Determining consumers' purchase intention for Food Packaged Goods with nutritional claims: The role of Perceived Nutritional Knowledge and Anticipated Consumption Guilt

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ABSTRACT

Determining consumers' purchase intention for Food Packaged Goods with nutritional claims:
The role of Perceived Nutritional Knowledge and Anticipated Consumption Guilt

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One of the key drivers of the growth of the global health and wellness food market is an emerging consumer segment that actively seeks healthier food alternatives and engages in a more nutritionally balanced diet and healthy lifestyle.

As expected, new and reformulated products hit the market and food companies are profiting from marketing their products as healthier alternatives.

Nonetheless the apparent simplicity in the relationship between products marked as '*healthy*' and consumers' purchase intention, this relationship has been pointed out as a non-linear one by past research. Indeed, if consumers anticipated consumption guilt may trigger the selection of food products endorsed with a nutrition claim, many other emotional factors may cause consumers to make unhealthy food choices.

This research aims to increase knowledge on consumers' reaction to nutritional claims in food packaging goods, understanding which factors interact or lay behind consumption guilt variation.

Accordingly, ten different food shopping scenarios were created, supported by a focus group and a pre-online survey. Subsequently, the hypotheses were tested in an online questionnaire.

The conclusions suggest the presence of nutritional claims, on its own, has no influence on the anticipated consumption guilt of consumers. This relationship is, however, mediated by the consumer perception of the self-nutritional knowledge. Also, it is showed anticipated feelings can validate individuals' behaviors not only in healthy food consumption contexts.

Key words: Nutritional claims; Food packaged goods; Self-nutritional knowledge; Anticipated consumption guilt

SUMÁRIO

A determinação da intenção de compra dos consumidores por Bens Alimentares Embalados, com indicações nutricionais:
O papel da perceção do conhecimento sobre nutrição e do sentimento de culpa pré-consumo

Bárbara Inês Vieira Ferreira

Um dos principais motores do crescimento do mercado da saúde e bem-estar alimentar é um segmento emergente de consumidores que procuram alternativas alimentares mais saudáveis e se comprometem com uma dieta equilibrada e um estilo de vida saudável.
Inevitavelmente, novos produtos e produtos reformulados chegaram ao mercado, e as empresas no setor alimentar lucram com a comercialização de produtos vendidos como alternativas mais saudáveis.
A aparente simplicidade na relação entre produtos marcados como "saudáveis" e a intenção de compra dos consumidores, não é corroborada pela investigação, que a caracteriza, contrariamente, como uma relação não linear. Se por um lado, o sentimento de culpa pré-consumo pode determinar a escolha de produtos com indicações nutricionais, por outro lado, muitos fatores emocionais podem levar os consumidores a fazer escolhas alimentares menos saudáveis.
Esta investigação visa contribuir para o conhecimento sobre a reação dos consumidores às indicações nutricionais nas embalagens dos produtos alimentares, apurando quais os fatores que interagem ou dão origem à variação do sentimento de culpa pré-consumo.
Assim, foram criados dez cenários de compra diferentes, com base num grupo de discussão e num inquérito pré-online. Subsequentemente, as hipóteses foram testadas através de questionário online.
As conclusões sugerem que a presença de alegações nutricionais, por si só, não tem influência no sentimento de culpa pré-consumo dos consumidores. Esta relação é, no entanto, mediada pela perceção do conhecimento nutricional do próprio consumidor. Além disso, é demonstrado que a antecipação de sentimentos pode validar o comportamento dos indivíduos não só em contextos de consumo alimentar saudável.

Palavras-chave: Indicações Nutricionais; Produtos alimentares embalados; Conhecimento nutricional próprio; Sentimento de culpa pré-consumo

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FPG – Food Packaged Goods

Chapter 1: Introduction

1.1 Background

The consumption of high caloric and fatty foods has been a major concern to consumers for the last three decades. An emerging consumer segment has begun to actively seek healthier food alternatives and engage in a more nutritionally balanced diet and healthy lifestyle (DiPietro et al., 2016).

In this scenario, nutrition information's perceived personal relevance became a key motive for willingness to try various food products. Indeed, research demonstrates that is a positive relationship between concern about food and health and the rating of pleasantness of food endorsed with a nutrition claim. This is believed to happen because self-health aware consumers are aware of and are concerned about their health and motivated to improve or maintain it by engaging in healthy behaviors, which may be supported by nutrition claims (Loebnitz & Grunert, 2018).

In a series of studies, Moorman and colleagues (2004) manipulate perceived nutritional knowledge to understand how it affects the decision-making process and the quality of consumers' choices. They conclude that, because of the consumers' desire for self-consistency, subjective (or perceived) knowledge influences consumers search process, restricting it to products within healthful product categories. Thus, this trend of increased consumer awareness of healthy eating has instigated food companies to reformulate their existing products and market them as healthier alternatives. It makes sense "never before has so much information on food and healthy diets been provided to consumers", as Himmelsbach et al., 2014 asserts in a study for the European Commission on the impact of food information on consumers' decision.

What made me dig deeper into research is the fact in the past years an increasing number of countries across the European Union considered and imposed taxes on unhealthy food, in an attempt to discourage its intake. It seems either consumers' beliefs highly differ among them or consumers do not always act in line with their beliefs, and therefore the effect of nutritional claims on purchase intention is not as linear as it seemed at first sight.

Indeed, research makes it clear that even when consumers express positive evaluations of healthy product attributes, their purchase intentions do not always match their stated views (Loebnitz & Grunert, 2018). Antonides & Cramer (2013) corroborate these findings acknowledging that factors such as discounting future health, thoughtlessly consuming food, and being influenced by social context and advertising are factors that may cause consumers to make unhealthy food choices.

According to Wansink & Chandon, 2006, the influence of nutritional claims in food consumption decisions is mostly explained by consumers' emotions, particularly anticipated guilt and pleasure. They go further in research, and explain the effect of nutritional claims differs according to factors associated with guilt, such as product categorization (utilitarian vs. hedonic).

Building on the existent knowledge, this dissertation proposes to study consumers' reaction to nutritional claims in food products packaging to understand which other factors may lay behind consumption guilt variation.

1.2 Relevance

In marketing, a lot of research has been focused on consumers perceptions of nutritional claims. Despite that, conclusions are not always aligned with each other, or are even contradictory. This study aims to contribute to existing literature extending conclusions on consumers' anticipated emotions connected with consumers' cognitive responses in a food consumption context. Ideally, by addressing consumer's perceived knowledge and consequent need for self-consistency, this research will provide a more elaborate explanation of the consumption guilt mechanism in a food consumption context.

Given the rapid but volatile demand for, and sales, of nutritionally rich foods, understanding consumption guilt variation, based on a greater understanding of how consumers interpret and use nutritional claims on food products is essential for manufactures, retailers and/or legislators better predict consumer behavior towards food product information and identify relevant biases and constraints (Himmelsbach et al., 2014).

1.3 Problem statement

Extending previous work on consumption guilt and nutritional claim perceptions, this research aims to identify some of the factors that determine purchase intentions for food packaged goods with nutritional claims.

Research shows consumers with high subjective knowledge (i.e. perceived knowledge) reveal a higher need for self-consistency than consumers with low subjective knowledge (Moorman et al., 2004). Focusing on consumption guilt variation, in the presence of nutritional claims, one could ask if nutritional claims can increase purchase intentions for products that are considered as "unhealthy", for consumers that perceive to be nutritionally knowledgeable, via consumption guilt decrease. This problem will be answered in the scope of the following research questions.

RQ 1: Do nutritional claims influence consumers' anticipated guilt? If so, does this effect depends on the consumer's perceived nutritional knowledge?

RQ 2: How does consumers' anticipated guilt affect purchase intent?

1.4 Research methods

The research questions will be handled combining exploratory and descriptive research techniques.

In the form of a literature review, the purpose of the exploratory research is to obtain insights into how consumers access, interpret and use food product information. Since much of the best nutrition research has been focused on how nutrition labels influence purchase intentions, these will provide the basis for the primary research development.

As for descriptive research, the objective is to collect new data and draw conclusions from it. A focus group and a pre-survey, firstly, structured interviews and an online survey, afterward, will be spread to collect primary data.

1.5 Thesis outline

This research is structured in five chapters. The first section briefly identifies the problem being addressed, explains how it is addressed and how it can contribute to current literature. The next section presents a series of complementary research studies that define the various research variables that compose the conceptual model. Based on these, the hypothesis are formulated. The third chapter presents the conceptual methodology that will be used to test the hypothesis and therefore answer the research questions. A description of the constructs that constitute the questionnaire and the procedure on how each statistical test will be applied to the data obtained is also provided. The fourth chapter presents the conclusions drawn through the analysis of the data collected in the survey. Finally, the fifth chapter concludes the research, discusses the dissertation's limitations and areas for further research.

Chapter 2: Literature Review

The following chapter provides a review of the relevant literature on the themes under investigation. The existing knowledge on the relationship between nutritional attributes and purchase intentions is summarized, critically compared, and complemented, providing a basis for the hypothesis formulation.

Firstly, the consumer's interpretation of nutritional information is addressed, and the feelings arising from it are explained.

Subsequently, focusing on the research questions at hand, the importance of subjective knowledge in the purchasing decision is discussed and hypothesized.
In due course, the concept of nutritional claim considered for the study is provided, as well as its categorization.
At the end of the chapter, the conceptual framework is presented, summarizing the formulated hypothesis regarding the variables' relationship.

2.1 Purchase Intentions

Consumers use heuristic strategies to identify, edit, and make intuitive judgments based on the possessed knowledge of a given product. Consequently, consumers' attitudes and purchase intentions are influenced by their own product knowledge, prices, advertising messages, and their information processing limitations (Shan et al., 2020).
According to the Theory of Reasoned Action (TRA), a person's attitude towards the behavior determines the behavioral intention (Teng & Wang, 2015). For instance, the greater the motivation, the stronger the intention to act (Hoque & Alam, 2018). According to Bagozzi (1983), “intentions constitute a willful state of choice where one makes a self-implicated statement about a future course of action”. That is, intentions are the intermediate state between an abstract idea (e.g., perceived cost) or feeling (e.g., liking) and a concrete action (e.g., purchase) (Bagozzi, 1983). Behavioral intention, in turn, antecedes the actual individual behavior (Teng & Wang, 2015).
Therefore, what the TRA and other theories (e.g., Theory of Planned behavior) indicate is that intentions, if properly measured and under the individual's sole control, are feasible predictors of specific behaviors (Tudoran et al., 2009). In this way, *'purchase intention*' is being used as a proxy measure of purchasing behavior (Shan et al., 2020;Teng & Wang, 2015).
Likewise, in this study, *'purchase intention'* is used to measure the actual purchasing behavior of the product(s) being evaluated.

2.2 Nutritional attribute information

Healthy eating knowledge is commonly acquired from the family or gained through experience. To build consumers' experience, the accessibility to information about nutrition is key, keeping consumers informed and allowing conscious decisions to be made (Carrillo et al., 2012).
In the scope of EU legislation, health claims and nutritional claims differ in terms of definition. A health claim is considered "any statement about a relationship between food and health", and it can fall into one of the three categories: Function Health claim; Risk reduction claim; Claim

referring to children's development. A nutritional claim is a statement, suggestion, or implication that a food has particular beneficial nutritional properties due to its caloric value or contained substances. Since both are regulated under *Regulation (EU) No 1047/2012*, both terms will be used interchangeably in this research paper, as has been done in past research work (Wills et al., 2009).

Acknowledging the importance for public health of appropriate and understandable nutritional information in product advertising, in recent years, in some European countries, there has been a particular effort simplifying nutritional messages or summarizing the more complex information on a nutrition summary on the front of the package (signpost) (Grunert & Wills, 2007). The reasoning for this is most probably related to the fact that, in the presence of claims, consumers allocate greater weight to information in claims than to the information in the nutrition facts panel (Balasubramanian & Cole, 2002). Also, various studies concluded consumers like the idea of simplified front-of-pack information, although differing in their liking for the various formats. Differences can be related to conflicting preferences for ease of use, being fully informed, and not feeling pressured into behaving in a particular way (Grunert & Wills, 2007).

The Tracking Nutrition Trends (TNT) survey, conducted in Canada, revealed consumers receive nutrition information mainly from product labels, the media, friends, and relatives or health professionals. From these, both health professionals and product labels were rated the most credible sources. Therefore, the packaging is an important vehicle that food manufacturers can use to communicate essential information about the nutritional value and composition of their product. Potentially, the nutritional label and nutritional claims represent valuable tools to create trust in consumers and help them to make nutritionally appropriate choices (Wills et al., 2009).

Indeed, the uncertainty or lack of trust that most of the consumers attempt to overcome, searching for this information, is considered an important barrier for food buying decisions and imposes several implications for developing effective communication strategies for the food market (Teng & Wang, 2015). It is known, with little (perceived) knowledge or confidence, individuals willingness to try new alternatives decreases, or simply doesn't exist, even if they demonstrate positive attitudes towards them (An, 2007). This is especially relevant for relatively new markets and concepts in the food market, which must provide sufficient and credible labeling information.

Displaying how the products are grown, processed, handled, and composed is crucial to create positive attitudes and trust towards the products. If consumers consider their knowledge levels

cannot help them increase understanding and trust in the food products, they will not likely transform their positive attitudes into buying decisions (Teng & Wang, 2015). Therefore, sufficiently informative, and understandable nutritional claims are expected to increase consumers' purchase intentions.

H1a: The presence of Nutritional claims in FPG increase consumer's purchase intentions.

Additionally, it is relevant to consider that as most decisions are based on specific information items, individuals' decisions depend on which beliefs are overconfident and underconfident, and not on the average level of over/ underconfidence (Alba & Hutchinson, 2000).

It is known, consumers are interested in foods with (1) lower or no negative nutrition attributes and (2) higher positive nutrition attributes. A negative attribute is a nutritional characteristic that should be reduced, such as sodium or fat. In contrast, a positive nutrition attribute is a nutritional characteristic that should be increased, such as or vitamins or calcium (Balasubramanian & Cole, 2002).

Several reasons have been highlighted in literature to justify consumers' tendency to focus more attention on negative attributes than on positive ones. Balasubramanian & Cole (2002) mention consumers may ascribe greater information diagnosticity to the negative attributes. More importantly, regarding the research question at hand, Balasubramanian & Cole (2002) proved consumers absorb more information about negative attributes due to a higher search activity devoted to negative attributes compared with positive ones.

On this finding basis, this research will address the potentially different effects of both negative and positive attribute claims, testing the hypothesis that claims about negative nutrition attributes have a stronger impact on consumer's purchase intentions.

H1b: Negative nutrition attribute claims have a stronger impact on consumers' purchase intention than positive nutrition attribute claims.

Another important classification of nutritional claims, from the economic and consumer behavior theory, states consumers tend to be more skeptical of subjective claims comparing to objective ones (e.g., "healthy" vs. "no cholesterol"). Hence, when consumers are confronted with more subjective claims, more information is needed to perceive product quality and encourage the purchasing (Andrews et al., 1998). In this way, it is hypothesized when

consumers are confronted with subjective claims, the increase in the purchase intention will be lower than when confronted with objective ones.

H1c: Objective claims have a stronger impact on consumers' purchase intention than subjective nutritional claims.

2.3 Anticipated consumption guilt and decision making

Baumeister et al. (2007) defend human emotions do not directly cause human behavior. Instead, conscious emotions influence our cognitive processes and, in this way, constitute inputs for humans' behaviors and decisions. In decision-making contexts, consumers often anticipate how they will feel about future outcomes and use those feelings to guide their purchasing and consumption decisions (Hur & Jang, 2015).

In alignment with Hur & Jang (2005), throughout this paper, anticipated guilt and pleasure will be referring to "the prospect of feeling positive or negative emotions after performing or not performing a behavior."

In their work, Hur & Jang (2015) suggest that consumers are differently affected by anticipated and experienced/ current emotions in decision-making contexts. Experienced or current emotions are simple and rapid responses that arise when people are in a decision-making context (Baumeister et al., 2007). On the other hand, anticipated emotions command attention and stimulate analysis, learning and adaptation, thus acting as a feedback system that can help to guide behavior (Baumeister et al., 2007). The former directly affects behavior, while the latter may affect, but this is not its main function.

For this study, it was decided to focus on anticipated emotions, namely on the role of anticipated guilt, due to its stronger capacity to guide behavioral intentions (Vogel et al., 2005).

In their work on anticipated guilt and pleasure in a healthy food consumption context, Hur & Jang (2005) demonstrate how anticipated feelings can validate individuals' behaviors. In their experiment, perceptions of healthiness lowered anticipated guilt feelings and positively influenced anticipated pleasure, therefore guiding participants' decisions to purchase food. This findings are aligned with research conclusions stating anticipated feelings of guilt reduce the consumption of unhealthy food and favours consumption of healthier alternatives (Durkin et al., 2012).

All these conclusions from past research seem to indicate that anticipated guilt is negatively correlated to consumer's purchase intention. The hypothesis will be tested within this research.

H2a: Anticipated consumption guilt negatively impacts consumers' purchase intention.

2.3.1 Conflicting goals and consumption guilt mitigation

Guilt is "a negative emotion aroused during an unpleasant emotional state". Feelings of guilt result from an individual's knowledge that they are failing to pursue their own moral or ethical standards (Hur & Jang, 2015). The guilt that may arise after consuming a specific food, as an evaluative function, expresses how the outcome of the behavior is related to the persons' motivations and values. Because the information acquired in each experience of guilt emotions is personally relevant, it is likely to be retained or memorized. In this way, experienced guilt acts as a learning tool in the form of anticipated consumption guilt (Baumeister et al., 2007).

Based on their prior experiences, people tend to perceive food as either more pleasure-related or guilt-related (Wansink & Chandon, 2006). Feelings of guilt arise because food consumption decisions force people to decide between two opposite goals: the utilitarian goal of long-term health preservation and well-being versus the hedonic goal of short-term pleasure gratification (Wansink & Chandon, 2006). This ambivalence towards foodstuffs has important implications for consumption and health-related behaviour, because the experienced motivational conflicts impact people's responsiveness to nutritional stimulus (Durkin et al., 2012). Indeed, more healthy choices occur because, firstly, it is easier to quantify and evaluate practical and functional benefits associated with it and, secondly, it becomes more difficult for consumers to justify spending on hedonic products (Okada, 2005).

Given that, it is hypothesized when people are faced with a conflict as to which option would provide greater utility, nutritional claims in food products generate justifiable reasons for their choice, mitigating the anticipated guilt.

H2b: Nutritional claims in FPG negatively impact anticipated consumption guilt.

H2c: Anticipated consumption guilt mediates the relationship between nutritional claims in FPG and consumer's purchase intention.

