossos resultados vão na direção oposta ao indicar que o processo de negação pode ser percebido através do processamento cognitivo visual, e também que mecanismos de rastreamento ocular podem analisar o processo de negação para entender melhor como os consumidores reagem.

Palavras-chave: *Mecanismos de Negação; Auto Integridade; Auto Afirmação; Intenções Comportamentais; Processo Cognitivo.*

ABSTRACT

This research aims to analyze cognitive aspects that influence consumers' behavioral intentions by defensive mechanisms of cue usage denial (i.e., visual cognitive processing). This research proposes that self-integrity protection caused by denial drives cognitive processing and fosters stronger behavioral intentions. Three experiments indicate that denial mechanisms generate self-integrity protection across different consumption categories: buying discredited wines (pilot study), choosing copycat brands (study 1), and selecting an illegal app (study 2). We predicted that these tasks would induce the activation of defensive mechanisms of denial, directly influencing the cognitive processes and behavioral intentions. The findings indicate that high (vs. low) levels of cognitive processing prompt change in behavioral intentions via denial mechanisms. Despite past evidence suggesting that denial is difficult to measure in consumer actions, our results go in the opposite direction by indicating that the denial process can be perceived through visual cognitive processing, also that Eye-tracking mechanisms may analyze the denial process to understand better how consumers react.

Key-words: *behavioral intentions; self-integrity; self-affirmation; denial mechanisms; cognitive processes.*

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1 INTRODUCTION

To achieve their goals, consumers often seek to protect their self-integrity using the processing of biased defensive responses and, consequently, activate defense mechanisms of denial (HERZ; DIAMANTOPOULOS, 2017; SHERMAN; COHEN, 2006). This processing may work automatically or unconsciously to device defensive reactions, such as reinterpreting problematic facts to fit their present viewpoints, focusing on other positive aspects of oneself that are vital to one's self-worth, or behaving defensively to defend one's self-integrity (GAUSTAD; UTGÅRD; FITZSIMONS, 2020; GRILLO; PIZZUTTI, 2021; REED; ASPINWALL, 1998; STONE; COOPER, 2001).

Defensive reactions include actions aimed at ignoring the threat and modifying one's evaluation of an event to make it less terrifying (FANSELOW, 2018). It is common knowledge that reluctance to confront specific facts or ignore the threat and modify one's judgment of an event makes it less scary (BAUMEISTER; DALE; SOMMER, 1998; HERZ; DIAMANTOPOULOS, 2017). Such a reluctance imposes a strong rejection of reality: a person rejects unpleasant situations, insisting that it is not true despite contrary evidence (VAILLANT, 1992). When facts are upsetting or threatening a person's self-image or self-esteem, they are often disregarded, suppressed, or blanked out (BAUMEISTER; DALE; SOMMER, 1998; GAUSTAD; UTGÅRD; FITZSIMONS, 2020).

Current studies have tried to verify the effects of defensive reactions and, consequently, denial on purchase intention (DURSUN; TÜMER KABADAYI; TUĞER, 2019; GAUSTAD; UTGÅRD; FITZSIMONS, 2020; HERZ; DIAMANTOPOULOS, 2017; HOWIE *et al.*, 2018). The findings of these studies have shown that these effects can lead to cognitive coping, altering behavioral intentions. Usage denial refers to not recognizing an unacceptable emotion or truth (CHAPMAN; WAI LENG WONG; SMITH, 1993; FEIN; SPENCER, 1997). Denial is a mechanism that is often activated through irrational and malleable processes to create a defense against situations or circumstances that are painful (HERZ; DIAMANTOPOULOS, 2017; HOWIE *et al.*, 2018; SCHWARTZ; HOWARD, 1980).

To better understand the consumer's defense activation mechanisms of usage denial, this paper aims to analyze cognitive aspects that influence the behavior intentions by defense activation mechanisms of cue usage denial. The overarching

premise of this study is that defensive denial can generate different levels of cognitive processing is responsible for changes in consumption intentions. Based on the results of three eye-tracking experiments, this paper demonstrates that the denial of the origin of wine alters the visual cognitive process (pilot study), that 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 brands (study 1), which in the choice of streaming service the presence of an illegal brand influence the behavior intentions by defense activation mechanisms of cue usage denial (study 2).

The purpose of our experiments is twofold. First, building on theory from self-integrity and defensive reactions, to understand that consumers change visual cognitive processing when they activate the defense mechanisms of usage denial. Here, we posit that presence usage denial is a malleable process that levels of visual attention can drive. Second, we empirically test changes in consumption intent based on processing product information generated by usage denials. Our results show that when consumers choose a product using defensive reactions, they tend to increase their visual cognitive process. Third, this research contributes to the effort to develop better intentions to understand behavior processing by defense activation mechanisms of cue usage denial. Overall, our attention studies have demonstrated the value of measuring visual information as an expression of processing products to understand better how people visually process different scenarios and their effects on consumption responses.