2.4 Subjective knowledge

Motivation and knowledge emerge as important triggers of information search and processing (Balasubramanian & Cole, 2002). A sizable body of psychological research forcefully argues that knowledge exerts a significant influence on what and how the consumer decides. Although much work was developed to achieve a comprehensive mapping of knowledge onto decision

making, research on knowledge of own knowledge is equally important (Alba & Hutchinson, 2000).

The literature on consumer behavior distinguishes between actual knowledge and perceived knowledge. Researchers have used objective knowledge to refer to the exact and accurate information that an individual holds, whilst subjective knowledge refers to an individual's perception in relation to certain attributes and products (Hoque & Alam, 2018).

These are considered two different constructs because they have unique measures and influence search and choice behavior differently. First of all, people are biased assessors of their knowledge levels, which implies individuals who assess their knowledge on a specific topic as high/good do not necessarily answer correctly to topic-related items. This means, perceived and actual knowledge do not predict each other, there are, contrarily, weakly correlated (Radecki & Jaccard, 1995).

In health behavior theory, a recurrent theme is the role of perception as an antecedent of behavior intent (An, 2007). In his research, Moorman et al. (2004) demonstrate the simple fact consumers believe that that are knowledgeable about health increases the likelihood that they will locate themselves proximate to stimuli associated with that knowledge, such as healthy places in the store or health-related labels. The mechanism operating here is the people's tendency to behave in line with the beliefs they hold about themselves, or their need for self-consistency, as it will be referred to from now on.

In other words, when nutrition is personally relevant, or the person believes to be nutritionally knowledgeable, he/she feels the need to have a diet that is nutritionally consistent with his/her beliefs, which is likely to stimulate nutritional information processing (Moorman et al., 2004). Nevertheless, the self-conscious emotions, such as guilt, that may arise from failing to be consistent with the personal standards can have adaptive as well as maladaptive consequences. As it was mentioned above, as felling guilty is unpleasant, it may function as a motivating corrective action. However, it may also lead to lower behavioral control over eating (Kuijer & Boyce, 2014).

This phenomenon is explained by hallo effects and beliefs about trade-offs in product attributes (Loebnitz & Grunert, 2018). As food products with nutrition claims or health claims lead consumers to infer poor taste, feelings of missing out on the pleasures of life arise for the ones ‘consuming’ these claims, it is to say, the ones pursuing consistency. As individuals will experience a stronger conflict among goals (self-consistency vs. enjoyment), their susceptibility to losing control when purchasing indulgent food products will also increase (Kivetz & Keinan, 2006).

In the scope of this research, to *'lose control'* means to ignore the nutritional benefit highlighted by the nutritional claim at the expense of the enjoyable benefit attached to the hedonic product without the nutritional claim. Acknowledging the susceptibility to lose control is positively correlated to the experience of contradictory goals (Kuijer & Boyce, 2014), we expect that, nutritional claims in hedonic food products will have a lower impact on the anticipated consumption guilt of individuals who perceive to be nutritionally knowledgeable, given the fact their desire for enjoyment is expected to surpass the long-term desire for health and well-being. The same is to say, we hypothesize nutritional claims have a stronger effect on guilt-free utilitarian foods and consumers with lower levels of perceived knowledge than on guilt-prone hedonic foods and nutritionally involved consumers.

H3: Nutritional claims in FPG have a stronger impact on consumer's anticipated guilt for consumers with low perceived nutritional knowledge.
H4: Nutritional claims in FPG have a stronger impact on consumers' purchase intentions when the products are utilitarian.

2.5 Conceptual Framework

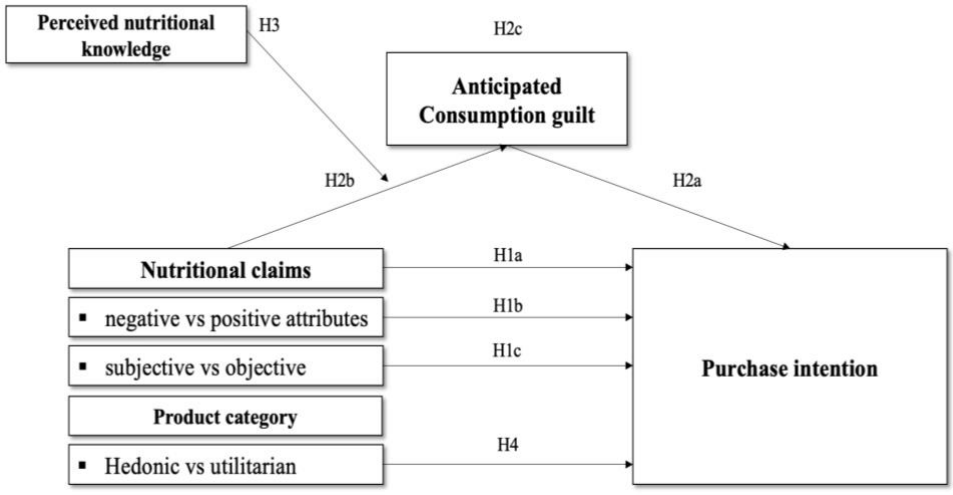

Figure 1. Conceptual Framework

Chapter 3: Methodology

The present chapter aims to expose the methodological approach chosen to conduct this research. The research question and hypothesis mentioned above will be answered recurring to primary data, which analysis is provided below.

3.1 Research Approach

This study's primary goal is to investigate consumers' food decision-making processes in the presence of nutritional claims, by incorporating both cognitive and affective constructs in the decision-making model.

Considering the three kinds of methods commonly used when performing research - exploratory, descriptive, and explanatory – both the exploratory and explanatory methods seem to be the ones better addressing the aforementioned research objective. The exploratory research is, most commonly, applied in a preliminary stage of the research to understand what is already happening and to address theories that could explain what is being observed (Saunders, Lewis, & Thornhill, 2009). It is performed by searching the literature, gaining insights from specialists in the topic, interviews, or organizing focus groups to gain a qualitative understanding of the underlying reasons and motivations. In turn, the explanatory research is conducted to confirm (or reject) the relationships between the variables that were predicted based on the exploratory and/or descriptive research (Saunders, Lewis, & Thornhill, 2009).

For this study, and within the exploratory phase, the existing literature was reviewed, being the main inputs summarized in Chapter 2. By addressing the existing literature on the topics of interest and understanding the functioning of the variables included on the conceptual model, it was possible to hypothesize specific relationships between the constructs. At this stage, these relationships are intended to be operationalized and tested. Complementarily, a qualitative approach was implemented, in the form of pretests. These were conducted to avoid possible researcher bias in choosing the nutritional claims and food products for the hedonic and utilitarian categories. Specifically, three pre-tests were employed, respectively, to (1) determine which type of subjective, objective, negative attributes focused, and positive attributes focused nutritional claims would be better to include in the main survey, (2) select the food products that can better represent the practical and heuristic foods in the main survey and, (3) assess whether respondents would interpret the nutritional claims as desired.

Firstly, a pre-online survey was used to determine which food products should be used to better replicate consumer's behavior in a utilitarian and hedonic food-purchasing context.

After that, a focus group generated insights about the claims that should stimulate the most the consumers' cognitive and emotional processes, thus being useful in selecting the nutritional claims to be used as stimulus.

Lastly, to ensure the selected stimulus will be interpreted in the desired way by the respondents of the main survey, cognitive interviews were conducted, within the pre-testing stage of the main questionnaire.

These interviews were conducted one-on-one by an interviewer with a respondent from the target population. The used technique is called a '*thinkaloud'* and it consists in asking respondents to think out loud or verbalize their thoughts, as they attempt to understand the question, retrieve relevant information from memory, and formulate their response (Czaja, 1998).

Finally, the online questionnaire was employed, as part of the explanatory research, with the main objective of ascertaining the cause-effect relationships between the nutritional claims' presence, anticipated consumption guilt, perceived nutritional knowledge, and purchase intention.

3.2 State of the Art

The first step of this research consisted of secondary research, carried out to gain a clear understanding of previous research findings on the topics being covered. The data was collected mainly from relevant marketing, nutrition, and psychology journals, and it will be guiding primary data collection, as it will be described below.

3.3 Primary Data

A series of four studies were conducted to test the conceptualization and hypotheses developed within Chapter 2. The studies took place chronologically, as follows: (1) Product Identification (for Hedonic and Utilitarian categorization), (2) Nutrition Claims selection, (3) Stimuli Interpretation and (4) Main Study.

3.3.1 Product Identification

First, two products were selected for each product type, to be tested in a small survey: packaged milk and granola, as utilitarian products, and *Mars* bars and potato crisps, as hedonic products. The selection principles were the following: (1) the products had been used in previous studies, and (2) nutrition claims would be applicable (Loebnitz & Grunert, 2018).

3.3.1.1 Data Collection

To assess consumers' perceptions of the utility of foods, we followed Cramer & Antonides (2011) procedure. In specific, a questionnaire was administered online in order to get FPG buyers to evaluate food products in 10 different aspects: 'taste,' 'appearance,' 'satisfying effect,' 'healthiness,' 'not fattening,' 'gives energy,' 'improves performance,' 'improves

resistance,' 'functionality,' and 'hedonism.' The first three aspects and the final aspect are considered to be most important for hedonic goods, whereas the other aspects are expected to be more related to utilitarian goods (Cramer & Antonides, 2011). By asking questions about attributes related to both hedonic and utilitarian food products, the manipulation check measured whether the participants indeed defined the products that were used in this experiment as either utilitarian or hedonic. As suggested by Cramer & Antonides (2011), the meaning of both *'functionality'* and *'hedonism'* was provided in the beginning of the questionnaire, because the concepts could not be clear for the participants.

Since the answers to the questionnaire will determine whether the products will be used in the main survey or not, the target of this pre-study was assumed to be FPG buyers. Thus, at the beginning of the questionnaire, one screening question was included, ensuring all the respondents purchased FPG at least once in the three preceding months. This question consisted of the first section of the survey, being followed by the product perception section, in which respondents rated on a seven-point Likert scale "how important each of the following characteristics is to you when you buy [X]" (-3 = not important at all; 3 = extremely important). Finally, respondents' demographics were collected, in the closing block (Appendix 1). Given the resources and time constraints, the sample was selected through a convenience non-random technique which, in spite of being prone to a certain bias degree, seemed the best alternative.

3.3.1.2 Data Analysis

The survey was built electronically in Qualtrics and spread through social media. After reaching a total of 64 answers, the survey was closed, and the data exported to SPSS software. This was the software used to analyze the collected data and, subsequently, to select the two products to be included in the main survey, as stimulus. A total of 7 answers were excluded based on the corresponding FPG purchasing frequency. From these 57, 11 disregarded due to incompleteness. Demographically, the analyzed respondents are mainly Portuguese female, aged between 18 and 24 years old, holding a bachelor's degree (Appendix 1.1.).

Lastly, and most importantly, descriptive and frequency statistics were performed, supporting the selection of the products to represent the hedonic and utilitarian categories in the main investigation (Appendix 1.2.). The results indicate, independently of the product, 'taste' is the most important selection criteria when purchasing FPG, what is expected since the products under evaluation refer to food. Moreover, for the hedonic products (chocolate *Mars* bar and potato chips), the statistics reveal *'hedonism'* is the (second) most important attribute when choosing these types of products, which makes it the determinant attribute to choose among the

two products. Therefore, the *Mars* chocolate bar was selected as the hedonic product to integrate the main survey, since it yielded the highest mean (M = 6,262) and the lowest standard deviation (S = 1,14) regarding the *'hedonism'* attribute. When it comes to the utilitarian products (granola and milk), it seems that respondents regard granola as a relatively more utilitarian product, attributing to *'taste'* and *'healthiness'* the highest importance when selecting the product to be bought. Henceforth, being *'healthiness'* the second most important attribute (M = 6,152; S = 1,135), when purchasing granola, granola is the utilitarian product to be used further on in the investigation.

3.3.2 Nutritional Claims Selection

Succeeding the products selection, a focus group was conducted with the aim of testing which nutritional claims cause the most impact on consumers cognitive and effective systems. As focus groups allow for group interaction and greater insight into why certain opinions are held (Kitzinger, 1995), this procedure was considered the most suitable one. In concrete, the discussion was moderated, using activity-oriented questions, to gather participants depth impressions on negative/positive focused and subjective/objective nutritional claims (Colucci, 2007). The subjective and objective nutritional claims exampling stimulus were imported from existent studies (Andrews et al., 1998).

3.3.2.1 Data collection

The focus group counted with 6 elements, from a convenience sample, all Portuguese females, within the same age range, that purchase FPG regularly (more than once a week) (Appendix 2.1.).

The discussion was divided into five sections, beginning with more exploratory exercises and proceeding with more structured ones (Colucci, 2007) (Appendix 2). The beginning of the session consisted of a warm-up exercise, in which the participants presented themselves, and the moderator shared the guiding rules and objectives of the focus group. Subsequently, the conversation focused on participants' perceptions regarding FPG. A distinction between snacks and main meals emerged, becoming evident that FPG are consumed mostly in a snacking/between-meals context. Also, when asked to compare the type of products they were consuming two years ago with the ones they are consuming now, most of the participants mentioned a decrease in the consumption of dairy products and (packaged) processed meat, for health reasons. On the other hand, for the same reasons, some of the participants started purchasing gluten-free and/or lactose-free products. In general, it was noticeable that, in

comparison with the past years, participants are paying more attention to the composition of the food packaged products they are consuming, meaning the packaging is playing a more important role in their decision-making process.

In line with the topic being discussed, heading to the third block, the moderator focused on the participants perceptions of health and nutrition. Surprisingly, participants who seemed to be more interested in the nutrition topic and, consequently, more worried with their health, revealed a fair degree of mistrust in the information displayed in the front of the packaging, namely in the form of nutritional claims. For these, even if the nutritional claims function as a trigger to consider the product for purchase, the main source of information and the way of monitoring their diet is through the nutritional panel displayed in the back of the packaging.

Thereafter, in order to select the positive and negative focused nutritional claims, a free listing technique was employed. Participants were asked to recall and list the nutritional information displayed in the packaging of the products they usually purchase or/ and consume. As predicted by Balasubramanian & Cole (2002), participants mentioned mostly negative focused nutritional claims. Two additional questions were posed regarding the nutritional attributes desirable and undesirable by participants, to validate the alignment between the products being consumed and the perception of nutritionally good food products.

Lastly, for the selection of the objective and subjective nutritional claims, within the last section of the focus group, participants were offered two versions of the same product, one version with a subjective nutritional claim and the other with an objective one and asked which of the products seemed to be more trustable and to have superior quality. Both hedonic and utilitarian products were displayed, ensuring the distinction between objective and subjective nutritional claims does not depend on the categorization of the product. A paired comparison technique was employed at this stage since it is designed to encourage respondents to project their underlying attitudes and emotions (Colucci, 2007).

3.3.2.2 Results

The respondents' answers regarding (1) desired and undesired nutritional aspects of a food product and (2) recalled nutritional claims from FPG usually bought were recorded and ranked for the selection of the positive and negative focused nutritional claims. Based on the combined mention frequency, the selected claims were: 'No added sugar' and 'Organic product' for the negative and positive attributes focused claims, respectively (Appendix 2.2.).

When it comes to the selection of the objective and subjective nutritional claims to be used in the main survey, the criterion was the difference in the perceived product quality between the

product with an objective nutritional claim and the one with a subjective nutritional claim. As for the pair of nutritional claims *"Less than 4% sugar vs. Low sugar"* the participants decided against the subjective claim in the lowest amount of time, relatively to the other four decisions they were asked to make, and also justified their decision with the exact attribute that differentiates objective from subjective claims (Andrews et al., 1998), these two were the selected objective and subjective claims (Appendix 2.2.).

3.3.3 Main Study

As the purpose of this research is to obtain an accurate description of the association between the variables, the suitable research design is one that minimizes bias and maximizes the reliability of the data collected and analyzed (Kothari, 2004). Therefore, quantitative data was gathered, by mailing of questionnaires built-in a formal experimental design.

3.3.3.1 Data Collection

The merits claimed on behalf of online questionnaires focus on low-costs, easy wide geographical spread and possibility to replicate a virtual visual advertising environment (Kothari, 2004). Therefore, an online survey was spread, mainly through social media platforms, from 11th to 23rd of June 2021. Beforehand, a pilot survey was employed, with 15 individuals, ensuring the stimuli would be interpreted as intended.

The sample of this questionnaire was selected in a convenience way, for the reasons mentioned regarding the pre-questionnaire, in section 3.3.1.1.

The target group were all those who bought food packaged goods and consumed either granola or chocolate, or both, in the last three months.

Accordingly, three screening questions opened the questionnaire, ensuring non-eligible respondents did not answer the questionnaire. As the questionnaire was built-in a randomized block-design, the eligible respondents were evenly allocated to one of the ten different scenarios, each corresponding to a nutritional claim stimulus. Additionally, to increase the reliability of the responses, based on the answers provided in relation to chocolate and granola consumption, the survey flow ensured the respondents answered in relation to a product they consumed in the last three months. For example, if the respondent stated to have never consumed granola in the past three months, he/she was randomly assigned to one of the stimuli in the chocolate bar packaging.

The second section of the questionnaire, similar to all the respondents, addressed the perceived nutritional knowledge of the respondents.

This was followed by the stimulus display, in a block measuring the anticipated consumption guilt and the respondents' purchase intention. Moreover, four manipulation questions – one regarding the product categorization, three referring to the nutritional claim – were included, checking for the proper interpretation of the stimulus.

Finally, the closing section collected the respondents' demographics (Appendix 3).

From a total of 1864 answers registered, 592 were discarded due to incompleteness and ineligibility. From these, 423 belonged to ineligible individuals. Therefore, a sum of 849 valid answers were statistically analyzed.

3.3.3.2 Measurement

The participants' perceived nutritional knowledge was measured through a construct used by Moorman et al. (2004) on their research on how perceived knowledge can affect the quality of consumers' choices. It consists of a three-item scale comprising (1) Knowledge of nutrition information, (2) Confidence in using nutrition information and (3) Ability to comprehend nutrition information on product labels.

For the data on the purchase intention, it was obtained by asking the participants to agree with the following sentences: "If the displayed product was available in the shops, I would buy it"; "I am willing to buy the displayed product despite its higher price"; "The probability I would buy the displayed product is very high". The scale was adapted from a 5-point Likert-scale to a 7-point one, ranging from 1= Strongly Disagree to 7=Strongly Agree.

Finally, individuals' anticipated consumption guilt was measured by addressing Guilt, Shame and Regret on a 7-point Likert scale, as suggested by Hur & Jang (2015).

3.3.3.4 Data Analysis

As it happened in the pre-tests, the data was collected through Qualtrics software and analyzed in SPSS.