2 USAGE DENIAL: THE NATURE OF THE CONCEPT AND THEORETICAL APPROACH

Denial can be understood as a vital protective strategy in which the individual refuses to confront certain truths (BAUMEISTER; DALE; SOMMER, 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). If points are disturbing or pose a possible threat to an individual's self-image or self-esteem, they may likely be ignored, suppressed, or blanked out (BAUMEISTER; DALE; SOMMER, 1998).

The notion of denial is common to the daily life of the human being, as it appears at different moments in life. Alcohol or substance use disorder can generate a process of denial of reality (HARRIS, P. R. *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, the attempt to measure through a construct is problematic (HOWIE *et al.*, 2018). This is because denial is a process located at the core of more internal and introspective thoughts (BAUMEISTER; DALE; SOMMER, 1998; HERZ; DIAMANTOPOULOS, 2017). Furthermore, the psychological aspects that involve denial are constructed through beliefs and attitudes generated in the interaction with the social environment (SWEENEY; MOYER, 2015). Because of this, the denial study 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 the term denial represents a refusal to confront reality, different paradigms can contribute to this concept through different theoretical premises. One of the first theoretical approaches that try to explain the process of negation is the neutralization theory (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 behavior without any negative or remorseful feelings about the value systems of delinquents (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 motivated by defensive denial 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).

The self-affirmation theory is another approach that contributes to understanding denial behavior (STEELE, 1988). The theoretical premise is that the individual has a self-system that tries to protect an image of self-integrity. This self-system acts in ways by social and cultural norms and the salient demands on people within that culture (SHERMAN; COHEN, 2006). Messages, information signals, or occurrences that imply that the individual is not competent or good in a personally meaningful domain can constitute threats to an individual's self-integrity (STEELE, 1988). When someone is threatened, it's not the threat itself that causes a problem; it's the threat's consequences on their sense of self-integrity (SHERMAN; COHEN, 2006; STEELE, 1988).

Individuals' self-systems are flexible, and when the image of one's self-integrity is challenged, people react in various ways to mitigate the damage (STEELE, 1988). Possible responses include (a) reinterpreting troubling information to make it compatible with their current views, (b) focusing on other good parts of oneself that are important for one's self-worth, or (c) reacting defensively to defend one's self-integrity (REED; ASPINWALL, 1998; SHERMAN; COHEN, 2006; STONE; COOPER, 2001).

2.1 Defense activation mechanisms of usage denial and cognitive process

Denial research in consumer behavior has been characterized as fragmented and diffuse, as there are applications in several sectors (DURSUN; TÜMER KABADAYI; TUĞER, 2019; HARRIS, L. C.; DAUNT, 2011; HERZ; DIAMANTOPOULOS, 2017). However, these studies have common aspects when they mention that skewed processing generated by negation is 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, defense mechanisms, or mental functions that inhibit unpleasant ideas and emotions from becoming conscious, may be engaged (CRAMER, 2000). One of its defining qualities is the involvement of defensive mechanisms as psychological strategies that may be used automatically to

change, alter, or even reject certain aspects of reality to preserve a socially acceptable self-image (SCHAFFER; GUERIN; ST. JACQUES, 2011).

Defensive responses can lead to behavioral and cognitive coping, such as reduced intentions to quit buying fake products or denial of the dangers and risks of its products (CHAPMAN; WAI LENG WONG; SMITH, 1993). The desire to sustain conceptions of self-integrity and self-competence is one explanation for this defensiveness; such messages might undermine these beliefs. Therefore, individuals are driven to derogate the message to restore their self-integrity (FEIN; SPENCER, 1997).

Most previous research has shown that self-affirmation happens when people are confronted with a scenario that challenges their ego (FERRER; COHEN, 2019). However, little attention has been paid to how self-affirmation affects people's conduct in non-threatening situations (WANG *et al.*, 2022). According to self-affirmation theory, people have a basic urge to regard themselves as useful, worthy, and good (HARRIS, P. R.; EPTON, 2010). The desire to have a favorable self-image is a powerful motivation for action (SIRGY, 2018).

Researchers agree that eye-tracking mechanisms are good tools to analyze cognitive processing and internal thoughts (HUDDLESTON *et al.*, 2015; WEDEL; PIETERS, 2008). The interaction between the eye and the mind is investigated, with the eyes indicated to leave a dynamic trail where attention is directed. Although studies show mixed results, it is widely believed that eye movements and attention are linked during a complex information-processing job, such as buying something significant (DUCHOWSKI, 2017).