Firstly, the data was cleaned, screened, and prepared, such that it could be used in the statistical tests to be performed, in order to reject or accept the developed hypothesis. These procedures included: labeling the questions; checking for accuracy; treating missing data; ascertaining legible responses; creating the categorical variables.

Subsequently, the reliability of the above-mentioned constructs was assessed through Cronbach's alpha, and their quality was ranked based on the guidelines proposed by George & Mallery, 2003.

Thereafter, hypotheses were tested using the Mann-Whitney U Test, for comparisons between two groups, and the Kruskal-Wallis H Test, for comparisons of more than two groups.

Also, to test (1) to what extent the anticipated consumption guilt mediates the impact of the nutritional claims on consumers' purchase intention, and (2) how the perceived nutritional knowledge moderates the effects of the nutritional claims on the anticipated consumption guilt, Hayes' PROCESS model 7 was employed (C.B., S., & Catley. N. & Thomas, 2015). Since this mediation involved a multicategorical independent variable (i.e. more than 2 experimental conditions relative to the control group), the general linear modelling approach developed by Hayes & Preacher (2014) was used and the respective indicator coding strategy was employed (Figure 2).

For all the statistical tests, the significance level was set at 5%.

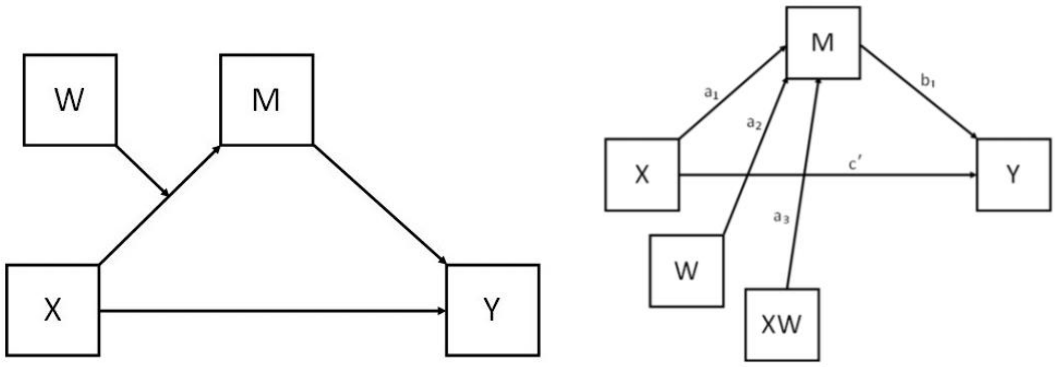

Figure 2. Hayes' PROCESS Model 7 - conceptual (right) and statistical (left) model diagrams

Chapter 4: Results and discussion

The next chapter is devoted to the main study results. Each sub-chapter corresponds to a stage of the quantitative data analysis, and it provides a description of the adopted procedures, aiming to characterize the sample, test the hypothesis, and the full model.

4.1 Data-preparation process

A total of 1864 questionnaires were initiated. From these, 1605 checked for completeness, implying a response rate of 86%. This suggests the survey length, type of postage, and type of incentive were appropriate (Champion et al., 1969).

Following with the data cleaning, 423 responses were dropped from the analysis as the participants had neither bought FPG nor consumed chocolate snacks and granola in the preceding three months. Finally, an accuracy test to the responses implied dropping 328 more responses from the analysis. These 328 respondents failed to pass any of the manipulation checks.

Thereafter, only 854 answers constituted the database for the analysis at hand.

It is important to mention since the demographic information of the respondents is not crucial to test the hypothesis at hand, the answers that lacked demographic information but had information on *Purchase intention*, *Anticipated consumption guilt,* and *Perceived nutritional knowledge* were not considered incomplete answers. This implies the length of the sample for the demographics analysis (N = 677) is different from the one used for the hypothesis testing analysis (N = 854). Nevertheless, since the sample used to demographically characterize the sample represents 79% of the sample under the main analysis, it was considered it can fairly represent the main sample.

From the answers given in the screening questions regarding the respondents' consumption habits, it was possible to ensure each participant was responding relatively to a product he/she had consumed in the last three months. Accordingly:

(a) 279 respondents that had not consumed granola were evenly allocated to one of the five stimuli in the chocolate bar packaging;

(b) 182 respondents that had not consumed chocolate snacks were evenly allocated to one of the five stimuli in the granola packaging;

(c) The other 393 respondents that consumed both granola and chocolate bars/ snacks were evenly allocated to one of the ten stimuli.

The figure below shows the number of valid answers per block and the participants' distribution over the stimulus.

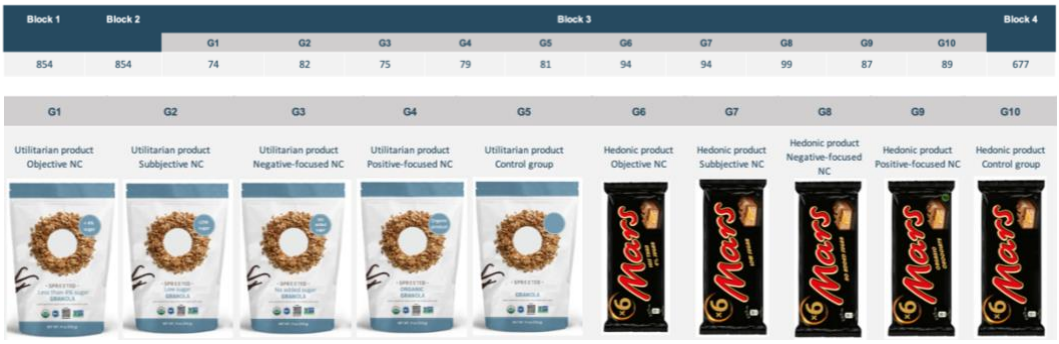

Figure 3. Distribution of valid responses by block

4.2 Sample Characterization

The sample is mostly composed of Portuguese people (73.3%) and women (69.7%). Furthermore, most of the respondents hold higher education qualifications (49%), are employed (56.9%), and earn between 500€ and 1499€ per month (45.4%). In terms of age, the sample is quite diverse, being the age groups between 18 and 54, evenly represented.

Regarding the respondents' buying behavior, it can be said the sample is essentially characterized by regular FPG shoppers (63.8% of the respondents purchased FPG more than 2 times per month in the preceding 3 months). Moreover, there is a predominance of no and low granola consumers (60,8% of the respondents have either never consumed granola or have consumed it less than once a month in the last 3 months) over frequent granola consumers (14.4%). When it comes to chocolate snacks, the distribution is less biased towards occasional consumers. While 36.4% of the respondents mentioned having bought chocolate less than once a month, in the three previous months, 33.8% of them bought it one to four times a month.

An analysis of all these characteristics across the ten sub-samples demonstrates there is homogeneity between them (Appendix 3.1.). This mirrors the element of bias from the non-probabilistic sampling technique (Kothari, 2004), resulting in a low probability of the sample being representative of the total population.

4.3 Reliability measurement

The accuracy of the conclusions taken under the analysis of the data is highly dependent on the reliability of the evidence collected (Kothari, 2004). Therefore, the constructs used for the measurement of the Purchase intention, Anticipated consumption guilt, and Perceived nutritional knowledge, already validated in the literate, were reassessed considering the sample under investigation. The employed internal consistency reliability coefficient was Cronbach's alpha, and its quality was ranked based on the guidelines proposed by George & Mallery (2003)[1] (Appendix 3.2.).

According to their criteria, overall, the three chosen constructs were a good measure of the variables concerned.

The Perceived nutritional knowledge scale, combining the knowledge, the confidence in using, and the ability to comprehend of the respondent in relation to nutritional information, is classified as good in terms of reliability, with a coefficient of 0.834.

[1] Reliability was measured on a scale of 0 to 1 with 1 indicating perfect reliability and 0 no reliability.

For the anticipated consumption guilt scale, the aggregate Cronbach's Alpha is 0.842, which means Guilt, Shame, and Regret, together, are a good reliability index of the variable. The analysis of the internal consistency of the construct per group of stimuli corroborates this finding, with Cronbach's Alpha coefficients varying from 0.809 to 0.889.

Likewise, according to George and Mallery's (2003) guidelines, the purchase intention construct has good reliability, rating high for the internal consistency (α = 0.894). Individually looking, for group 2, the measurement is even considered to be excellent, rating above 0.9 in the internal consistency index (α = 0.910). All the other groups have good measurement scales, according to the guidelines.

Cronbach's Alpha			
Construct	**Number of Items**	**Coefficient**	**Rating**
Perceived Nutritional Knowldge	3	0.834	Good
Anticipated Consumption Guilt	3	0.842	Good
Purchase intention	3	0.894	Good

Table 1- Cronbach's Alpha coefficients

Accordingly, the answers to the various questions related to each of the 3 constructs were combined in a single variable (PNK; ACG; PI), using the *mean* function.

4.4 Results from the Hypothesis Testing

The nature of some of the hypotheses purposes the comparison between two (H1a; H1b; H1c; H2a) or more groups (H2b; H4) assigned to the claims, in terms of their purchase intention and anticipated consumption guilt. Knowing no respondent was exposed to more than one stimulus, all the observations are independent from each other.

In statistics, it is necessary to test for normality to decide whether to use parametric or non-parametric tests. Hence, before comparing the means of the groups, the assumption of normality was tested, ensuring the validity of the results (Gerald, 2018). By performing the One-Sample Kolmogorov-Smirnov test[2] , it was evident the normality assumption is not verified for all groups in any of the three variables – Perceived nutritional knowledge; Anticipated consumption guilt, Purchase intention. (Appendix 3.3.).

This scenario indicates the appropriateness of non-parametric tests, namely: Mann-Whitney U Test (for two groups comparisons) and the Kruskal-Wallis H Test (for more than two treatments

[2] The Kolmogorov-Smirnov test was chosen instead of Shapiro-Wilks test, to test for normality of the data, since it works better if the sample size is more than fifty (Gerald, 2018).

comparison). To ensure these tests could give rise to valid results, assumptions were verified beforehand. The dependent variables were measured at an ordinal level since Likert scales were used, and the independent variables consist of two (hypothesis tested under Mann-Whitney U Test) or more (hypothesis tested under Kruskal-Wallis H Test) categorical, independent groups. Also, as mentioned before, the questionnaire was designed to ensure there was independence of observations. Lastly, the dependent variables are not normally distributed, as previously shown in Appendix 3.3. Based on the foregoing, Mann-Whitney U Test and Kruskal-Wallis H Test are appropriate to analyze the data.

Because the groups had similar shapes, both for purchase intention and anticipated consumption guilt, the differences between the groups will be reported as medians (Laerd Statistics, 2013) (Laerd Statistics, 2014).

4.4.1 Nutritional Claims presence

H1a: ***The presence of Nutritional claims in FPG increase consumer's purchase intentions.***

Initially, the 10 groups were paired, based on the presence (or absence) of a nutritional claim to get the 2 categories of interest to the IV. The distribution of Purchase intention is skewed in each group (1 = Present; 0 = Absent), and the groups are independent of each other. Therefore, the Mann-Whitney test is appropriate to compare the two groups, with *PI* as the dependent variable and *NC_Presence* as the independent variable.

To report the difference between groups as medians, the shape of the distributions of the dependent variable by the group must be similar. The boxplots show that the two distributions have a similar pattern - they are both negatively skewed - and Levene's median-based homogeneity of variance test (Levene's statistic = .345; p-value = .557) indicates there are no statistically significant differences, meaning the assumption of equal distributions is satisfied (Appendix 4.1.). Hence, the medians were used to summarize the differences in purchase intention (Appendix 4.2.).

The 'Compare means' function of SPSS shows the median for the group exposed to a nutritional claim (*Median*/*G=1* = 3.00) is equal to the one for the control group (*Median*/*G=0* = 3.00), hinting the difference between the groups from the Mann-Whitney U test is insignificant.

The chart showing the distributions of the two groups and the mean ranks for each group (Mean rank | G=1 = 429.37 vs. Mean rank | G=0 = 419.99) demonstrates the group exposed to a nutritional claim has slightly higher ranks, suggesting a higher purchase intention for this group of respondents. Nevertheless, the Mann-Whitney U test output clearly states that: (1) the two

distributions are being compared, (2) the p-value is 0.656, (3) the null hypothesis of equal distributions cannot be rejected (Appendix 4.2.).

Since the results from the test go against the findings from the existent literature, summarized in chapter 2, it can be argued the participants did not notice the presence of the nutritional claims. Therefore, a manipulation check was run.

By splitting the output file by groups based on the respondent's answer to the manipulation question regarding the presence of the nutritional claim, the scenario slightly changes. For the group that did not perceive the nutritional claim presence, the p-value remains high (U = 11121.5; p-value = .511), confirming there is no statistically significant difference in the purchase intention of the respondents. However, when it comes to the ones that passed the manipulation check, the p-value goes down (U = 17419.0; p-value = .075), and the null hypothesis would be rejected at a 0.1 significance level (Appendix 4.3.).

4.4.2 Nutritional claims attribute focus

H1b: ***Negative nutrition attribute claims have a stronger impact on consumers' purchase intention than positive nutrition attribute claims.***

Once again, to compare the nutritional claims focused on a positive attribute (IV = 1) with the ones focused on a negative attribute (IV = 0), the stimuli were paired (G4 and G9 vs. G3 and G8) and a Mann-Whitney U test was conducted, as all the conditions were reunited.

Firstly, the similarity of the data distribution was tested through boxplots and Levene's median-based homogeneity of variance test (Levene's statistic = .359; p-value = .549) (Appendix 5.1.). Both indicate medians, rather than mean ranks, should be compared under the statistic test.

The mean values of the purchase intention indicate there is similarity between both groups (M | G=0 = 3.18; SD | G=0 = 1.66 vs. M | G=1 = 3.07; SD | G=1 = 1.57). Accordingly, the Mean rank for the positive attribute focus group is only slightly lower (*Mean rank* = 167,74) than the one for negative attributes focused (*Mean rank* = 173,14). As expected, the medians of both groups are equal, and the hypothesis of similar data distribution cannot be rejected (U = 13983.5; p-value = 0.612), suggesting the attribute focus of the nutritional claim has no impact on the consumers' purchase intention (Appendix 5.2.).

Hence, a manipulation check was run, this time not only for the presence of the nutritional claim (M1 = Pass) but also for the perception of the negative/ positive focus of the claim (M3 = Pass) (Appendix 5.3.).

Surprisingly, in the case respondents noticed the nutritional claim presence and correctly perceived the focus of the nutritional claim attribute, the positive attribute focused claim (*Median* = 4.33) registers a higher median than the negative-focused one (*Median* = 2.33). This difference between the groups was found to be statistically significant at a 0.1 significance level (U = 320.0; p-value = 0.092).

Consequently, H1b is rejected, and the opposite is found to be true - positive attribute nutrition claims have a stronger impact on consumers' purchase intention than negative nutrition attribute claims.

4.4.3 Nutritional claims objectivity

H1c: ***Objective claims have a stronger impact on consumers' purchase intention than subjective nutritional claims.***

With the aim of determining differences in purchase intention between objective (IV = 1) and subjective (IV = 0) nutritional claims, the Mann-Whitney test was used.

The similarity of data distribution among the two groups is mirrored in the boxplots and confirmed by Levene's test of homogeneity of variances (Levene's statistic = 0.053; p-value = 0.819) (Appendix 6.1.). Accordingly, medians should be compared within the non-parametric test.

Through the basic descriptive statistics, it can be hypothesized subjective nutritional claims (*Median* = 3.33) have a stronger impact on the purchase intention than objective nutritional claims (Median = 2.66), contrarily to what was hypothesized within the literature review (Appendix 6.2.).

Indeed, the hypothesis of equal distributions, tested in the Mann-Whitney U-test, is rejected with 90% confidence (U= 13066.5; p-value = 0.061). This means the reported difference between the medians is significant at a 0.1 significance level. So, the formulated hypothesis is rejected.

To complement these findings, the same analysis was run separately for utilitarian and hedonic products (Appendix 6.3.). In the case of utilitarian products, the difference registered between the medians is significant at a 0.05 significance level (U = 2347.5; p-value = 0.015). On the other hand, for hedonic products, the higher median of the purchase intention for subjective claims is not statistically significant (U = 4138.5; p-value = 0.449). In brief, when the products are utilitarian, the respondents' purchase intention is superior for products that include a subjective nutritional claim.

Besides that, if the variable 'Perceived nutritional knowledge' is transformed into a categorical one, with 3 categories (1= Low; 2= Average; 3=High), the Mann-Whitney U test can be run for each of the categories.

By doing that, it was found the differentiation on the purchase intention caused by the objectivity of the nutritional claim only verifies when the respondent considers being nutritionally knowledgeable (Appendix 6.4.). For a high perceived nutritional knowledge, the difference in medians is significant (U = 4097.5; p-value = 0.02), reinforcing the stronger impact of the subjective nutritional claim. This moderation will further be deeply analyzed when testing the full model.

4.4.4 Anticipated consumption guilt and purchase intention

H2a: ***Anticipated consumption guilt negatively impacts consumers' purchase intention.***

To comment on the above-stated hypothesis, it is of interest to establish if there is any relationship between Anticipated consumption guilt and Purchase intention.

The starting point of any correlation analysis is the construction and examination of a scatterplot (Statstutor, s.d.). In this case, the scatterplot suggests there is high variation since the relationship barely follows a straight line (Appendix 7.1.). So, there appears to be a non-linear relationship between the variables. The usage of the Pearson's correlation coefficient was, therefore, discarded, as it assumes linearity between the variables, and it is sensitive to skewed distributions and outliers (Statstutor, s.d.), which verify (Appendix 7.2.).

Trough the line of best fit on the scatterplots, it is already possible to predict the variables are negatively correlated, from its negative slope.

To check for the significance of this relationship, the non-parametric alternative is Spearman's correlation coefficient. The validity of the result is ensured as the data 'passes' the three assumptions required for Spearman's correlation: (1) the two variables are measured on an ordinal or higher level; (2) the two variables represent paired observations; (3) there is a monotonic relationship between the variables.

The output of the test reveals there is a weak, negative correlation between anticipated consumption guilt and purchase intention, which is statistically significant at a 0.01 significance level (r_s = -0.187; p-value = 0.00) (Appendix 7.3.) (Statstutor, s.d.).

To either accept or reject the hypothesis at hand, further tests are necessary, as this one does not reveal any information on causality. For now, it is known higher levels of anticipated consumption guilt are associated with lower levels of Purchase intention.

Further on, when testing the full model with the support of Hayes' PROCESS, a conclusion on this hypothesis will be reached.

4.4.6 Anticipated consumption guilt determinants

H2b: ***Nutritional claims in FPG negatively impact anticipated consumption guilt.***

The dependent variable '*Anticipated consumption guilt*' is negatively skewed for both levels of the dependent variable (IV = Present; IV = Fail). Moreover, Levenes' test of homogeneity of variances indicates the data distributions have a similar shape (Levene's statistic = 2.236; p-value = .135) (Appendix 8.1.). Therefore, to test the effect of nutritional claims presence on the anticipated consumption guilt, the medians of the groups were compared under a Mann Whitney U test.

The obtained results indicate the distribution of the data across the two categories is the same, meaning the presence of the nutritional claim had no impact on the respondents' anticipated consumption guilt (U = 56951.0; p-value = 0.666) (Appendix 8.2.).

This conclusion remains with a Manipulation check for the presence of the nutritional claims (U = 14912.0; p-value = 0.455), and it is not dependent on the product category

Hence, the formulated hypothesis cannot be accepted.

Out of curiosity, a Kruskal-Wallis test was run for a comparison between the effect of each of the ten nutritional claims on the anticipated consumption guilt (Appendix 8.3.). As p = 0.001, there is strong evidence that at least one pair of groups is differently impacting the dependent variable. To find out which pairs have a different distribution of the data, Dunn's post hoc tests were carried out on each pair of groups. The output of the pairwise comparisons reveal a significant difference (at a 0.1 level of significance) on the anticipated guilt between the respondents exposed to a positive-focused nutritional claim on a utilitarian product (G4) (*Median* = 1) and the ones exposed to a negative-focused nutritional claim on a hedonic product (G8) (*Median* = 2). When testing the full-model, it will be uncovered if any of these stimuli has a significant effect on the anticipated consumption guilt. If so, the assessed difference is relevant under the scope of this analysis.

4.4.5 Full-Model

H2c: ***Anticipated consumption guilt mediates the relationship between nutritional claims in FPG and consumer's purchase intention.***

H3: ***Nutritional claims in FPG have a stronger impact on consumer's anticipated guilt for consumers with low perceived nutritional knowledge.***

To perform this statistical moderated mediation analysis, Hayes' PROCESS model 7 was employed, resulting in the matrix set out in Appendix 9.1.

As this mediation involves a multicategorical independent variable (groups assigned to stimuli), the general linear modelling approach developed by Hayes & Preacher (2014) was used. This model comprises an analysis of how each group differs from a reference group.

Initially, the 10 groups were paired, based on the type of nutritional claim, and disregarding the product category, to get the 5 stimuli of interest: Control (G5 and G10), Objective claim (G1 and G6), Subjective claim (G2 and G79), Negative-focused claim (G3 and G8) and Positive-focused claim (G4 and G9). The categories were represented using the *indicator* coding strategy, which automatically created 4 dummy variables (Table 2). The indicator coding is provided in Appendix 9.2.

Independent Variable - Indicator coding	
Dummy variable	**Stimuli**
X1	Objective nutritional claim
X2	Subjective nutritional claim
X3	Negative-focused nutritional claim
X4	Positive-focused nutritional claim
Reference	Control group

Table 2 – Indicator coding for the Independent variable

The Mann-Whitney U test performed under H1a testing reveals the expected positive effect of nutritional claims presence on the purchase intention (U = 17419.0; p-value = .075). Pairwise comparisons between medians reveal those assigned to positive-focused nutritional claims had a significantly higher purchase intention on average than those assigned to the negative-focused claim (U = 320.0; p-value = 0.092). Furthermore, those assigned to the utilitarian product had a higher purchase intention for the subjective nutritional claim than for the objective one. Whether anticipated consumption guilt is one of the mechanisms driving this effect, and whether perceived nutritional knowledge indirectly affects purchase intention will be addressed throughout the following sub-chapter.

4.4.5.1 Direct and indirect effects of X on Y

The first step in the analysis of the model consisted in checking if there is an indirect effect moderated by Perceived nutritional knowledge through the Index of moderated mediation (IMM) (Regorz, 2020) . For X_1, X_3 and X_4, as zero is part of the confidence interval of IMM, it cannot be asserted these values (*Index* | X_1= 0.0119; *Index* | X_3= 0.0385; *Index* | X_4= 0.0349) are statistically different from zero. Hence, there is no moderated mediation in the case of objective, negative, and positive-focused nutritional claims (A. Hayes, 2013). When it comes to the relative indirect effect of X_2 on *Purchase intention*, there is statistical evidence for its significance since the CI excludes zero (*Index* | X_2 = 0.0858; *BootLLCI* = 0.0175; *BootULCI* = 0.1637). Hence, there is a mediated moderation (i.e., perceived nutritional knowledge moderates the effect of subjective nutritional claims on anticipated consumption guilt). At -1SD on perceived nutritional knowledge, the effect is negative and insignificant (*a1.2*=-0.052; *BootLLCI* = -0.16; *BootULCI* = 0.0537). At the mean of perceived nutritional knowledge, the effect of the nutritional claim is positive and insignificant (*a1.2*=0.0416; *BootLLCI* = -0.0317; *BootULCI* = 0.117). At +1SD of perceived nutritional knowledge, the nutritional claim is a significant positive predictor (*a1.2*=0.1352; *BootLLCI* = 0.0315; *BootULCI* = 0.2513). Hence, the conditional indirect effect is significant in the 'high' perceived nutritional knowledge group. The conditional indirect effects for each combination of moderator values are constructed by summing the product of a1 by b1 with the product of a3, b1 and the value of the moderator in the specific level (low, medium, or high) (C.B., S., & Catley. N. & Thomas, 2015).

In this model, *a1.2* corresponds to the difference in the anticipated consumption guilt between the subjective nutritional claim and the control condition (*a1.2 = -0,1855)*(A. F. Hayes & Preacher, 2014). Thus, the condition with the subjective nutritional claim generated less 0,1855 units of anticipated consumption guilt than the condition with no nutritional claim. Furthermore, holding condition constant, those who anticipated more guilt also had attitudes that were less positive (*b1*=-0.2241). The relative indirect effect of subjectivity is:

*a1.2*b1 = -0,1855 x -0,2241 = 0,042*

The value of *a3.2* refers to the difference in the anticipated consumption guilt between the interaction of the subjective nutritional claim with the perceived nutritional knowledge and the interaction of the control condition with perceived nutritional knowledge (*a3.2* = -0.3830)(A. F. Hayes & Preacher, 2014). The relative indirect effect of the interaction term is:

*a3.2*b1*High_W = -0,383 x -0,2241 x 1,0904 = 0,094*

Hence, the conditional indirect effect for the level '*High*' level of the moderator is:

*a1.2*b1 + a3.2*b1*High_W = 0,042 + 0,094 = 0,135*

Relative to the control condition, those assigned to the subjective nutritional claim and with high levels of Perceived nutritional knowledge were 0.135 units more intended to buy, as a result of the (lower) anticipated consumption guilt.

The relative direct effects of the various claims are represented by *c'* and quantify the corresponding differences between adjusted means on the purchase intention measure. The output indicates none of the dependent variable categories, by itself, significantly predicts purchase intention (p-value | X_1 = 0.425; p-value | X_2 = 0.388; p-value | X_3 = 0.422; p-value | X_4 = 0.851). In fact, this is consistent with the conclusion taken under H1a testing. On the other hand, *Anticipated consumption guilt* is a negative and significant predictor of the intention to buy (*b1*=-0.2241; p-value < 0.01). In this way, since the relative direct effect of nutritional claims on purchase intention is insignificant, anticipated consumption guilt entirely accounts for the relationship, totally mediating the effect. The relative total effect of the subjective nutritional claim corresponds, in this case, to the corresponding relative indirect effect (A. Hayes, 2013) (c_2 = 0,135). H2c is, therefore, accepted. Furthermore, it is now possible to understand the direction of the negative correlation between PI and ACG (mentioned in sub-chapter 4.4.4), and H2a can also be accepted.

When it comes to H3, there is evidence of no significant direct effect of Perceived nutritional knowledge on Anticipated consumption guilt. The PNK impacts ACG only when in interaction with a subjective nutritional claim. Based on this, H3 is rejected.

4.4.6 The effect of the product category

H4: ***Nutritional claims in FPG have a stronger impact on consumers' purchase intentions when the products are utilitarian.***

To test the above-mentioned hypothesis, a moderated mediation analysis was performed on each of the product categories. Once again, Hayes' PROCESS model 7 was used.

First of all, the responses relative to each product category were separated into two different data sets, and therefore, the 5 groups of nutritional claims were already defined. The categories were represented using the *indicator* coding strategy, which automatically created 4 dummy variables. The indicator coding of both analysis is provided in Appendixes 10.1. and 10.3.

4.4.6.1 Utilitarian products

The first portion of the output (Appendix 10.2.) contains the regression of *Anticipated consumption guilt* onto *Perceived nutritional knowledge*, nutritional claims, and their

interaction. No interaction term between the nutritional claims and the perceived nutritional knowledge is statistically significant (all p's >0.05), suggesting that perceived nutritional knowledge does not moderate the effect of nutritional claims on utilitarian products on anticipated consumption guilt. Hence, all relative conditional indirect effects of nutritional claims are insignificant. This is corroborated by the four CIs of the IMM, which include zero.

The second portion of the output contains the regression of *Purchase intention* onto *Anticipated consumption guilt* and nutritional claims. The relative direct effects of the various claims, represented by *c',* are all insignificant (all p's >0.05). When it comes to *Anticipated consumption guilt*, it is a negative and significant predictor of *Purchase intention* (*b1* = -0.2683; p-value < 0.01), similarly to what happened on the full-model analysis.

In conclusion, it must be accepted that the relative total effects of the nutritional claims on purchase intention can be zero (c_1, c_2, c_3, c_4= 0).

4.4.6.2 Hedonic products

The output of the regression of *Anticipated consumption guilt* onto *Perceived nutritional knowledge*, nutritional claims, and their interaction (Appendix 10.4.) demonstrates Int_2 (PNK * X_2) is the only significant predictor of the model's mediator (*a3.2* = -0.4432; p-value = 0.0481). The *Anticipated consumption guilt* decreases more 0,4432 units when a subjective nutritional claim interacts with perceived nutritional knowledge than when perceived nutritional knowledge has no interaction with a nutritional claim (i.e., control condition).

On the second regression provided, the *Anticipated consumption guilt* is recognized as a negative significant predictor of *Purchase intention* (*b1* = -0.1096; p-value = 0.0210). Also, as expected, none of the nutritional claim categories can significantly and directly predict *Purchase intention* (all p's > 0.05).

Hence, the relative indirect effect of the interaction term is:

$$a1.2*b1 = -0,21 \times -0,1096 = 0,023$$

Furthermore, the bootstrap CI that Process constructed for the IMM, reveals the significant moderated mediation happens for the '*High*' level of the moderator. Hence, the relative indirect effect of X_2 is:

$$a3.2*b1*High\_W = -0,443 \times -0,1096 \times 1,1592 = 0,056$$

Therefore, the relative conditional indirect effect of subjective nutritional claims on *Purchase intention* is:

$$a1.2*b1 + a3.2*b1*High\_W = 0,023 + 0,056 = 0,079$$

Relative to the control condition, those assigned to the subjective nutritional claim and with high levels of *Perceived nutritional knowledge* were 0.079 units more intended to buy the hedonic product, as a result of the (lower) experienced anticipated consumption guilt.

Lastly, since the relative direct effect of nutritional claims on *Purchase intention* is insignificant, the relative total effect of the subjective nutritional claim on hedonic products is the corresponding relative indirect effect (A. Hayes, 2013) (c_2 = 0,079).

These results, combined with the ones obtained in the previous sub-chapter, make it possible to reject H4 and accept its opposite. The mediated moderations performed demonstrated when the products are utilitarian, nutritional claims have no direct or indirect effect on consumers' purchase intention. On the other hand, when the products are hedonic, nutritional claims, more specifically subjective nutritional claims, can positively impact purchase intention through anticipated consumption guilt. This effect verified when the respondents perceived to have more nutritional knowledge than the average consumer.

Chapter 5: Research conclusions and limitations

Recognizing the increasing importance of healthiness in the FMCG industry, this study aimed to identify consumers' decision-making processes in the midst of intensive health-related marketing practices. In this chapter it is provided an outline of the main findings and conclusions drawn based on the primary data analysis and literature review. Besides, implications for both food manufacturers and researchers are presented. At the end, research limitations and future research proposals are identified.

5.1 Main Findings and Conclusions

The results of the pre-survey indicated the best food products to represent the hedonic and utilitarian categories would be *Mars* chocolate bar and granola, respectively.

In a focus group, the nutritious claims 'Low-sugar', 'Less than 4% sugar', 'No added sugar' and 'Organic ingredients' were identified as being representative of subjective, objective, negative-attributes focused and positive-attributes focused nutritional claims, accordingly. Also, it was possible to perceive (1) consumers are more aware of the impact that food choices have on the own health and (2) there is a fair degree of mistrust in front-package nutritional claims.

In accordance with these results, ten food packaged goods were developed, with the support of image edition tools. These represent the visual stimuli employed in the main survey.

The correct comprehension of the stimuli was ensured before the survey launch, trough semi-structed interviews. Lastly, the main survey was conducted, and the data gathered online. The conclusions reached for each of the research questions are presented below.

5.1.1 Do nutritional claims influence consumers' anticipated guilt? If so, does this effect depend on the consumer's perceived nutritional knowledge?

Hayes' PROCESS model 7 was employed in three different perspectives (no product category distinction, utilitarian product, hedonic product) to answer to this first question.

The results indicated the presence of nutritional claims, on its own, has no influence on the anticipated consumption guilt of consumers. Indeed, no direct effect of the nutritional claims was found to be statistically significant, whether the claim is on a hedonic product, utilitarian product or no product category is considered.

This output is, in fact, aligned with one of the conclusions attained during the focus group relatively to the skepticism of consumers towards front-packaging claims. As consumers have become more health and nutrition conscious, they are probably allocating greater weight to information in the nutrition facts panel than to information in the front package claims, contrarily to what used to happen.

Nevertheless, when the effect of the nutritional claims interacts with the consumer perception of the self-nutritional knowledge, the effect of subjective nutritional claims on anticipated consumption guilt becomes significant. This is true, when there is a high level of perceived nutritional knowledge, and the product is hedonic. According to the data analysis, when a consumer who considers to be nutritionally knowledgeable is exposed to a subjective nutritional claim on a hedonic food product, he/she is going to anticipate less guilt for eating that food and, consequently, his/her purchase intention increases.

The reason behind this possibly lays in the fact that consumers are using the subjective nutritional claims to solve the trade-off faced when buying more indulgent products - utilitarian goal of long-term health preservation vs. hedonic goal of short-term pleasure gratification. Essentially, the subjective claims create the idea that the product is less indulgent (Andrews et al., 1998) and makes it easy for the consumer to justify the spending on the hedonic food product. The anticipated consumption guilt drops, exactly because the consumer feels that he/she is not failing 'so much' in being consistent with the self-beliefs (Moorman et al., 2004), as he/she would be if purchasing the food product without any nutritional claim.

Also, it is believed this is happening with subjective claims, rather than objective ones, because the former are more susceptible to individual interpretation (Andrews et al., 1998). Knowing

knowledgeable consumers are capable and willing to process more information, more detailed nutrition disclosures are likely to be processed and used effectively by the consumers with high perceived nutritional knowledge (Andrews et al., 1998).

In summary, to predict the effectiveness of a nutritional claim in the front packaging it is important to take into account the degree of subjectivity of the claims and the perceived nutritional knowledge of the claim user, since anticipated consumption guilt variations are possible and these lead, ultimately, to purchase intention variations.

5.1.2 How does consumers' anticipated consumption guilt affect purchase intent?

The conducted study offers evidence for the effectiveness of anticipated consumption guilt (negative) effect on the purchase intention. In support of H2a, consumers' purchase intentions decreased when higher levels of anticipated consumption guilt were experienced. This happened for both utilitarian and hedonic products.

This finding extends the conclusions attained by Hur & Jang (2015), showing that anticipated feelings can validate individuals' behaviors not only in healthy food consumption contexts.

As mentioned before, no strong statistical evidence was found regarding the direct effect of nutritional claims on consumers' purchase intention, and, therefore, the anticipated consumption guilt totally mediates this effect. From the analyzed data, it is known around 22% of the nutritional claims effect on purchase intention happens via anticipated consumption guilt. Nonetheless, it is possible this effect is underestimated, given the sample characteristics: most of the respondents were occasional consumers/ purchasers of granola and chocolate snacks. Indeed, it might be that the anticipated consumption guilt effect gains importance for products that are bought more regularly.

Anyway, for FPG advertisers/ managers, this uncovers a new lens from which to look at nutritional claims. Nutritional claims aiming to increase purchase intentions must be created also to effect consumers anticipated consumption guilt.

5.2 Managerial implications

Food manufactures have been mainly focused on fostering purchase intent, and only seldom for affecting anticipated consumption guilt, or even perceived nutritional knowledge. What was unknown is that both variables play a role in the ability of nutritional claims influencing buying intentions.

This research brings new tools to the working field of marketers working in the FPG industry. Firstly, it seems relevant for businesses to define customer segments based on levels of

subjective knowledge. Indeed, this study induces that different types of nutritional claims can influence differently consumers with different levels of subjective knowledge. Also, to manipulate consumers perceived nutritional knowledge through marketing techniques might be an effective sales strategy.

Additionally, it was found consumers perceive front packaging claims with increasing mistrust. Therefore, marketers working with FPG should gather insights onto which sources of information are their customers using instead and/ or what are the roots of the uncertainty being experienced. What might complicate things is past research on willful ignorance that indicates highly involved consumers may actively ignore nutrition information to avoid the negative emotions that may arise if the food is less nutritious than they had thought (Ehrich & Irwin, 2005). Undoubtedly, the quick flow and easy access to information, nowadays, make this is matter a difficult one for marketers to manage.

5.3 Academic implications

In marketing, many are the studies focused on the implications of nutritional labels on purchase intent (Tudoran et al., 2009; Himmelsbach et al., 2014; Teng & Wang, 2015; Kusumasondjaja, 2018). By showing (1) nutritional information interacts with perceived nutritional knowledge to influence anticipated consumption guilt and (2) anticipated consumption guilt partly explains the effect of nutritional claims on purchase intent, this research findings open up new areas for nutrition and marketing research. Because of the potential of front-of-pack information to help consumers make health-conscious food choices (European Comission, s.d.), it was chosen to analyze the effects of nutritional claims on the front packaging. However, it may be that the nutritional fact panel or color-coding schemes assume an even more important role in determining consumers anticipated consumption guilt and, consequently, consumers' purchase intention. Moreover, it would be worthwhile to understand how these effects differ with levels of perceived nutritional knowledge.