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). Initially, visual cognitive processing was used to interpret the denial process (STEELE, 1988). However, the relevance of usage denial information in determining consumer product predictions and purchase intentions has been little studied, it's 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).

Several studies show that terms associated with denials, such as self-affirmation, defensive responses, and cognitive dissonance, positively affect

cognitions (ARMITAGE *et al.*, 2008; WAKSLAK; TROPE, 2009). The process of affirming one's essential values that occur in denial to protect self-integrity generates a cognitive process based on superordinate and structured thinking. This cognitive processing is responsible for distinguishing object features and improving tasks that require abstract thoughts (WAKSLAK; TROPE, 2009). Considering that cognitive processing is directly linked to the perception of the usage denial as an extrinsic cue in the purchase decision process, the first hypothesis to be studied intends to identify whether:

Hypothesis 1: *The presence (absence) of defense activation mechanisms of usage denial presence increases (reduces) the cognitive process.*

2.2 Protecting an image of self-integrity and behavioral intentions

The need to protect self-integrity and self-affirmation with defensive responses is a significant source of biased processing and can work automatically and unconsciously (SHERMAN; COHEN, 2006). People are always creating mechanisms to protect their self-integrity as reinterpreting troubling information to make it compatible with their current views, focusing on other good parts of oneself that are important for one's self-worth, or reacting defensively to defend one's self-integrity (REED; ASPINWALL, 1998; SHERMAN; COHEN, 2006; STONE; COOPER, 2001).

Results of self-affirmation include diverse physiological reactions to consumption: stress (SHERMAN, 2013), a reduction in defensive tendencies (SCHUMANN, 2014), and improved academic performance (COHEN *et al.*, 2009). Self-affirmation may have a favorable effect on customers and lead to the reflection of a positive self-image allowing them to feel successful, competent, and happy (TESSER, 2000). As a result, consumers are more likely to repeat their purchasing habits or even commit to repurchasing a favorite product despite changing circumstances (SHERMAN; COHEN, 2006).

Furthermore, the fulfillment of self-esteem, self-consistency, social consistency, and social acceptance demands provide an overall favorable effect and stimulate consuming behavior, which is the heart of the self-affirmation hypothesis (MCQUEEN; KLEIN, 2006). According to self-affirmation theory, the person's self-

ultimate system's purpose is to preserve general self-integrity, see oneself as worthwhile, and gather evidence that supports these views (STEELE, 1988).

People are better equipped to tolerate challenges to the self when they have the chance to confirm, identify, and reflect on their values (such as ideals they feel are essential to follow in daily life), according to a growing body of research (SHERMAN; COHEN, 2006). Significantly, self-affirmation reduces self-perceived threats (SHERMAN, 2013). Self-affirmation has also lowered defensiveness in response to dangers in a specific area, such as frightening health messages (HARRIS, P. R. *et al.*, 2007). Self-affirmation has been shown to boost people's acceptance of risk information for an incurable disease (e.g., self-affirmation increased acceptance of risk information for an incurable illness) (HOWELL; SHEPPERD, 2012). Self-affirmation reduces biased processing and promotes positive behavior change (REED; ASPINWALL, 1998).

The meta-analysis suggests that self-affirmation has a direct influence on human behavior, in addition to intentions (SWEENEY; MOYER, 2015). Self-affirmation appears to be a beneficial strategy for minimizing defensive biased information processing and influencing people's actions. Self-affirmed individuals are more open-minded than non-affirmed individuals and may be better prepared to believe that the action is successful and doable (EPTON; HARRIS, 2008). This means that the more self-affirmed, the greater the probability of changing consumer behavior and the greater the purchase intention. Considering that Self-integrity image protection is directly linked to the behavioral intentions in the purchase decision process, the second hypothesis to be studied intends to identify whether:

Hypothesis 2: *Self-integrity image protection generated by denial drives the cognitive process when behavioral intentions are high.*

3 EMPIRICAL STUDIES

In three studies, we investigated the effects of denial on cognitive processes and behavioral intentions. Participants visualized three scenarios that aimed to stimulate self-integrity image protection generated by denial through offering a catalog with wines with low classification according to the International Organization of Vine and Wine (OIV) (pilot study), display, and choice of copycat brands (Study 1) and selecting an app for illegally streaming (Study 2). We predicted that performance on these tasks would induce the presence of defense activation mechanisms of denial, directly influencing the cognitive processes and behavioral intentions.