In a complementary perspective, another important area for further research is to comprehend how consumers are changing the way they built their perception of the self-nutritional knowledge. Past research has proven subjective knowledge has influence on the consumers' decision making process (Moorman et al., 2004). Since both the conducted focus group and survey indicate consumers are skeptical about front-package claims, and this goes against past research that mention consumers like simplified front-package nutritional claims (Grunert & Wills, 2007), it is relevant to understand in what extent consumers' perceived nutritional knowledge is related to the apparent skepticism towards front-package nutritional claims.

5.4 Limitations and Further research

Although this study provides new findings and implications regarding consumers' decision-making processes, it is not free of limitations.

As mentioned before, time and money constraints dictated the employment of a convenience sampling technique on both online surveys. It resulted in unbalanced quotas for gender and nationality, prevailing female and Portuguese respondents. Consequently, on statistical grounds, results cannot be generalized. To tackle this issue, the study would have to be replicated using a representative sample and ideally each advert presented a higher number of respondents.

Secondly, the methodology used to select the two FPGs representing the hedonic and utilitarian categories has proven to be inappropriate, since it did not consider the sample at hand. This was perceived when analyzing the respondents' shopping frequency for granola and chocolate snacks. Indeed, although each of the products was correctly perceived in terms of its categorization, the respondents revealed to be infrequent purchasers of both products. This condition might be the reason why differences with low statistical significance were found (i.e., the presence of nutritional claims lead to significantly more favorable intentions in a 90% confidence interval). Hence, it would be interesting to re-perform the analysis with two FPG (representative of the hedonic and utilitarian category) selected by a representative sample prior to the main survey launch.

Additionally, the qualitative nature of the focus group and the interviews does not allow to ensure consumers in general will correctly interpret the nutritional claims and/ or the survey questions. Due to the current pandemic situation, the interviews were internet- mediated, which some researchers argue to be a limitation in achieving the same levels of meaning as face-to-face interviewing (Hesse-Biber & Griffin, 2013).

Furthermore, the experimental nature of the main study entails as limitation the usage of an artificial scenario, i.e., respondents are presented to the claim through a survey instead of an actual purchasing context. Moreover, purchase intention is used as a proxy for the actual buying decisions. Although, intent to purchase might be considered a feasible predictor of future consumer behavior (Shan et al., 2020;Teng & Wang, 2015), the conditions for this to be true were not tested. Consequently, conclusions drawn about the impact of nutritious claims on sales might be dubious. To overcome these two limitations, it is suggested to repeat the investigation in a real-world environment using field experiment.

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Appendixes

Appendix 1: Product categorization – Survey

Introduction

Dear participant,

This survey is part of my master thesis at Católica Lisbon SBE and it will take 2-3 minutes to complete. Your participation is anonymous, and the data will be used for research purposes only.

Keep in mind, there are no right or wrong answers!

Thank you for your time.

Block 1- Screening Question

Q1- On average, how often did you purchase food packaged goods in the past three months?

- Never
- Once a month or less
- 2-3 times a month
- 1-3 times a week
- 4 times a week or more

If Never choice is selected, Skip to the End of the Survey

Block 2 – Product perception

(Randomized block)

Next, you will be asked about different food packaged goods.

The purpose is to understand your perception of each product regarding various attributes, in a purchasing decision.

In case you are not familiar with the terms, in the Food products context:
(1) Hedonism is the capacity of providing a pleasant feeling to the senses (for example tasty);
(2) Functionality is the capacity of helping to reach a goal/task

Q2 - In a scale from -3 (= Not important at all) to 3 (= Extremely important), how important each of the following characteristics is to you when buying **Potato crisps**?

Q3 - In a scale from -3 (= Not important at all) to 3 (= Extremely important), how important each of the following characteristics is to you when buying **Packaged Milk**?

Q4 - In a scale from -3 (= Not important at all) to 3 (= Extremely important), Mars **chocolate bars**?

Q5 - In a scale from -3 (= Not important at all) to 3 (= Extremely important), how important each of the following characteristics is to you when buying **Granola**?

(Each question was complemented with a representative picture of the product addressed in the question)

	Not important at all						Extremelly important
	-3	-2	-1	0	1	2	3
Taste							
Appearance							
Satisfying effect							
Healthiness							
Not fattening							
Gives energy							
Improves performance							
Improves resistance							
Functionality							
Hedonism							

Block 3 – Demographics

Q6 – What is your gender?

- Male
- Female
- Prefer not to disclose

Q7 – What is your age?

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-65
- Above 65

Q8 – What is your nationality?

- Portuguese
- German
- Italian
- Spanish
- French
- Other: _____

Q9– What is the highest degree you have completed?

- Less than high school
- High school graduate or equivalent
- Bachelor's degree
- Master's degree/MBA
- PhD/Post-Doctoral Degree

Appendix 1.1.: Product categorization | Survey – Sample characteristics

FREQUENCY STATISTICS			
Variable	**Values**	**Frequency**	**Percentage**
Did you purchase food packaged goods in the past three months ?	No	7	11,9
	Yes	57	88,10

FREQUENCY STATISTICS			
Variable	**Values**	**Frequency**	**Percentage**
Gender	Male	11	23,90
	Female	35	76,10
Age	Under 18	2	4,30
	18 - 24	38	82,60
	25 - 34	4	8,70
	45 - 54	2	4,30
Nationality	Portuguese	42	91,30
	German	2	4,30
	Italian	1	2,20
	Other	1	2,20
Education	Less than high school	2	4,30
	High school graduate or equivalent	3	6,50
	Bachelor degree	24	52,20
	Master degree/MBA	17	37,00

Appendix 1.2.: Product categorization | Survey - Hedonism/Utilitarianism perception

DESCRIPTIVE STATISTICS								
	Potato Crisps		Mars Chocolate bar		Granola		Packaged milk	
Attribute	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
Taste	6,587	0,805	6,478	1,027	6,522	0,809	5,761	1,303
Appearance	4,804	1,558	4,717	1,361	5,000	1,350	4,174	1,403
Satisfying effect	5,652	1,320	5,957	1,246	5,587	1,240	4,891	1,418
Healthiness	3,674	1,814	3,478	1,906	6,152	1,135	5,239	1,369
Not fattening	3,630	1,842	3,261	1,794	5,500	1,657	4,935	1,718
Gives Energy	3,087	1,589	4,217	1,685	5,391	1,483	4,457	1,425
Improves Performance	2,587	1,600	3,500	1,616	4,783	1,837	4,196	1,759
Improves Resistance	2,609	1,732	3,304	1,658	4,283	1,846	3,978	1,844
Functionality (2)	3,435	1,905	4,022	1,795	5,152	1,520	4,913	1,824
Hedonism (1)	5,696	1,474	6,261	1,144	5,630	1,019	4,739	1,612

Appendix 2: Nutritional claims selection | Focus group – Guideline

1. **<u>Introduction and warm-up</u> (5 min)**

- Welcome participants and introduce the moderator.
- Introduce the used qualitative research methodology and the duration of the Focus Group.
- Ensure participants that all the given information by them stays confidential.
- Recall Discussion Rules: Active listening, no interruptions, one person speaks at a time.
- Highlight 'there is no right or wrong answer.
- Mention all relevant thoughts should be shared, as all opinions are relevant.
- Participants introduce themselves.
- Present the aim of the Focus Group like this: *"The aim of this Focus Group is to discover your shopping behavior patterns and preferences, considering general attributes and specific details as well. The topics will be in relation with food packaged goods, focusing on packaging informative claims."*

2. **<u>General attitudes towards food packaged goods (5-7 min)</u>**

- How often do you buy FPG?
- Which types of FPG do you consume more often?
- Are you buying more or less FPG now compared to two years ago? Are there any differences in the types of FPG being bought? Explore reasons
- Which advantages do you attribute to FPG and its consumption? And disadvantages?

3. Health and Nutrition perception (10 min)

- Is your diet something that you care about? Why/ Why not?
- How do you monitor your diet? How do you know you are actually consuming what you want/plan to?
- How do you know what you should and should not consume? What are your main sources of information?
- How would you nutritionally describe a product that you would desire to consume? Ask for characteristics/attributes that should and should not include.
- What is your opinion regarding the packaging information of FPG? Do you consider it to be a credible source?

4. Buying behavior and decision process (15 min)

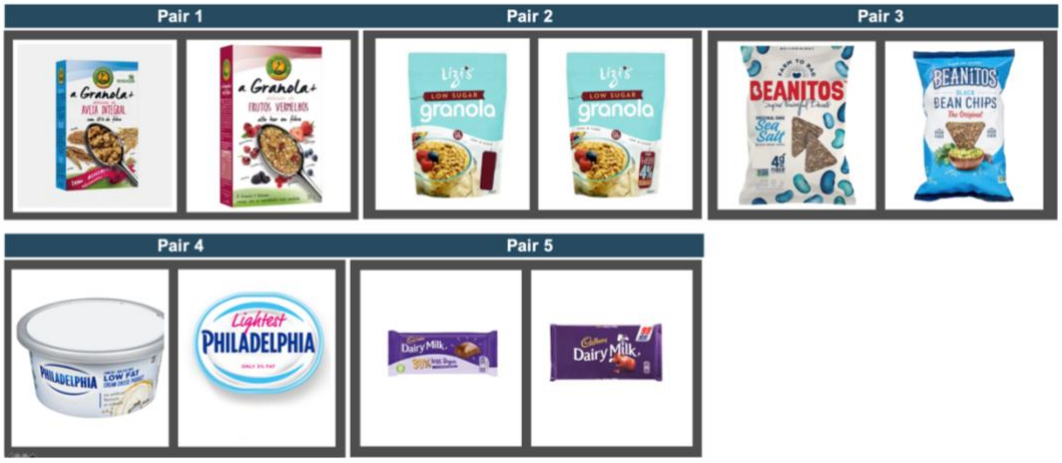
- Now, please consider the last time that you purchased FPG. What products did you buy? Did you plan to buy them before the actual purchasing situation?
- Would you describe your search process? Which information sources did you use?
- How important is the information displayed in the packaging when choosing the product to buy? From all the displayed information (both on the front and back side of the packaging), to what type of information do you attribute more importance to? Ask for examples of information/claims used in real life purchasing situations.
- What criteria did you use to guide you in the decision process? Is there any attribute of the food that you care relatively more than the others?
- Please recall the FPG that you have at home. Is there any nutritional claim that is present in most of the products?

5. Subjective vs Objective Nutritional claims perception

- What is, in your opinion, a "Nutritional claim"?

(Display pictures of FPG in PPT format)

- Which nutritional claims can you identify in the displayed packaging?
- Which of the two products do you trust the most/ seems to have superior quality? Explore reasons.



Appendix 2.1. – Nutritional claims selection | Focus group participant's characterization

Demographic's characterization				
Participant	Gender	Nationality	Education	Age
1	Female	Portugal	Bachelor's degree	[20, 25[
2	Female	Portugal	Bachelor's degree	[20, 25[
3	Female	Portugal	Master's degree	[20, 25[
4	Female	Portugal	Bachelor's degree	[20, 25[
5	Female	Portugal	Master's degree	[20, 25[
6	Female	Portugal	Master's degree	[20, 25[

Appendix 2.2.: Nutritional claims selection | Focus group - Data coding

How would you nutritionally describe a product that you would desire to consume?	Negative focused	Positive focused	Sum
Free from any artificial colours, flavourings or preservatives	✓		5
No artificial sweeteners or preservatives	✓		5
No added sugar	✓		6
Organical/ Biological		✓	5
No gluten (certified)	✓		1
Without Palm oil	✓		1
Containing wholegrain/ brown cereals		✓	2

Is there any attribute of the food that you care relatively more than the others?	Negative focused	Positive focused	Sum
No gluten (certified)	✓		1
No added sugar	✓		4
Organical/Biological product		✓	3
No salt	✓		2
0% fat	✓		2

Please recall the FPG that you have at home. Is there any nutritional claim that is present in most of the products?	Negative focused	Positive focused	Sum
Lactose Free	✓		1
Gluten free	✓		1
No added sugar	✓		4
Organic product		✓	3
0% added sugar	✓		4
0% fat	✓		3

Which of the two products do you trust the most/ seems to have superior quality?	Identified NC	Subjective claim	Objective claim	Choice explanation
Pair 1 - Granola	Fiber content No added sugar	III	III	**Objective claim:** More informative packaging **Subjective Claim:** Due to the lower amount of sugar
Pair 2 - Granola	Fiber content Sugar percentage Gluten free	-	IIIIII	**Objective claim:** More informative packaging More attractive packaging Information on the sugar %
Pair 3 - Chips	Fiber content	IIIIII	-	**Subjective claim:** Product Appearance Antecipated satisfaction effect Healthiness of the product disregarded
Pair 4 - Cream cheese	No artificial flavours or colours Fat content	III	III	**Objective claim:** More informative packaging **Subjective claim:** No artificial products added
Pair 5 - chocolate bar	Sugar content Calories	IIIIII	I	**Subjective claim:** "Calories are not a relevant attribute when chosing chocolate" Paticipants consider not to be sufficiently informed to judge the product based on calories content Packaging appeal **Objective claim:** "Sugar content is an attibute I disregard when choosing chocolate. Chocolate is intended to be sweet."

Appendix 3: Main study - Survey

Introduction

Dear participant,
This survey is part of my master thesis at Católica Lisbon SBE and it will take 2-3 minutes to complete.
Your participation is anonymous and the data will be used for research purposes only.
Keep in mind, there are no right or wrong answers!
Thank you for your time

Block 1- Screening Question

Food Packaged goods refer to food offered for retail sale, in a packaging, so that its content cannot be altered/modified unless the packaging is opened or damaged. Some examples are biscuits, yogurts, potato chips, cereal bars and canned food.

Q1- On average, how often did you purchase **food packaged goods** in the past three months?

- Never
- Less than once a month
- 1-2 times per month
- 2-4 times per week
- More than once per week

If Never choice is selected, Skip to the End of the Survey

Q2 - On average, how often did you consume **granola** in the past three months?

- Never
- Less than once a month
- 1-2 times per month
- 2-4 times per week
- More than once per week

Q3 - On average, how often did you consume **chocolate bars** in the past three months?

- Never
- Less than once a month
- 1-2 times per month
- 2-4 times per week
- More than once per week

Block 2- Perceived knowledge

Q4 - Please rate your **knowledge of nutrition information** compared to the average consumer? (1 = is much less ; 7 = is much more)
1 - is much less
4 - is average
7 - is much more
(Question type: Slider)

Q5 – Please rate your **confidence in using nutrition information** compared to the average consumer? (1 = is much less; 7 = is much more)
1 - is much less,

4 - is average
7 - is much more
(Question type: Slider)

Q6 - To what extent do you agree with the following statement: "I feel confident about my ability to comprehend nutrition information on product labels."? (1 = I strongly disagree; 7 = I strongly agree.)
1 – I strongly agree,
4 – Neither agree nor disagree
7 - is much more
(Question type: Slider)

Block 3 – Nutritional claim stimulus display; Purchase Intention; Anticipated Consumption Guilt

Please consider the following product to answer to the following questions.
Stimulus display

Q5 - To what extent do you agree with the following statements:
(1= Strongly disagree; 7= strongly agree)

- If the displayed product was available in the shops, I would buy it;
- I am willing to buy the displayed product despite its higher price;
- The probability I would buy the displayed product is very high.

Q6 - Imagine you go to the supermarket to buy the displayed product and you find the advertised product on a shelf.
To what extent do you agree with the following statements:

If I purchased the advertised product, I would feel... (1= Strongly disagree; 7= strongly agree)

- Guilt
- Shame
- Regret

Block 4 – Manipulation check

Q7 - A **nutritional claim** is any kind of statement included in the packaging to communicate about the product composition. Eg:. 'Low-carb'; '0% Fat'; "With stevia"

To what extent do you consider the displayed product had a nutritional claim?

The displayed product had a nutritional claim.	**1**	**2**	**3**	**4**	**5**	The displayed product did not have any kind of nutritional claim.

Q8 – How do you classify the claim 'Less than 4% sugar/Low sugar/No added sugar/Organic cacao/Organic whole oats' in terms of objectivity?

The claim is objective.	**1**	**2**	**3**	**4**	**5**	The claim is subjective.

Q9 – How would you classify the claim ‘‘Less than 4% sugar/Low sugar/No added sugar/Organic cacao/Organic whole oats’ in terms of its attribute intake?

I would like to consume less of the attribute.	1	2	3	4	5	I would like to consume more of the attribute.

Q10 - In a scale from -3 (= Not important at all) to 3 (= Extremely important), how important each of the following characteristics is to you when buying **granola/ *Mars* chocolate bars**?

In case you are not familiar with the terms, in the Food products context:
(1) Hedonism is the capacity of providing a pleasant feeling to the senses (for example tasty);
(2) Functionality is the capacity of helping to reach a goal/task. It satisfies more practical and rational needs (for example, hunger, energy).