4 PILOT STUDY - WINE COUNTRY-OF-ORIGIN INFORMATION: DENIAL AND COGNITIVE PROCESS

The goal of the pilot study was to provide a preliminary test of the effects of the defense activation mechanisms of usage denial on cognitive processing. The basic approach to testing this hypothesis was to have the research participants perform the task of visualizing the offer catalog of different types of wines. The offer catalog presented wines not classified among the first in the International Organization of Vine and Wine (OIV) ranking of world wine production and consumption. Respondents were asked to choose one of the items from the offer catalog based on their favorability concerning the wine's origin. This experimental manipulation generated denial cue usage in their brand evaluations.

4.1 Participants and Design

Seventy-five participants (39 females and 36 males, with ages ranging between 19 and 61 years and an average age of 32.14 years) performed this experiment. The present study examined the role of the presence (absence) of defense activation mechanisms of usage denial on the cognitive processes (*H1*).

4.2 Procedure and Stimuli

The procedure comprised an eye-tracking experiment that was conducted in three steps. The investigation was conducted in a laboratory. Initially, participants perform the task of visualizing and choosing a wine product on a screen simulating an offer catalog. Participants were asked to sit in front of a computer screen. Each participant's eye movements were tracked using an electronic eye-tracking system called Tobii Pro X3-120. This device was attached to the computer. The distance between the participant's eyes and the computer screen was 2½ feet. The eye movements (fixations and saccades) were captured by an infrared camera located below the projection screen and were used to measure the cognitive process. The offer catalog featured five wine brands from countries not ranked in the top wine production and consumption (Morocco, Australia, Lebanon, Bolivia, Germany, and Ivory Coast). Second, each respondent was asked to provide their brand evaluations and behavioral intentions towards the brand. Data analysis used the areas of interest (AOIs) of the six wines available. The scenarios used in the experiment and the heat map of visual attention are presented in appendix A. After this step, the participants answered an evaluation item, the usage denial (The country of origin is something important when I am choosing a wine category). This item was rated on a 7-point Likert scale "strongly disagree - strongly agree." The measurement of usage denial followed indications from previous studies (BALABANIS; DIAMANTOPOULOS, 2004; HERZ; DIAMANTOPOULOS, 2017). Finally, the control variable of how many bottles the participants consume per month and visual attention of the entire offer catalog were included.

4.3 Results

Control variable. The t-test was conducted to test whether each participant's amount of wine purchased affects the results. The procedure separated the participants into two groups (low versus high) through the median monthly amount of wine consumption. The results showed no significant difference ($M_{low} = 1.37$; $DP_{low} = 1.77$; $M_{high} = 2.38$; $DP_{high} = 3.04$; $t(51) = -1.487$; $p = .143$).

Cognitive process. To evaluate *H1* tested the usage denial levels by separating the participants into two groups ($N_{low\ denial} = 35$; $N_{high\ denial} = 40$) based on their answers to the item “*The country of origin is important when choosing a wine category.*” The findings reported how much higher (lower) levels of usage denial, the higher (lower) was the cognitive process (fixations count) in the AOs of the six wines available. The t-test results indicated a greater rate of cognitive processing in the cases in which usage denial was more present ($M_{low\ denial} = 3.74$; $SD_{low\ denial} = 1.5$; $M_{high\ denial} = 4.7$; $SD_{high\ denial} = 2.11$; $t(73) = 2.23$; $p < .05$). Thus, the results found in the pilot study support *H1*.

5 STUDY 1 - COPYCAT INSTEAD LEADING BRANDS: THE EFFECTS OF DENIAL

The goal of study 1 provided a test for the effect of the presence of defense activation mechanisms of usage denial on the behavioral intentions and cognitive process. The basic approach to testing this hypothesis was to have the research participants perform the task of visualizing and choosing products considered copycat and leading brands.

5.1 Participants and Design

Seventy-four participants (39 females and 35 males, with ages ranging between 19 and 61 years and an average age of 32.06 years) performed this experiment. The present study examined the role of the presence (absence) of defense activation mechanisms of denial for the choice of copycat brands on the cognitive processes and behavioral intentions.

5.2 Procedure and Stimuli

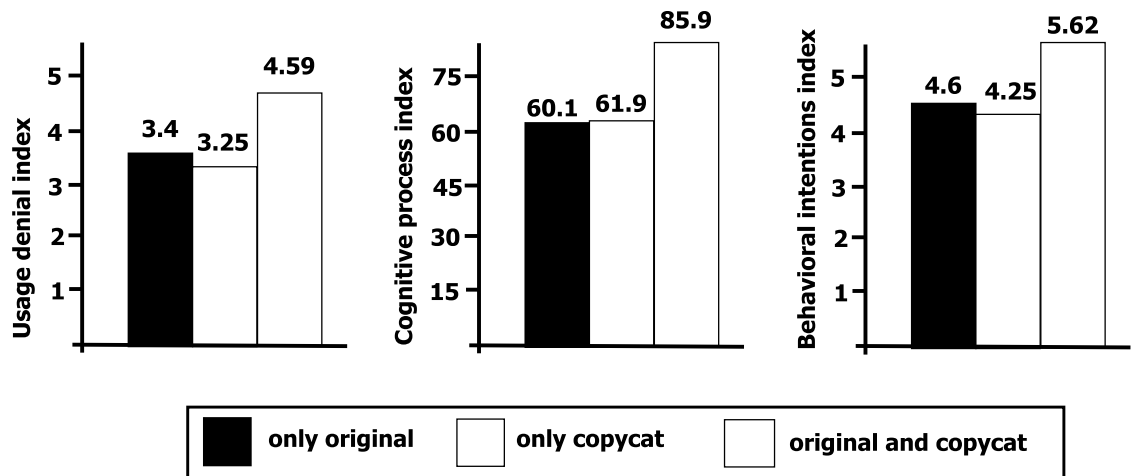
The approach to testing the hypothesis was to have some participants perform the task of visualizing and choosing at least one product on a screen containing thirteen different products. The measurement of usage denial, cognitive process, and purchase intent was based on earlier studies that analyzed the effect of copycat brands (SATOMURA; WEDEL; PETERS, 2014; VAN HOREN; PIETERS, 2013).

Participants were asked to sit in front of a computer screen. Thirteen products were displayed on a shopping site divided between copycat (“*versus*” leading brands): Frosted Flakes (Frosties Flakes), Stern (Heineken), Best Food (Hellmann's), BullFighter (RedBull), Anti-dandruff (Head & Shoulders), Power Force (Mr. Muscle), Big Soft (Baby Soft), Lecha (Milka), Cremosa (Nutella), Neo (Oreo), Nutters (M&M), (Sainbury Classic Cola (Coke), and Lepin Cities (Lego City). An eye-tracking device collecting fixation count was used to measure the cognitive process. Data analysis used the areas of interest (AOIs) of the products available. The scenarios used in the experiment and the heat map of visual attention are presented in appendix B. After choosing the products, the participants answered a survey in which we measured the usage denial with the item “*Not original products have lower quality than original products*” (7 points Likert scale “strongly disagree - strongly agree”) and behavioral intention with the item “*My intention to purchase the products is...*” (7-point Likert scale “very low - very high”). The participants were separated into three groups based on their product choices: (1) participants who only chose leading brands ($N_{leading} = 15$), (2) participants who only chose copycat brands ($N_{copycat} = 28$), and (3) participants who chose leading and copycat brands ($N_{leading\ and\ copycat} = 32$).

5.3 Results

Manipulations checks. ANOVA showed significant results for usage denial. High levels of denial were found when the participant chooses leading, and copycat products mixed ($M_{leading} = 3.40$; $SD_{leading} = 1.59$; $M_{copycat} = 3.25$; $SD_{copycat} = 1.92$; $M_{leading\ and\ copycat} = 4.59$; $SD_{leading\ and\ copycat} = 2.12$; $F(2;74) = 4.41$; $p < .05$).

Figure 1 – Study 1: Results of usage denial, cognitive process, and behavioral intentions index



Source: Author

Control variables. We conducted a t-test to measure differences in the cognitive process focused on copycat products (the percentage that copycat fixation represented in all fixation duration) between the participants who claim to have bought falsified products and were satisfied and the ones who did not buy or bought but were not satisfied ($N_{did\ not\ satisfy} = 43$; $N_{satisfied} = 32$). The t-test for the control variables presented non-significant results in both cases ($M_{did\ not\ satisfy} = .457$; $SD_{did\ not\ satisfy} = .161$; $M_{satisfied} = .430$; $SD_{satisfied} = .144$; $t(73) = .765$; $p = .446$). Then we tested the other control variable to identify if there were differences in a cognitive process focused on copycat products between participants who answered that they would buy falsified products if the price were lower and the participants that would not buy ($N_{did\ not\ buy} = 52$; $M_{did\ not\ buy} = .448$; $SD_{did\ not\ buy} = .155$; $N_{buy} = 23$; $M_{buy} = .441$; $SD_{buy} = .441$; $t(73) = .174$; $p = .863$).

Behavioral intentions. An ANOVA showed an interaction between behavioral intentions and three groups. High levels of behavioral intentions were found when the participant chooses original and copycat products mixed ($M_{leading} = 4.6$; $SD_{leading} = 2.16$; $M_{copycat} = 4.25$; $SD_{copycat} = 1.96$; $M_{leading\ and\ copycat} = 5.62$; $SD_{leading\ and\ copycat} = 1.07$; $F(2;72) = 5.28$; $p < .01$).