	Not important at all						Extremelly important
	-3	-2	-1	0	1	2	3
Taste							
Appearance							
Satisfying effect							
Healthiness							
Not fattening							
Gives energy							
Improves performance							
Improves resistance							
Functionality							
Hedonism							

Block 5- Demographics

Q8 – What is your gender?
- Male
- Female
- Prefer not to disclose

Q9 – What is your age?
- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-65
- Above 65

Q10 – What is your nationality?
- Portuguese
- German
- Italian
- Spanish
- French
- Other: _____

Q11- How many people does your family aggregate has, including you?
- 1
- 2

- 3
- 4
- 5 or more

Q12 – What is the highest degree you have completed?
- Less than high school
- High school graduate or equivalent
- Bachelor Degree
- Master Degree/MBA
- PhD/Post-Doctoral Degree

Q13 – What is your current occupation?
- Student
- Student-Worker
- Employed
- Unemployed
- Retired

Q14 – What is your monthly gross income?
- Less than 500€
- 500€ – 999€
- 1000€ – 1499€
- 1500€ – 1999€
- 2000€ - 2499€
- 2500€ – 2999€
- 3000€ – 3499€
- 3500€ – 4000€
- More than 4000€

Appendix 3.1.: Main study | Survey - Sample Demographics

Demographics - Frequency Statistics												
Variable	Values	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	Total
	Total sample	N = 62	N = 69	N = 63	N = 65	N = 59	N = 79	N = 68	N = 73	N = 69	N = 70	N = 677
Gender	Male	17,7	13,0	7,9	20,0	13,6	11,4	17,6	17,8	13,0	10,0	14,2
	Female	82,3	87,0	92,1	80,0	86,4	88,6	82,4	82,2	87,0	90,0	85,8
Age	Under 18	0,0	0,0	0,0	0,0	0,0	3,8	0,0	2,7	0,0	0,0	0,7
	18-24	16,1	23,2	19,0	23,1	13,6	17,7	29,4	19,2	21,7	25,7	20,9
	25-34	19,4	15,9	15,9	20,0	23,7	21,5	23,5	20,5	29,0	15,7	20,5
	35-44	24,2	21,7	33,3	16,9	30,5	22,8	19,1	31,5	21,7	20,0	24,2
	45-54	21,0	24,6	25,4	24,6	28,8	22,8	22,1	19,2	17,4	22,9	22,9
	55-65	14,5	13,0	6,3	15,4	3,4	10,1	5,9	6,8	7,2	15,7	9,8
	Above 65	4,8	1,4	0,0	0,0	0,0	1,3	0,0	0,0	2,9	0,0	1,0
Nationality	Portuguese	93,5	89,9	93,7	90,8	94,9	88,6	88,2	91,8	88,4	85,7	90,6
	German	0,0	0,0	0,0	0,0	0,0	2,5	1,5	1,4	1,4	1,4	0,8
	Italian	0,0	0,0	0,0	0,0	0,0	0,0	1,5	0,0	0,0	1,4	0,3
	Spanish	3,2	0,0	1,6	0,0	0,0	1,3	0,0	0,0	0,0	0,0	0,6
	French	0,0	0,0	0,0	1,5	0,0	1,3	0,0	1,4	0,0	1,4	0,6
	Other	3,2	10,1	4,8	7,7	5,1	6,3	8,8	5,5	10,1	10,0	7,2
Family aggregate	1	4,8	5,8	4,8	7,7	5,1	7,6	7,4	4,1	1,4	4,3	5,3
	2	27,4	29,0	28,6	20,0	11,9	17,7	10,3	21,9	23,2	17,1	20,7
	3	30,6	27,5	33,3	29,2	32,2	30,4	42,6	31,5	40,6	41,4	33,9
	4	22,6	29,0	27,0	33,8	37,3	29,1	30,9	32,9	21,7	18,6	28,3
	5 or more	14,5	8,7	6,3	9,2	13,6	15,2	8,8	9,6	13,0	18,6	11,8
Education	Less than high school	1,6	2,9	6,3	0,0	1,7	5,1	1,5	1,4	2,9	2,9	2,6
	High school or equivalent	33,9	34,8	30,2	33,8	27,1	32,9	47,1	45,2	39,1	41,4	36,6
	Bachelor degree	45,2	42,0	38,1	40,0	45,8	46,8	32,4	32,9	34,8	38,6	39,7
	Master degreee/ MBA	16,1	20,3	20,6	24,6	25,4	13,9	19,1	17,8	21,7	15,7	19,5
	PhD/ Post-Doctoral degree	3,2	0,0	4,8	1,5	0,0	1,3	0,0	2,7	1,4	1,4	1,6
Occupation	Student	6,6	10,1	12,7	12,3	8,6	21,5	10,3	15,1	11,6	15,7	12,5
	Working student	8,2	5,8	4,8	6,2	6,9	1,3	11,8	6,8	7,2	10,0	6,9
	Employed	72,1	72,5	74,6	70,8	82,8	63,3	69,1	65,8	71,0	65,7	70,8
	Unemployed	6,6	10,1	3,2	7,7	1,7	10,1	7,4	11,0	5,8	8,6	7,2
	Retired	6,6	1,4	4,8	3,1	0,0	3,8	1,5	1,4	4,3	0,0	2,7
Gross monthly income	Less than 500€	8,5	20,6	8,2	13,3	10,3	21,9	13,4	15,5	4,5	14,5	13,1
	500€ - 999€	25,4	32,4	41,0	31,7	31,0	32,9	44,8	28,2	38,8	42,0	34,8
	1000€ - 1499€	32,2	22,1	21,3	15,0	22,4	19,2	20,9	31,0	28,4	18,8	23,1
	1500€ - 1999€	18,6	8,8	9,8	13,3	12,1	11,0	10,4	8,5	9,0	14,5	11,6
	2000€ - 2499€	3,4	7,4	4,9	10,0	8,6	4,1	4,5	7,0	7,5	4,3	6,2
	2500€ - 2999€	1,7	5,9	3,3	3,3	5,2	5,5	3,0	4,2	1,5	0,0	3,4
	3000€ - 3499€	5,1	0,0	6,6	5,0	3,4	2,7	0,0	2,8	1,5	1,4	2,9
	3500€ - 4000€	5,1	2,9	0,0	5,0	0,0	0,0	0,0	2,8	0,0	2,9	1,9
	More than 4000€	0,0	0,0	4,9	3,3	6,9	2,7	3,0	0,0	9,0	1,4	3,1

Appendix 3.2.: Main Study | Survey – Reliability measurement

Cronbach's Alpha			
Construct	**Number of Items**	**Coefficient**	**Rating**
Perceived Nutritional Knowldge	3	0.844	Good
Anticipated Consumption Guilt			
Stimuli 1	3	0.909	Excellent
Stimuli 2	3	0.889	Good
Stimuli 3	3	0.875	Good
Stimuli 4	3	0.887	Good
Stimuli 5	3	0.897	Good
Stimuli 6	3	0.854	Good
Stimuli 7	3	0.843	Good
Stimuli 8	3	0.837	Good
Stimuli 9	3	0.826	Good
Stimuli 10	3	0.834	Good
General	3	0.856	Good
Purchase intention			
Stimuli 1	3	0.893	Good
Stimuli 2	3	0.910	Excellent
Stimuli 3	3	0.844	Good
Stimuli 4	3	0.891	Good
Stimuli 5	3	0.872	Good
Stimuli 6	3	0.89	Good
Stimuli 7	3	0.858	Good
Stimuli 8	3	0.895	Good
Stimuli 9	3	0.874	Good
Stimuli 10	3	0.9	Excellent
General	3	0.894	Good

Appendix 3.3.: Main Study | Survey – Normality test

One-Sample Kolmogorov-Smirnov Normal Test				
	Null Hypothesis	**Test**	**Sig.***	**Decision**
1	The distribution of Perceived Nutritional Knowledge computed is normal with mean 4,77 and standard deviation 1,07556.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.

*Asymptotic significances are displayed. The significance level is ,050.
a Lilliefors Corrected

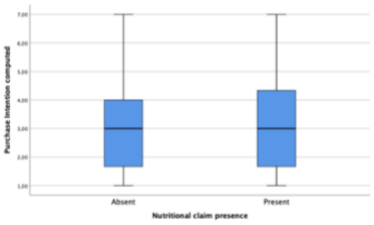
One-Sample Kolmogorov-Smirnov Normal Test				
Group	**Null Hypothesis**	**Test**	**Sig.***	**Decision**
1	The distribution of PI_1 is normal with mean 3,32 and standard deviation 1,48702.	One-Sample Kolmogorov-Smirnov Test	,200a,b	Retain the null hypothesis.
2	The distribution of PI_2 is normal with mean 3,84 and standard deviation 1,53355.	One-Sample Kolmogorov-Smirnov Test	,011a	Reject the null hypothesis.
3	The distribution of PI_3 is normal with mean 3,86 and standard deviation 1,36900.	One-Sample Kolmogorov-Smirnov Test	,060a	Retain the null hypothesis.
4	The distribution of PI_4 is normal with mean 3,65 and standard deviation 1,47851.	One-Sample Kolmogorov-Smirnov Test	,002a	Reject the null hypothesis.
5	The distribution of PI_5 is normal with mean 3,60 and standard deviation 1,39991.	One-Sample Kolmogorov-Smirnov Test	,090a	Retain the null hypothesis.
6	The distribution of PI_6 is normal with mean 2,67 and standard deviation 1,79504.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
7	The distribution of PI_7 is normal with mean 2,73 and standard deviation 1,51746.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
8	The distribution of PI_8 is normal with mean 2,72 and standard deviation 1,67435.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
9	The distribution of PI_9 is normal with mean 2,54 and standard deviation 1,42548.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
10	The distribution of PI_10 is normal with mean 2,65 and standard deviation 1,66370.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.
a Lilliefors Corrected
b This is a lower bound of the true significance.

One-Sample Kolmogorov-Smirnov Normal Test				
Group	Null Hypothesis	Test	Sig.*	Decision
1	The distribution of ACG_1 is normal with mean 1,97 and standard deviation 1,40124.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
2	The distribution of ACG_2 is normal with mean 1,84 and standard deviation 1,18313.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
3	The distribution of ACG_3 is normal with mean 2,00 and standard deviation 1,20371.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
4	The distribution of ACG_4 is normal with mean 1,84 and standard deviation 1,16555.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
5	The distribution of ACG_5 is normal with mean 2,02 and standard deviation 1,28159.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
6	The distribution of ACG_6 is normal with mean 2,33 and standard deviation 1,47564.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
7	The distribution of ACG_7 is normal with mean 2,41 and standard deviation 1,52618.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
8	The distribution of ACG_8 is normal with mean 2,51 and standard deviation 1,63786.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
9	The distribution of ACG_9 is normal with mean 2,31 and standard deviation 1,46456.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.
10	The distribution of ACG_10 is normal with mean 2,45 and standard deviation 1,67674.	One-Sample Kolmogorov-Smirnov Test	,000a	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.
a Lilliefors Corrected

Appendix 4.1.: Main Study | H1a testing – Data distribution & Levene's test of homogeneity of variances



Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,382	1	852	,537
	Based on Median	,345	1	852	,557
	Based on Median and with adjusted df	,345	1	851,983	,557
	Based on trimmed mean	,376	1	852	,540

Appendix 4.2.: Main Study | H1a testing – Means comparison & Mann-Whitney U test

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional claim presence	854	100,0%	0	0,0%	854	100,0%

Report

Purchase Intention computed

Nutritional claim presence	Mean	Median	N	Std. Deviation
Absent	3,0529	3,0000	170	1,60594
Present	3,1106	3,0000	684	1,63467
Total	3,0991	3,0000	854	1,62822

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional claim presence.	Independent-Samples Mann-Whitney U Test	,656	Retain the null hypothesis.

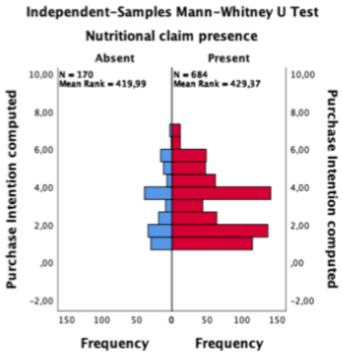
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional claim presence

Independent-Samples Mann-Whitney U Test Summary

Total N	854
Mann-Whitney U	59416,000
Wilcoxon W	293686,000
Test Statistic	59416,000
Standard Error	2866,380
Standardized Test Statistic	,445
Asymptotic Sig.(2-sided test)	,656



Appendix 4.3.: Main Study | H1a testing – Mann-Whitney U test (Split file according to manipulation check*)

Nonparametric Tests

Manipulation 1 | Nutritional claim presence = Fail

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional claim presence.	Independent-Samples Mann-Whitney U Test	,511	Retain the null hypothesis.

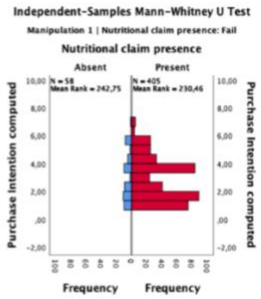
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional claim presence

Independent-Samples Mann-Whitney U Test Summary

Total N	463
Mann-Whitney U	11121,500
Wilcoxon W	93336,500
Test Statistic	11121,500
Standard Error	948,464
Standardized Test Statistic	-,657
Asymptotic Sig.(2-sided test)	,511



Manipulation 1 | Nutritional claim presence = Pass

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional claim presence.	Independent-Samples Mann-Whitney U Test	,075	Retain the null hypothesis.

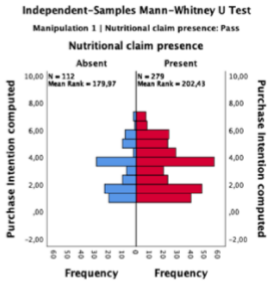
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional claim presence

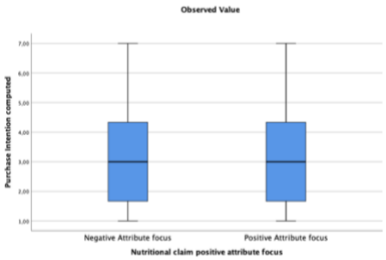
Independent-Samples Mann-Whitney U Test Summary

Total N	391
Mann-Whitney U	17419,000
Wilcoxon W	56479,000
Test Statistic	17419,000
Standard Error	1006,643
Standardized Test Statistic	1,783
Asymptotic Sig.(2-sided test)	,075



*For stimulus number 1, 2, 3, 4, 6, 7, 8 and 9, the answers corresponding to number 4 and 5 passed the manipulation 1.
For stimulus number 5 and 10, the answers corresponding to number 1 and 2 passed the manipulation 1.

Appendix 5.1.: Main Study | H1b testing - Data distribution & Levene's test of homogeneity of variances



Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,385	1	338	,536
	Based on Median	,359	1	338	,549
	Based on Median and with adjusted df	,359	1	333,499	,549
	Based on trimmed mean	,401	1	338	,527

Appendix 5.2.: Main Study | H1b testing – Means comparison & Mann-Whitney U test

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional claim positive attribute focus	340	39,8%	514	60,2%	854	100,0%

Report

Purchase Intention computed

Nutritional claim positive attribute focus	Mean	Median	N	Std. Deviation
Negative Attribute focus	3,1839	3,0000	174	1,65624
Positive Attribute focus	3,0743	3,0000	166	1,56708
Total	3,1304	3,0000	340	1,61188

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional claim positive attribute focus.	Independent-Samples Mann-Whitney U Test	,612	Retain the null hypothesis.

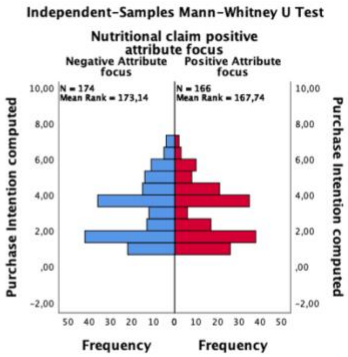
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional claim positive attribute focus

Independent-Samples Mann-Whitney U Test Summary

Total N	340
Mann-Whitney U	13983,500
Wilcoxon W	27844,500
Test Statistic	13983,500
Standard Error	902,853
Standardized Test Statistic	-,508
Asymptotic Sig.(2-sided test)	,612



Appendix 5.3.: Main Study | H1b testing – Mann-Whitney U test (Split file according to manipulation check*)

Manipulation 3 | Nutritional claim focus = Pass, Manipulation 1 | Nutritional claim presence = Pass

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional claim positive attribute focus	45	45,5%	54	54,5%	99	100,0%

a. Manipulation 3 | Nutritional claim focus = Pass, Manipulation 1 | Nutritional claim presence = Pass

Report[a]

Purchase Intention computed

Nutritional claim positive attribute focus	Mean	Median	N	Std. Deviation
Negative Attribute focus	3,1930	2,3333	19	1,92872
Positive Attribute focus	4,1667	4,3333	26	1,64181
Total	3,7556	4,0000	45	1,81381

a. Manipulation 3 | Nutritional claim focus = Pass, Manipulation 1 | Nutritional claim presence = Pass

Manipulation 3 | Nutritional claim focus = Pass, Manipulation 1 | Nutritional claim presence = Pass

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional claim positive attribute focus.	Independent-Samples Mann-Whitney U Test	,092	Retain the null hypothesis.

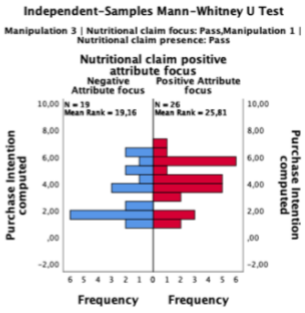
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional claim positive attribute focus

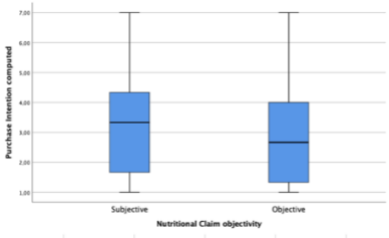
Independent-Samples Mann-Whitney U Test Summary

Total N	45
Mann-Whitney U	320,000
Wilcoxon W	671,000
Test Statistic	320,000
Standard Error	43,374
Standardized Test Statistic	1,683
Asymptotic Sig.(2-sided test)	,092



*For stimulus number 3, 4, 8 and 9, the answers corresponding to number 4 and 5 passed the manipulation 1.
For stimulus number 3 and 8 the answers corresponding to number 1 and 2 passed the manipulation 3.
For stimulus number 4 and 9, the answers corresponding to number 4 and 5 passed the manipulation 3.

Appendix 6.1.: Main Study | H1c testing - Data distribution & Levene's test of homogeneity of variances



Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,044	1	342	,833
	Based on Median	,053	1	342	,819
	Based on Median and with adjusted df	,053	1	336,412	,819
	Based on trimmed mean	,028	1	342	,868

Appendix 6.2.: Main Study | H1c testing – Means comparison & Mann-Whitney U test

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	344	40,3%	510	59,7%	854	100,0%

Report

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	3,2311	3,3333	176	1,62431
Objective	2,9444	2,6667	168	1,68697
Total	3,0911	3,0000	344	1,65900

Nonparametric Tests

Product category = Utilitarian

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,015	Reject the null hypothesis.

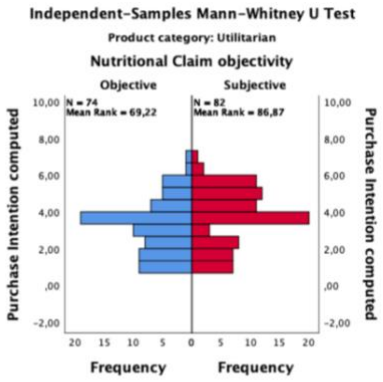
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

Independent-Samples Mann-Whitney U Test Summary

Total N	156
Mann-Whitney U	2347,500
Wilcoxon W	5122,500
Test Statistic	2347,500
Standard Error	280,861
Standardized Test Statistic	-2,444
Asymptotic Sig.(2-sided test)	,015



Appendix 6.3.: Main Study | H1c testing – Mann-Whitney U test (Split file according to product categorization)

Product category = Utilitarian

Test of Homogeneity of Variance[a]

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,163	1	154	,687
	Based on Median	,071	1	154	,790
	Based on Median and with adjusted df	,071	1	153,650	,790
	Based on trimmed mean	,149	1	154	,700

a. Product category = Utilitarian

Means

Product category = Utilitarian

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	156	39,9%	235	60,1%	391	100,0%

a. Product category = Utilitarian

Report[a]

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	3,8415	4,0000	82	1,53355
Objective	3,3018	3,3333	74	1,48475
Total	3,5855	3,6667	156	1,52981

a. Product category = Utilitarian

Nonparametric Tests

Product category = Utilitarian

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,015	Reject the null hypothesis.