Cognitive process. The ANOVA results showed a significant difference for cognitive process (count fixation). Higher levels of 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; $F(2;72) = 7.341$; $p < .01$). The Hayes' PROCESS procedure (Model 1; bootstrapped with 5000 samples) was used to provide more information about cognitive processing in Study 1. Results show that the interaction between the usage denial and behavioral intentions level produces 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 intentions is negative and significant ($b = -.028$, $p < .05$). The finding founds that the effect of 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]; $p = .743$).

Table 1 – 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

Source: Author

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

6 STUDY 2 - ILLEGALLY INSTEAD LEGALLY STREAMING: THE EFFECTS OF DENIAL

The objective of study 2 was to gather more evidence of how usage denial levels influence cognitive processes. The basic approach to testing this hypothesis was to have the research participants perform the task of visualizing and choosing products considered apps for legally streaming and app for illegally streaming.

6.1 Participants and Design

Seventy-five participants (40 females and 35 males, with ages ranging between 19 and 61 years and an average age of 32.25 years) performed this experiment. These participants were separated into two groups based on their video

streaming service choice: app for legally streaming versus app for illegally streaming. The present study examined the role of the presence (absence) of defense activation mechanisms of denial for the choice of illegally streaming service on the cognitive processes.

6.2 Procedure and Stimuli

The approach to testing the hypothesis was to have some participants perform the task of visualizing and choosing at least one streaming app service on a screen containing six different streaming apps (one of which was an illegally streaming app). The illegally streaming service offers all the other service's content for the same price. The measurement usage of denial and the cognitive process was based on earlier studies that analyzed the effect of illegally streaming (SINCLAIR; GREEN, 2016; SINCLAIR; TINSON, 2017). An eye-tracking device 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 measured through the percentage that the illegal video streaming service represented in the total fixation duration on the screen. Data analysis used the streaming app's areas of interest (AOIs). The scenarios used in the experiment and the heat map of visual attention are presented in appendix C. The participants, after choosing the video streaming service, responded to an item that evaluated the usage denial: "*Watching or downloading online movies through illegal ways is harmful to the movie industry*" (7 points Likert scale "strongly disagree - strongly agree"). We also included a control variable of how many hours the participants spent watching movies or series per month.

6.3 Results

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

Control variables. Regarding the hours spent watching video, there is no significant difference between the groups ($M_{app\ for\ illegally\ streaming} = 4.80$; $SD_{app\ for\ illegally\ streaming} = 1.92$; $M_{app\ for\ legally\ streaming} = 4.80$; $SD_{app\ for\ legally\ streaming} = 1.92$; $t(74) = 0.000$; $p > .05$).

streaming = 4.44; $M_{app \text{ for legally streaming}} = 6.64$; $SD_{app \text{ for legally streaming}} = 8.39$; $t(74) = -.675$; $p = .502$).

Cognitive process. The t-test on indicated that participants have a higher cognitive process in the app for illegally streaming when they choose illegal streaming service ($M_{app \text{ for illegally streaming}} = 0.33$; $SD_{app \text{ for illegally streaming}} = 0.19$; $M_{app \text{ for legally streaming}} = 0.13$; $SD_{app \text{ for legally streaming}} = 0.09$; $t(74) = 2.439$; $p < .05$).

We used Hayes' PROCESS procedure (Model 1; bootstrapped with 5000 samples) to analyze the variation of the cognitive process. 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 was found ($F [3,72] = 11.5431$; $p < .001$; $R^2 = 0.3248$).

Table 2 – Results of Study 2 for the test of conditional effects of cognitive process and illegal/legal service when defense activation mechanisms of usage denial are considered decision-making process

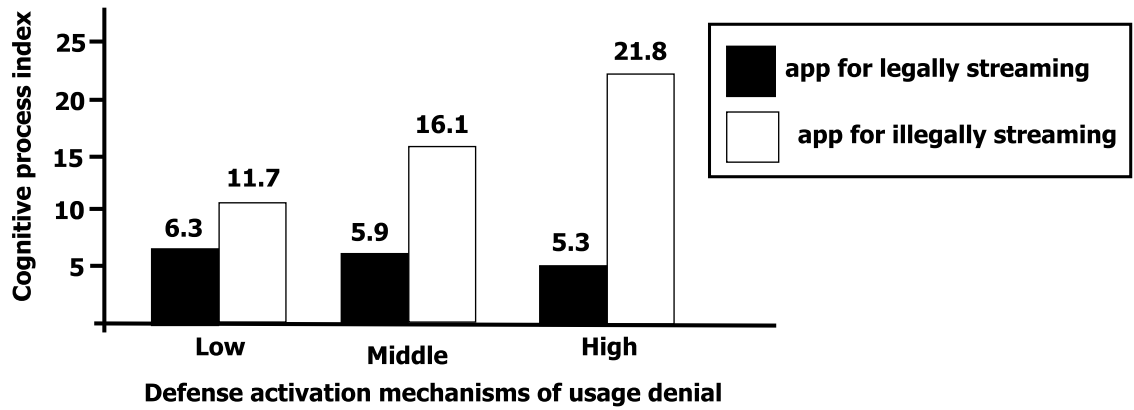
Usage denial level	Effect	SE	t	p	LLCI	ULCI
Low	-5.3303	4.7245	-1.1282	.263	-14.748	4.087
Middle	-10.111	2.8774	-3.514	.0008	-15.846	-4.375
High	16.517	3.0826	-5.3582	.0001	-22.662	-10.372

Source: Author

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

As expected, app for illegally/legally streaming significantly predicts cognitive process in the decision-making process ($b = -2.3903$ (SE = 1.264); 95% CI [-4.9101; -.1294]; $p < .001$). Multiple regression model found that the effect of illegal/legal service on 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 2 shows the interaction patterns.

Figure 2 – Study 2: Interaction between cognitive process and illegal/legal service when defense activation mechanisms of usage denial are considered decision-making process



Source: Author

7 THEORETICAL AND MANAGERIAL IMPLICATIONS

This research aligns with academic works that try to understand how activation mechanisms of denial can influence purchasing decisions. Previous research has shown that mechanisms of denial are evoked due to self-integrity image protection (REED; ASPINWALL, 1998; SHERMAN; COHEN, 2006; STONE; COOPER, 2001). This research demonstrates that the need to protect self-integrity and self-affirmation with defensive responses can alter visual cognitive processing. Most consumer studies indicate that self-affirmation reduces self-perceived threats and biased processing and promotes positive behavior change (REED; ASPINWALL, 1998; SHERMAN, 2013). On the other hand, previous academic studies have shown that the denial process is a strategy for minimizing defensive biased information processing and influencing people's actions (EPTON; HARRIS, 2008). The academic contributions of this paper align with these two lines of thought to understanding the effects of denial. From a theoretical perspective mechanism, one crucial question mechanism found in the results of the three experiments is that the activation mechanisms of denial can generate information-seeking through more significant visual cognitive effort.

The central issue is that the denial 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 low-rated wine, a copycat instead of leading brands, or illegally instead streaming. The results indicated that high levels of the cognitive process prompt change in behavioral intentions via activation mechanisms of denial; low levels do not prompt change in the cognitive level that can generate changes in behavioral intentions. Among the three studies, we found that higher levels of usage denial are related to higher levels of the cognitive process. Study 1 and 2 testings confirmed this result. Specifically, in study 1, the results support the idea that the behavioral intention and cognitive process are higher when consumers buy both original and false products. This may be some guilt relief that the participant feels because they also chose original products in the mix. Study 2 shows that the participants who chose the illegal streaming service contradicted themselves in the questionnaire by affirming that the piracy is harmful to the movie industry and then choosing pirate services. We were also able to realize that the more the participant had the intention to buy an illegal product or service, the higher

their cognitive processing of these items, following the results from other previous studies (DURSUN; TÜMER KABADAYI; TUĞER, 2019; GAUSTAD; UTGÅRD; FITZSIMONS, 2020; HERZ; DIAMANTOPOULOS, 2017; HOWIE *et al.*, 2018).

Academically, the results of this paper indicate that the importance of the activation mechanisms of denial as needed to protect self-integrity and self-affirmation with a defensive response cannot be underestimated. They discussed possible boundary conditions on the concept of mechanisms of denial in this paper postulates that in many real-consumer contexts individuals use denial to alter visual cognitive processing to protect introspective thoughts.

Our findings also make critical practical contributions. Despite past evidence suggesting that denial is difficult to measure in consumer actions, our results go in the opposite direction by indicating that the denial process can be perceived through visual cognitive processing. From the studies promoted in this paper, it is possible to mention that defense activation mechanisms of denial may be relatively proportional to the presence of 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.

Mechanisms of denial are overwhelmingly prominent in today's decision-making processes. Interestingly, the vast number of decisions can generate denial mechanisms. This paper does not state that denial is a suitable process for protecting self-integrity and self-affirmation. There are multiple opportunities for examining the denial processor and its adaptive nature now of choice. Our findings provide important implications regarding strategies and public policies to better interpret behaviors in general. Managers and public policymakers can draw suggestions for combining negation goals for conscious fostering behavior precisely. This research can help these professionals analyze denial in customers' purchase process to understand this complex phenomenon. Also, it's important to mention that fake products are an essential key for people to deny and choose original products without asking why. A combination of copycat and leading brands or illegally or legally streaming can encourage purchase intentions of non-falsified products by increasing the cognitive processing generated by denial.