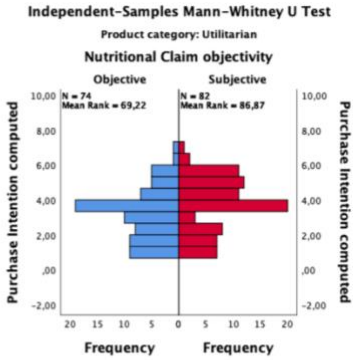
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

Independent-Samples Mann-Whitney U Test Summary

Total N	156
Mann-Whitney U	2347,500
Wilcoxon W	5122,500
Test Statistic	2347,500
Standard Error	280,861
Standard Test Statistic	-2,444
Asymptotic Sig.(2-sided test)	,015



Product category = Hedonic

Test of Homogeneity of Variance[a]

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	2,521	1	186	,114
	Based on Median	,682	1	186	,410
	Based on Median and with adjusted df	,682	1	157,731	,410
	Based on trimmed mean	1,976	1	186	,161

a. Product category = Hedonic

Product category = Hedonic

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	188	40,6%	275	59,4%	463	100,0%

a. Product category = Hedonic

Report[a]

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	2,6986	2,5000	94	1,51698
Objective	2,6631	2,0000	94	1,78838
Total	2,6809	2,3333	188	1,65390

a. Product category = Hedonic

Product category = Hedonic

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,449	Retain the null hypothesis.

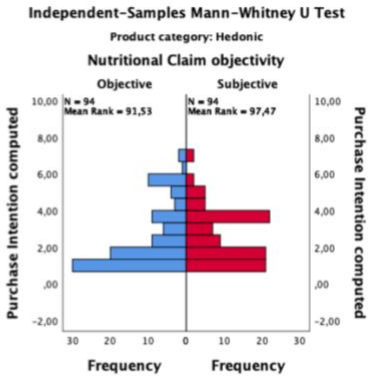
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

Independent-Samples Mann-Whitney U Test Summary

Total N	188
Mann-Whitney U	4138,500
Wilcoxon W	8603,500
Test Statistic	4138,500
Standard Error	368,803
Standardized Test Statistic	-,758
Asymptotic Sig.(2-sided test)	,449



Appendix 6.4.: Main Study | H1c testing – Mann-Whitney U test (Split file according to Perceived nutritional Knowledge level)

Perceived nutritional knowledge = *Low**

Test of Homogeneity of Variance[a]

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,390	1	43	,536
	Based on Median	,385	1	43	,538
	Based on Median and with adjusted df	,385	1	41,953	,538
	Based on trimmed mean	,356	1	43	,554

a. PNK_RECOD = Low

Means

PNK_RECOD = Low

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	45	45,0%	55	55,0%	100	100,0%

a. PNK_RECOD = Low

Report[a]

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	2,9222	3,0000	30	1,56515
Objective	3,7333	3,6667	15	1,83528
Total	3,1926	3,0000	45	1,68398

a. PNK_RECOD = Low

PNK_RECOD = Low

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,147	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

Independent-Samples Mann-Whitney U Test Summary

Total N	45
Mann-Whitney U	285,000
Wilcoxon W	405,000
Test Statistic	285,000
Standard Error	41,373
Standardized Test Statistic	1,450
Asymptotic Sig.(2-sided test)	,147

Perceived nutritional knowledge = *Average**

Test of Homogeneity of Variance[a]

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,495	1	96	,484
	Based on Median	,420	1	96	,519
	Based on Median and with adjusted df	,420	1	95,889	,519
	Based on trimmed mean	,498	1	96	,482

a. PNK_RECOD = Average

PNK_RECOD = Average

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	98	42,1%	135	57,9%	233	100,0%

a. PNK_RECOD = Average

Report[a]

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	3,2292	3,3333	48	1,54240
Objective	2,9667	3,0000	50	1,46965
Total	3,0952	3,0000	98	1,50372

a. PNK_RECOD = Average

PNK_RECOD = Average

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,361	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

Independent-Samples Mann-Whitney U Test Summary

Total N	98
Mann-Whitney U	1072,000
Wilcoxon W	2347,000
Test Statistic	1072,000
Standard Error	140,162
Standardized Test Statistic	-,913
Asymptotic Sig.(2-sided test)	,361

Perceived nutritional knowledge = *High**

Test of Homogeneity of Variance[a]

		Levene Statistic	df1	df2	Sig.
Purchase Intention computed	Based on Mean	,024	1	199	,876
	Based on Median	,022	1	199	,882
	Based on Median and with adjusted df	,022	1	195,512	,882
	Based on trimmed mean	,001	1	199	,974

a. PNK_RECOD = High

PNK_RECOD = High

Case Processing Summary[a]

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Purchase Intention computed * Nutritional Claim objectivity	201	38,6%	320	61,4%	521	100,0%

a. PNK_RECOD = High

Report[a]

Purchase Intention computed

Nutritional Claim objectivity	Mean	Median	N	Std. Deviation
Subjective	3,3265	3,6667	98	1,68409
Objective	2,8188	2,3333	103	1,74694
Total	3,0663	3,0000	201	1,73109

a. PNK_RECOD = High

PNK_RECOD = High

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Purchase Intention computed is the same across categories of Nutritional Claim objectivity.	Independent-Samples Mann-Whitney U Test	,020	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Purchase Intention computed across Nutritional Claim objectivity

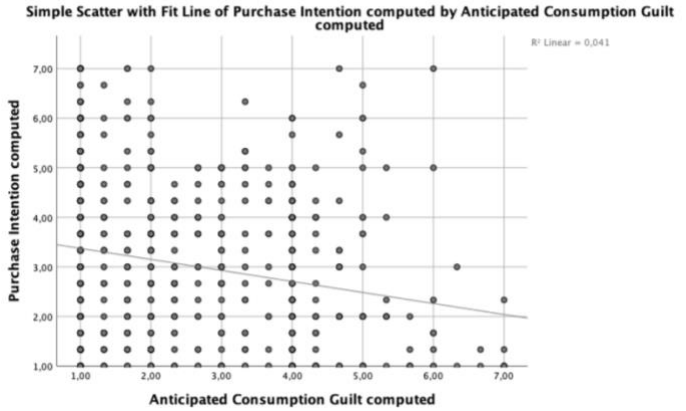
Independent-Samples Mann-Whitney U Test Summary

Total N	201
Mann-Whitney U	4097,500
Wilcoxon W	9453,500
Test Statistic	4097,500
Standard Error	408,859
Standardized Test Statistic	-2,322
Asymptotic Sig.(2-sided test)	,020

* The answers regarding PNK corresponding to: number 1 to 3 were included in the 'Low' category; number 4 were included in the 'Average' category; to number 5 to 7 were included in the 'High' category.

Appendix 7.1.: Main study | H2a testing – Linearity test

GGraph



Appendix 7.2.: Main study | H2a testing – Normality test

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Anticipated Consumption Guilt computed is normal with mean 2,23 and standard deviation 1,47437.	One-Sample Kolmogorov-Smirnov Test	,000[a]	Reject the null hypothesis.
2	The distribution of Purchase Intention computed is normal with mean 3,10 and standard deviation 1,62822.	One-Sample Kolmogorov-Smirnov Test	,000[a]	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.
a. Lilliefors Corrected

Anticipated Consumption Guilt computed

One-Sample Kolmogorov-Smirnov Normal Test Summary

Total N		854
Most Extreme Differences	Absolute	,236
	Positive	,236
	Negative	-,201
Test Statistic		,236
Asymptotic Sig.(2-sided test)		,000[a]

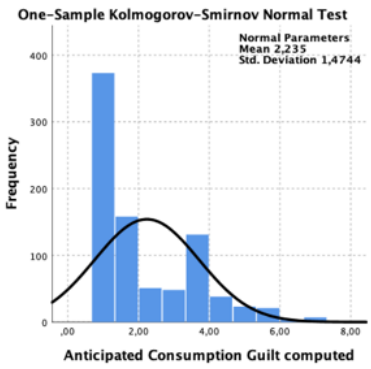
a. Lilliefors Corrected

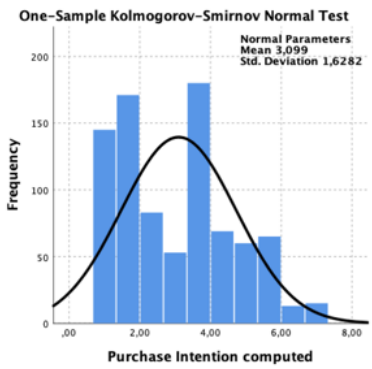
Purchase Intention computed

One-Sample Kolmogorov-Smirnov Normal Test Summary

Total N		854
Most Extreme Differences	Absolute	,120
	Positive	,120
	Negative	-,099
Test Statistic		,120
Asymptotic Sig.(2-sided test)		,000[a]

a. Lilliefors Corrected





Appendix 7.3.: Main study | H2a testing – Spearman's correlation test

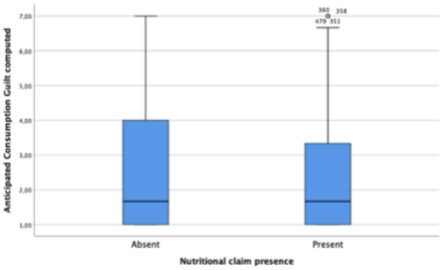
Nonparametric Correlations

Correlations

			Anticipated Consumption Guilt computed	Purchase Intention computed
Spearman's rho	Anticipated Consumption Guilt computed	Correlation Coefficient	1,000	-,187**
		Sig. (1-tailed)	.	,000
		N	854	854
	Purchase Intention computed	Correlation Coefficient	-,187**	1,000
		Sig. (1-tailed)	,000	.
		N	854	854

**. Correlation is significant at the 0.01 level (1-tailed).

Appendix 8.1.: Main Study | H2b testing - Data distribution & Levene's test of homogeneity of variances



Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Anticipated Consumption Guilt computed	Based on Mean	3,414	1	852	,065
	Based on Median	2,236	1	852	,135
	Based on Median and with adjusted df	2,236	1	848,962	,135
	Based on trimmed mean	3,572	1	852	,059

Appendix 8.2.: Main Study | H2b testing – Means comparison & Mann-Whitney U test

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Anticipated Consumption Guilt computed * Nutritional claim presence	854	100,0%	0	0,0%	854	100,0%

Report

Anticipated Consumption Guilt computed

Nutritional claim presence	Mean	Median	N	Std. Deviation
Absent	2,3294	1,6667	170	1,56851
Present	2,2110	1,6667	684	1,45027
Total	2,2346	1,6667	854	1,47437

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Anticipated Consumption Guilt computed is the same across categories of Nutritional claim presence.	Independent-Samples Mann-Whitney U Test	,666	Retain the null hypothesis.

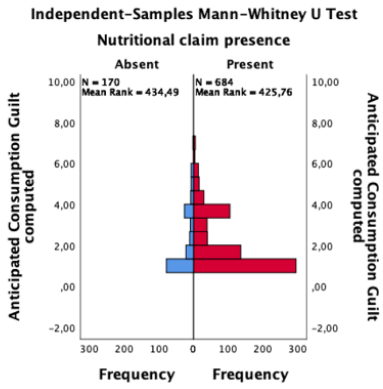
Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Mann-Whitney U Test

Anticipated Consumption Guilt computed across Nutritional claim presence

Independent-Samples Mann-Whitney U Test Summary

Total N	854
Mann-Whitney U	56951,000
Wilcoxon W	291221,000
Test Statistic	56951,000
Standard Error	2751,372
Standardized Test Statistic	-,432
Asymptotic Sig.(2-sided test)	,666



Appendix 8.3.: Main Study | H2b testing – Kruskal-Wallis test

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Anticipated Consumption Guilt computed * IV_Stimili	854	100,0%	0	0,0%	854	100,0%

Report

Anticipated Consumption Guilt computed

IV_Stimili	Mean	Median	N	Std. Deviation
1	1,9820	1,0000	74	1,39677
2	1,8415	1,0000	82	1,18313
3	2,0044	1,3333	75	1,20371
4	1,8312	1,0000	79	1,16192
5	2,0288	1,0000	81	1,27823
6	2,3688	2,0000	94	1,51572
7	2,4965	2,0000	94	1,59655
8	2,6195	2,0000	99	1,68090
9	2,3333	2,0000	87	1,45918
10	2,6030	2,0000	89	1,75513
Total	2,2346	1,6667	854	1,47437

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Anticipated Consumption Guilt computed are the same across categories of IV_Stimili.	Independent-Samples Median Test	,024	Reject the null hypothesis.
2	The distribution of Anticipated Consumption Guilt computed is the same across categories of IV_Stimili.	Independent-Samples Kruskal-Wallis Test	,001	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,050.

Independent-Samples Median Test

Anticipated Consumption Guilt computed across IV_Stimili

Independent-Samples Median Test Summary

Total N	854
Median	1,667
Test Statistic	19,161
Degree Of Freedom	9
Asymptotic Sig.(2-sided test)	,024

Appendix 8.4.: Main Study | H2b testing – Pairwise comparisons

Pairwise Comparisons of IV_Stimili

Sample 1 - Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.a
04 / 02	1,333	37,172	0,036	0,971	1
04 / 01	16,205	38,145	0,425	0,671	1
04 / 05	-26,587	37,285	-0,713	0,476	1
04 / 03	30,992	38,014	0,815	0,415	1
04 / 09	-83,45	36,644	-2,277	0,023	1
04 / 06	-83,607	35,989	-2,323	0,02	0,908
04 / 07	-97,964	35,989	-2,722	0,006	0,292
04 / 10	-102,379	36,448	-2,809	0,005	0,224
04 / 08	-115,075	35,572	-3,235	0,001	0,055
02 / 01	14,871	37,806	0,393	0,694	1
02 / 05	-25,254	36,938	-0,684	0,494	1
02 / 03	-29,659	37,674	-0,787	0,431	1
02 / 09	-82,117	36,291	-2,263	0,024	1
02 / 06	-82,274	35,63	-2,309	0,021	0,942
02 / 07	-96,631	35,63	-2,712	0,007	0,301
02 / 10	-101,046	36,093	-2,8	0,005	0,23
02 / 08	-113,742	35,208	-3,231	0,001	0,056
01 / 05	-10,382	37,917	-0,274	0,784	1
01 / 03	-14,788	38,634	-0,383	0,702	1
01 / 09	-67,246	37,287	-1,803	0,071	1
01 / 06	-67,403	36,644	-1,839	0,066	1
01 / 07	-81,759	36,644	-2,231	0,026	1
01 / 10	-86,174	37,094	-2,323	0,02	0,908
01 / 08	-98,871	36,234	-2,729	0,006	0,286
05 / 03	4,405	37,785	0,117	0,907	1
05 / 09	-56,863	36,406	-1,562	0,118	1
05 / 06	-57,02	35,747	-1,595	0,111	1
05 / 07	-71,377	35,747	-1,997	0,046	1
05 / 10	-75,792	36,209	-2,093	0,036	1
05 / 08	-88,488	35,327	-2,505	0,012	0,551
03 / 09	-52,458	37,153	-1,412	0,158	1
03 / 06	-52,615	36,507	-1,441	0,15	1
03 / 07	-66,971	36,507	-1,834	0,067	1
03 / 10	-71,387	36,959	-1,932	0,053	1
03 / 08	-84,083	36,095	-2,329	0,02	0,893
09 / 06	0,157	35,079	0,004	0,996	1
09 / 07	14,513	35,079	0,414	0,679	1
09 / 10	-18,929	35,549	-0,532	0,594	1
09 / 08	31,625	34,65	0,913	0,361	1
06 / 07	-14,356	34,394	-0,417	0,676	1
06 / 10	-18,772	34,873	-0,538	0,59	1
06 / 08	-31,468	33,956	-0,927	0,354	1
07 / 10	-4,415	34,873	-0,127	0,899	1
07 / 08	-17,112	33,956	-0,504	0,614	1
10 / 08	12,696	34,442	0,369	0,712	1

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.
a Significance values have been adjusted by the Bonferroni correction for multiple tests.

Appendix 9.1.: Main Study | H2c and H3 testing – Indicator coding

Independent Variable - Indicator coding					
	Objective	Subjective	Negative-focused	Positive-focused	Control
X1	1	0	0	0	0
X2	0	1	0	0	0
X3	0	0	1	0	0
X4	0	0	0	1	0

Appendix 9.2.: Main Study | H2c and H3 testing – Moderated mediation: Matrix procedure

Matrix

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.5.3 ***************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : PI
    X  : IV_HY
    M  : ACG
    W  : PNK

Sample
Size:  854

Coding of categorical X variable for analysis:
  IV_HY     X1     X2     X3     X4
   ,000   ,000   ,000   ,000   ,000
  1,000  1,000   ,000   ,000   ,000
  2,000   ,000  1,000   ,000   ,000
  3,000   ,000   ,000  1,000   ,000
  4,000   ,000   ,000   ,000  1,000

**************************************************************************
OUTCOME VARIABLE:
 ACG

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,1238      ,0153     2,1633     1,5107     9,0000   844,0000      ,1395

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     2,3236      ,1206    19,2623      ,0000     2,0868     2,5603
X1           -,1287      ,1657     -,7771      ,4373     -,4539      ,1964
X2           -,1855      ,1597    -1,1617      ,2457     -,4990      ,1279
X3            ,0329      ,1672      ,1971      ,8438     -,2952      ,3611
X4           -,2270      ,1602    -1,4174      ,1567     -,5414      ,0874
PNK           ,1045      ,1204      ,8675      ,3859     -,1319      ,3408
Int_1        -,0529      ,1623     -,3260      ,7445     -,3714      ,2656
Int_2        -,3830      ,1582    -2,4216      ,0157     -,6934     -,0726
Int_3        -,1704      ,1680    -1,0140      ,3109     -,5001      ,1594
Int_4        -,1559      ,1542    -1,0112      ,3122     -,4586      ,1467

Product terms key:
 Int_1    :        X1       x        PNK
 Int_2    :        X2       x        PNK
 Int_3    :        X3       x        PNK
 Int_4    :        X4       x        PNK

Test(s) of highest order unconditional interaction(s):
```

```
       R2-chng     F(HC4)        df1        df2          p
X*W      ,0095     1,8672     4,0000   844,0000      ,1142
----------
    Focal predict: IV_HY     (X)
          Mod var: PNK      (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   IV_HY      PNK        ACG        .
BEGIN DATA.
      ,0000    -1,0904     2,2097
     1,0000    -1,0904     2,1386
     2,0000    -1,0904     2,4418
     3,0000    -1,0904     2,4284
     4,0000    -1,0904     2,1526
      ,0000      ,0000     2,3236
     1,0000      ,0000     2,1948
     2,0000      ,0000     2,1380
     3,0000      ,0000     2,3565
     4,0000      ,0000     2,0965
      ,0000     1,0904     2,4375
     1,0000     1,0904     2,2510
     2,0000     1,0904     1,8343
     3,0000     1,0904     2,2846
     4,0000     1,0904     2,0404
END DATA.
GRAPH/SCATTERPLOT=
 PNK      WITH     ACG      BY       IV_HY    .