7.1 Limitations and directions for future research

This study is not without its limitations. First, the participants did not see some copycat products as copycats precisely because of their premise that it is the design that deceives the consumer. That way, some might not have paid enough attention to the details in the study 2 scenario, and that might have affected our results. Since, in every case, we were simulating purchases and not making them with the participants, the behavioral intention might have some alterations from the reality, considering that the participants did not buy the products. Because the experiments were conducted using an eye-tracking device, the sample size could not have been much more significant since it requires that the person standing in front of the device to collect the data, although this scenario has the advantage of controlling the environment and manipulating the variables in a way that is intended for the experiments.

Future studies could be applied to other countries to verify if the cultural aspects interfere with the effects between 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. In our study, we placed the copycats and original products mixed, 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 considering other product categories. There are few studies in marketing involving usage denial, so we encourage other researchers to test this defense mechanism with other marketing constructs. Researchers could also have 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 but with expensive products or products that implicate higher risks for the consumer.

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APPENDIX A – EXPERIMENT INSTRUMENT

ID	
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Dear participant, this is academic research on consumer behavior. Completing this survey will take approximately 10 minutes. There is no risk in responding to this survey, it is anonymous and your participation is voluntary, which means that you are free to participate or not, as well as to withdraw at any time. However, your answer is very important and will be used for academic purposes only. All your data, images, audios and recordings collected here are confidential, and you can opt out of the survey at any time.

Place of Birth		Profession					
Monthly Income	Family	<input type="checkbox"/> Up to R\$ 1.500,00	<input type="checkbox"/> Up to R\$ 3.000,00				
		<input type="checkbox"/> Up to R\$ 7.000,00	<input type="checkbox"/> Up to R\$ 10.000,00				
		<input type="checkbox"/> Up to R\$ 5.000,00	<input type="checkbox"/> Above R\$ 10.000,00				
Eduaction	<input type="checkbox"/> Incomplete Elementary School <input type="checkbox"/> Elementary School <input type="checkbox"/> High School <input type="checkbox"/> Higher Education in progress <input type="checkbox"/> Higher Education <input type="checkbox"/> Specialization <input type="checkbox"/> Master's Degree <input type="checkbox"/> PhD						
Answer the questions below by assigning a score from 1 to 7 (marking an "X" in the grid on the side), considering your level of agreement with the sentences, with 1 being "totally disagree" and 7 to "totally agree".							
Question	1	2	3	4	5	6	7
Country of origin has an impact on my ratings.							
Within the wine product category, a brand's country of origin is important to me.							
Within the video streaming services category, the most important thing for me is to have the largest number of movies, videos and channels at the lowest price, regardless of the origin and legal validity of the company.							
Watching or downloading movies online illegally is harmful to the film industry.							
Non-original products are of lower quality than original products.							
Even though the price is much higher, I always opt for original products .							
I am a person who likes to cooperate.							
I'm always motivated to help.							
I sacrifice myself for others.							
I'm competitive .							
I seek higher social status.							

Answer the questions below:	
Question	
How many bottles of wine do I consume per month?	
How many hours do I spend weekly watching movies/series?	
I have already bought a counterfeit product and I am satisfied.	
I would trade an official product for a fake one because of the price.	
I often download movies and series from the internet.	

ATTACHMENT A – THE SCENARIO AND THE HEAT MAP OF VISUAL ATTENTION FROM THE PILOT STUDY



ATTACHMENT B – THE SCENARIO AND THE HEAT MAP OF VISUAL ATTENTION FROM THE STUDY 1

GREAT OFFERS

9.99
Levo 3, Pague 2
3 un **6.66** Cada

3.54
6 un **3.54**

6.59
un **6.59**

6.19
3 un **4.66**

17.59
un **17.59**

11.09
10%
un **11.09**

13.99
Levo 3, Pague 2
3 un **9.32** Cada

4.59
un **4.59**

12.99
un **12.99**

1.59
un **1.59**

2.35
Cada **2.35**

1.69
Cada **1.69**
20%

91.59
Diversão para os seus pequenos neste fim de ano

Ofertas válidas até 15/12 copacabana.com.br /copacabana copacabanasuper

ou enquanto durarem os estoques. *Produto disponível nas lojas Zaffari: CenterLar, Ipiranga, Higienópolis, Cavalhada, Cristóvão Colombo, Otto Niemeyer, Wallig, Hiper Cavias, ParkShopping Canoas e nos Bourbon 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.

GREAT OFFERS

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ATTACHMENT C – THE SCENARIO AND THE HEAT MAP OF VISUAL ATTENTION FROM THE STUDY 2