************************************************************************
OUTCOME VARIABLE:
 PI

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,2119      ,0449     2,5470     8,5308     5,0000   848,0000      ,0000

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     3,5749      ,1501    23,8123      ,0000     3,2802     3,8696
X1           -,1379      ,1728     -,7975      ,4254     -,4771      ,2014
X2            ,1472      ,1703      ,8641      ,3878     -,1871      ,4815
X3            ,1366      ,1698      ,8043      ,4215     -,1967      ,4699
X4           -,0313      ,1671     -,1874      ,8514     -,3593      ,2967
ACG          -,2241      ,0365    -6,1343      ,0000     -,2958     -,1524

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Relative direct effects of X on Y
       Effect    se(HC4)          t          p       LLCI       ULCI
X1     -,1379      ,1728     -,7975      ,4254     -,4771      ,2014
X2      ,1472      ,1703      ,8641      ,3878     -,1871      ,4815
X3      ,1366      ,1698      ,8043      ,4215     -,1967      ,4699
X4     -,0313      ,1671     -,1874      ,8514     -,3593      ,2967

Omnibus test of direct effect of X on Y:
    R2-chng     F(HC4)        df1        df2          p
      ,0044      ,9283     4,0000   848,0000      ,4467
----------

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
 IV_HY       ->    ACG         ->    PI

          PNK     Effect     BootSE   BootLLCI   BootULCI
```

```
X1    -1,0904      ,0159      ,0529     -,0888      ,1206
X1      ,0000      ,0288      ,0376     -,0467      ,1045
X1     1,0904      ,0418      ,0559     -,0674      ,1554

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0119      ,0360     -,0587      ,0864
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X2    -1,0904     -,0520      ,0539     -,1600      ,0537
X2      ,0000      ,0416      ,0371     -,0317      ,1170
X2     1,0904      ,1352      ,0565      ,0315      ,2513

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0858      ,0375      ,0175      ,1637
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X3    -1,0904     -,0490      ,0548     -,1558      ,0601
X3      ,0000     -,0074      ,0379     -,0817      ,0674
X3     1,0904      ,0342      ,0565     -,0794      ,1484

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0382      ,0373     -,0338      ,1146
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X4    -1,0904      ,0128      ,0535     -,0909      ,1209
X4      ,0000      ,0509      ,0372     -,0184      ,1282
X4     1,0904      ,0890      ,0528     -,0095      ,1987

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0349      ,0349     -,0308      ,1063
---

********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS ************

OUTCOME VARIABLE:
 ACG

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     2,3236     2,3248      ,1202     2,0950     2,5602
X1           -,1287     -,1296      ,1657     -,4507      ,2025
X2           -,1855     -,1816      ,1618     -,4984      ,1422
X3            ,0329      ,0308      ,1682     -,2950      ,3618
X4           -,2270     -,2260      ,1602     -,5375      ,0834
PNK           ,1045      ,1059      ,1193     -,1275      ,3389
Int_1        -,0529     -,0551      ,1594     -,3633      ,2619
Int_2        -,3830     -,3866      ,1560     -,6926     -,0815
Int_3        -,1704     -,1710      ,1638     -,4933      ,1515
Int_4        -,1559     -,1569      ,1523     -,4548      ,1408

----------

OUTCOME VARIABLE:
 PI

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     3,5749     3,5698      ,1489     3,2826     3,8592
X1           -,1379     -,1339      ,1714     -,4639      ,2065
X2            ,1472      ,1505      ,1684     -,1749      ,4813
X3            ,1366      ,1378      ,1679     -,1958      ,4720
X4           -,0313     -,0284      ,1675     -,3599      ,2929
ACG          -,2241     -,2229      ,0364     -,2926     -,1483
```

```
************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the mean and +/- SD from the mean.

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

NOTE: The following variables were mean centered prior to analysis:
          PNK

------ END MATRIX -----
```

Appendix 10.1.: Main Study | H4 testing – Indicator coding for Utilitarian product category

Independent Variable - Indicator coding					
	Objective	Subjective	Negative-focused	Positive-focused	Control
X1	1	0	0	0	0
X2	0	1	0	0	0
X3	0	0	1	0	0
X4	0	0	0	1	0

Appendix 10.2.: Main Study | H4 testing – Moderated mediation for utilitarian product category: Matrix procedure

```
Matrix

Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.5.3 ***************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : PI
    X  : IV_HY
    M  : ACG
    W  : PNK

Sample
Size:  391

Coding of categorical X variable for analysis:
  IV_HY     X1     X2     X3     X4
   ,000   ,000   ,000   ,000   ,000
  1,000  1,000   ,000   ,000   ,000
  2,000   ,000  1,000   ,000   ,000
  3,000   ,000   ,000  1,000   ,000
  4,000   ,000   ,000   ,000  1,000
```

```
**************************************************************************
OUTCOME VARIABLE:
 ACG

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,1244      ,0155     1,5552      ,5950     9,0000   381,0000      ,8013

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     2,0320      ,1448    14,0353      ,0000     1,7473     2,3166
X1           -,0468      ,2186     -,2143      ,8304     -,4766      ,3829
X2           -,1907      ,1958     -,9740      ,3307     -,5756      ,1943
X3           -,0259      ,2003     -,1295      ,8970     -,4197      ,3679
X4           -,2006      ,1959    -1,0238      ,3066     -,5859      ,1847
PNK           ,0997      ,1580      ,6309      ,5285     -,2110      ,4104
Int_1        -,1866      ,2216     -,8420      ,4003     -,6224      ,2491
Int_2        -,1205      ,2091     -,5761      ,5649     -,5316      ,2906
Int_3        -,3389      ,2148    -1,5778      ,1154     -,7613      ,0834
Int_4        -,1685      ,2009     -,8385      ,4023     -,5636      ,2266

Product terms key:
 Int_1    :        X1       x        PNK
 Int_2    :        X2       x        PNK
 Int_3    :        X3       x        PNK
 Int_4    :        X4       x        PNK

Test(s) of highest order unconditional interaction(s):
       R2-chng     F(HC4)        df1        df2          p
X*W      ,0082      ,6612     4,0000   381,0000      ,6193
----------
    Focal predict: IV_HY     (X)
          Mod var: PNK       (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   IV_HY      PNK        ACG        .
BEGIN DATA.
      ,0000     -,9968     1,9326
     1,0000     -,9968     2,0717
     2,0000     -,9968     1,8620
     3,0000     -,9968     2,2445
     4,0000     -,9968     1,8999
      ,0000      ,0000     2,0320
     1,0000      ,0000     1,9851
     2,0000      ,0000     1,8413
     3,0000      ,0000     2,0060
     4,0000      ,0000     1,8313
      ,0000      ,9968     2,1313
     1,0000      ,9968     1,8985
     2,0000      ,9968     1,8206
     3,0000      ,9968     1,7676
     4,0000      ,9968     1,7628
END DATA.
GRAPH/SCATTERPLOT=
 PNK      WITH     ACG      BY       IV_HY    .

**************************************************************************
OUTCOME VARIABLE:
 PI

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,2653      ,0704     2,0197     7,0438     5,0000   385,0000      ,0000

Model
```

	coeff	se(HC4)	t	p	LLCI	ULCI
constant	4,1327	,1884	21,9374	,0000	3,7623	4,5031
X1	-,2992	,2193	-1,3646	,1732	-,7304	,1319
X2	,2027	,2199	,9218	,3572	-,2297	,6351
X3	,2672	,2103	1,2704	,2047	-,1463	,6808
X4	,0463	,2231	,2075	,8357	-,3923	,4848
ACG	-,2683	,0559	-4,8004	,0000	-,3781	-,1584

********** DIRECT AND INDIRECT EFFECTS OF X ON Y **********

Relative direct effects of X on Y

	Effect	se(HC4)	t	p	LLCI	ULCI
X1	-,2992	,2193	-1,3646	,1732	-,7304	,1319
X2	,2027	,2199	,9218	,3572	-,2297	,6351
X3	,2672	,2103	1,2704	,2047	-,1463	,6808
X4	,0463	,2231	,2075	,8357	-,3923	,4848

Omnibus test of direct effect of X on Y:

R2-chng	F(HC4)	df1	df2	p
,0175	1,8225	4,0000	385,0000	,1237

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
IV_HY -> ACG -> PI

	PNK	Effect	BootSE	BootLLCI	BootULCI
X1	-,9968	-,0373	,0785	-,2007	,1138
X1	,0000	,0126	,0599	-,1071	,1314
X1	,9968	,0625	,0890	-,1090	,2444

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
PNK	,0501	,0590	-,0608	,1753

	PNK	Effect	BootSE	BootLLCI	BootULCI
X2	-,9968	,0189	,0725	-,1211	,1717
X2	,0000	,0512	,0546	-,0534	,1654
X2	,9968	,0834	,0818	-,0674	,2561

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
PNK	,0323	,0548	-,0786	,1417

	PNK	Effect	BootSE	BootLLCI	BootULCI
X3	-,9968	-,0837	,0742	-,2364	,0584
X3	,0000	,0070	,0539	-,0986	,1173
X3	,9968	,0976	,0834	-,0578	,2758

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
PNK	,0909	,0578	-,0138	,2105

	PNK	Effect	BootSE	BootLLCI	BootULCI
X4	-,9968	,0088	,0696	-,1279	,1497
X4	,0000	,0538	,0555	-,0472	,1744
X4	,9968	,0989	,0827	-,0443	,2765

Index of moderated mediation:

	Index	BootSE	BootLLCI	BootULCI
PNK	,0452	,0528	-,0508	,1605

********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS **********

```
OUTCOME VARIABLE:
 ACG

              Coeff    BootMean      BootSE    BootLLCI    BootULCI
constant     2,0320      2,0323      ,1429      1,7566      2,3211
X1           -,0468      -,0478      ,2169      -,4600       ,3853
X2           -,1907      -,1916      ,1945      -,5733       ,2003
X3           -,0259      -,0258      ,1973      -,4243       ,3610
X4           -,2006      -,1960      ,1940      -,5775       ,1876
PNK           ,0997       ,1015      ,1519      -,1926       ,3971
Int_1        -,1866      -,1917      ,2143      -,6216       ,2126
Int_2        -,1205      -,1306      ,2025      -,5262       ,2776
Int_3        -,3389      -,3377      ,2019      -,7269       ,0561
Int_4        -,1685      -,1729      ,1895      -,5533       ,1871

----------

OUTCOME VARIABLE:
 PI

              Coeff    BootMean      BootSE    BootLLCI    BootULCI
constant     4,1327      4,1327      ,1876      3,7588      4,4943
X1           -,2992      -,3005      ,2183      -,7230       ,1237
X2            ,2027       ,2070      ,2159      -,2227       ,6286
X3            ,2672       ,2668      ,2063      -,1428       ,6763
X4            ,0463       ,0471      ,2217      -,3957       ,4867
ACG          -,2683      -,2680      ,0560      -,3767      -,1580

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the mean and +/- SD from the mean.

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

NOTE: The following variables were mean centered prior to analysis:
          PNK

NOTE: Standardized coefficients not available for models with moderators.

------ END MATRIX -----
```

Appendix 10.3.: Main Study | H4 testing – Indicator coding for Hedonic product category

Independent Variable - Indicator coding					
	Objective	Subjective	Negative-focused	Positive-focused	Control
X6	1	0	0	0	0
X7	0	1	0	0	0
X8	0	0	1	0	0
X9	0	0	0	1	0

Appendix 10.4.: Main Study | H4 testing – Moderated mediation for hedonic product category: Matrix procedure

Matrix

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.5.3 ***************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : PI
    X  : IV_HY
    M  : ACG
    W  : PNK

Sample
Size:  463

Coding of categorical X variable for analysis:
  IV_HY     X1     X2     X3     X4
   ,000   ,000   ,000   ,000   ,000
  6,000  1,000   ,000   ,000   ,000
  7,000   ,000  1,000   ,000   ,000
  8,000   ,000   ,000  1,000   ,000
  9,000   ,000   ,000   ,000  1,000

**************************************************************************
OUTCOME VARIABLE:
 ACG

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,1458      ,0213     2,5670     1,1490     9,0000   453,0000      ,3265

Model
              coeff    se(HC4)          t          p       LLCI       ULCI
constant     2,5888      ,1901    13,6201      ,0000     2,2153     2,9623
X1           -,2350      ,2459     -,9556      ,3398     -,7181      ,2482
X2           -,2100      ,2467     -,8513      ,3950     -,6949      ,2748
X3            ,0266      ,2549      ,1045      ,9169     -,4744      ,5276
X4           -,2537      ,2480    -1,0228      ,3070     -,7411      ,2338
PNK           ,1094      ,1785      ,6126      ,5405     -,2415      ,4602
Int_1         ,0383      ,2348      ,1632      ,8704     -,4230      ,4997
Int_2        -,4432      ,2236    -1,9820      ,0481     -,8826     -,0037
Int_3        -,0393      ,2460     -,1598      ,8731     -,5227      ,4440
Int_4        -,1339      ,2258     -,5931      ,5534     -,5777      ,3098

Product terms key:
 Int_1    :        X1       x        PNK
 Int_2    :        X2       x        PNK
 Int_3    :        X3       x        PNK
 Int_4    :        X4       x        PNK

Test(s) of highest order unconditional interaction(s):
       R2-chng     F(HC4)        df1        df2          p
X*W      ,0158     1,8515     4,0000   453,0000      ,1179
----------
    Focal predict: IV_HY    (X)
          Mod var: PNK      (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
   IV_HY      PNK        ACG        .
BEGIN DATA.
      ,0000    -1,0086     2,4785
     6,0000    -1,0086     2,2049
```

```
     7,0000    -1,0086     2,7154
     8,0000    -1,0086     2,5448
     9,0000    -1,0086     2,3599
      ,0000     -,0086     2,5878
     6,0000     -,0086     2,3526
     7,0000     -,0086     2,3816
     8,0000     -,0086     2,6148
     9,0000     -,0086     2,3353
      ,0000     1,3247     2,7337
     6,0000     1,3247     2,5495
     7,0000     1,3247     1,9365
     8,0000     1,3247     2,7082
     9,0000     1,3247     2,3026
END DATA.
GRAPH/SCATTERPLOT=
 PNK      WITH     ACG      BY       IV_HY    .

************************************************************************
OUTCOME VARIABLE:
 PI

Model Summary
          R       R-sq        MSE     F(HC4)        df1        df2          p
      ,1168      ,0137     2,5861     1,3654     5,0000   457,0000      ,2361

Model
             coeff    se(HC4)          t          p       LLCI       ULCI
constant     2,8507      ,2177    13,0961      ,0000     2,4230     3,2785
X1            ,0719      ,2502      ,2874      ,7739     -,4198      ,5636
X2            ,1214      ,2347      ,5170      ,6054     -,3399      ,5827
X3            ,1063      ,2392      ,4443      ,6570     -,3638      ,5765
X4           -,0778      ,2266     -,3435      ,7314     -,5232      ,3675
ACG          -,1096      ,0473    -2,3154      ,0210     -,2026     -,0166

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ****************

Relative direct effects of X on Y
      Effect    se(HC4)          t          p       LLCI       ULCI
X1     ,0719      ,2502      ,2874      ,7739     -,4198      ,5636
X2     ,1214      ,2347      ,5170      ,6054     -,3399      ,5827
X3     ,1063      ,2392      ,4443      ,6570     -,3638      ,5765
X4    -,0778      ,2266     -,3435      ,7314     -,5232      ,3675

Omnibus test of direct effect of X on Y:
    R2-chng     F(HC4)        df1        df2          p
      ,0021      ,2820     4,0000   457,0000      ,8896
----------

Relative conditional indirect effects of X on Y:

INDIRECT EFFECT:
 IV_HY       ->    ACG         ->    PI

          PNK     Effect     BootSE   BootLLCI   BootULCI
X1    -1,0086      ,0300      ,0430     -,0474      ,1281
X1     -,0086      ,0258      ,0310     -,0284      ,0973
X1     1,3247      ,0202      ,0458     -,0665      ,1236

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK     -,0042      ,0273     -,0628      ,0504
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X2    -1,0086     -,0260      ,0420     -,1159      ,0541
X2     -,0086      ,0226      ,0314     -,0286      ,0987
X2     1,3247      ,0873      ,0591     -,0011      ,2247
```

```
      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0486      ,0337     -,0020      ,1256
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X3    -1,0086     -,0073      ,0432     -,0968      ,0848
X3     -,0086     -,0030      ,0298     -,0655      ,0608
X3     1,3247      ,0028      ,0469     -,0944      ,1037

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0043      ,0290     -,0548      ,0654
---

          PNK     Effect     BootSE   BootLLCI   BootULCI
X4    -1,0086      ,0130      ,0425     -,0724      ,1039
X4     -,0086      ,0277      ,0318     -,0271      ,1010
X4     1,3247      ,0472      ,0474     -,0278      ,1573

      Index of moderated mediation:
         Index     BootSE   BootLLCI   BootULCI
PNK      ,0147      ,0271     -,0325      ,0768
---

********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS ************

OUTCOME VARIABLE:
 ACG

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     2,5888     2,5893      ,1877     2,2271     2,9659
X1           -,2350     -,2332      ,2423     -,7049      ,2560
X2           -,2100     -,2092      ,2426     -,6900      ,2638
X3            ,0266      ,0230      ,2530     -,4805      ,5136
X4           -,2537     -,2527      ,2456     -,7291      ,2340
PNK           ,1094      ,1146      ,1763     -,2167      ,4626
Int_1         ,0383      ,0340      ,2292     -,4062      ,4862
Int_2        -,4432     -,4455      ,2215     -,8830     -,0181
Int_3        -,0393     -,0426      ,2418     -,5082      ,4205
Int_4        -,1339     -,1375      ,2200     -,5672      ,2906

----------

OUTCOME VARIABLE:
 PI

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     2,8507     2,8478      ,2191     2,4209     3,2755
X1            ,0719      ,0687      ,2503     -,4233      ,5601
X2            ,1214      ,1220      ,2362     -,3470      ,5823
X3            ,1063      ,1053      ,2389     -,3689      ,5749
X4           -,0778     -,0767      ,2259     -,5276      ,3673
ACG          -,1096     -,1085      ,0474     -,1992     -,0133

*********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.
```

```
NOTE: The following variables were mean centered prior to analysis:
          PNK

------ END MATRIX -----
```