



**The impact of health consciousness on consumers’  
purchase intention and the mediating effect of  
ingredients’ awareness**

An analysis on Chocolate

Dissertation by

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## **ABSTRACT**

**Title:** The impact of health consciousness on consumers' purchase intention and the mediating effect of ingredients' awareness: An analysis on Chocolate

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Over the past few years a dramatic move has taken place in the food industry and people become more and more concerned about their own health. Following this trend, retailers are also taking actions, not just by creating areas in the supermarket dedicated to healthy food products but also having, on the same shelf, the healthy option of the same product.

This entire study consists on an investigation about if the health consciousness impacts or not the purchase intention, giving a special attention to the role of the ingredients' awareness, going deep on sugars. The pushback against sugar comes as, in general, consumers have begun to take a greater interest in what makes up their food and diets. The health conscious took umbrage with not only how much sugar was put into processed food, but also how many products included added sugars.

The methodology used for this investigation includes both primary and secondary data, encompassing one survey.

Results obtained with this study suggest that Purchase Intention is explained by Health Consciousness as well as by the Ingredients' Awareness. In addition, Ingredients' Awareness plays a key role in mediating some of these relationships.

## SUMÁRIO

**Título:** O impacto da consciência de saúde na intenção de compra dos consumidores e o efeito mediador da percepção dos ingredientes: Uma análise ao chocolate.

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Ao longo dos últimos anos ocorreu um novo e importante movimento na indústria alimentar, com os consumidores a tornarem-se crescentemente preocupados com a sua saúde. Respondendo a esta tendência, os grandes retalhistas têm vindo a tomar medidas, não só começando a apresentar num mesmo linear as opções *standard* e mais saudáveis para um mesmo tipo de produto, como inclusivamente criando nas lojas áreas específicas e perfeitamente individualizadas, dedicadas a produtos alimentares saudáveis.

Todo este estudo consiste numa investigação sobre se, e em que medida, a consciência da saúde por parte dos consumidores afeta a sua intenção de compra, dando especial relevo ao papel da percepção que os mesmos têm relativamente aos ingredientes, particularmente e com maior profundidade no que respeita aos açúcares.

Em geral, a repulsa pelo açúcar decorre, da crescente atenção dos consumidores relativamente à composição dos seus alimentos e dietas. A consciência da saúde surge assim em consonância não só com o teor de açúcar adicionado aos alimentos processados, mas também com a quantidade de produtos aos quais foram adicionados açúcares.

A metodologia utilizada para esta investigação inclui dados primários e secundários, envolvendo um questionário. Os resultados obtidos com este estudo sugerem que a Intenção de Compra é explicada pela Consciência da Saúde, bem como pela Percepção dos Ingredientes, desempenhando esta um papel chave na mediação de algumas dessas relações.

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## **CHAPTER 1: INTRODUCTION**

### **1.1 Background**

Over the years, consumption patterns have been changing rapidly and consumers have become increasingly concerned about factors directly related with health (Moorman & Matulich, 1993). Issues related with food safety such as genetic modification, hormones, pesticide residue limit and food additives have been contributing to the concerns regarding food consumption and, as a consequence, consumers are more aware about the importance of the foods that are healthier, nutritious, environmentally-friendly and safe for them when they are making purchase decisions on food (J. Paul & Rana, 2017). With all these concerns, consumers are taking measures avoiding the consumption of added sugar foods and high-calorie foods in order to decrease the possibility to become obese and to have related disorders such as heart disease or diabetes (Frost & Sullivan, 2007). According to Diplock et al, 1999, it is understood by functional foods the foods that give beneficial effects to the human body, beyond adequate nutritional effects, in a way that is relevant to either an improved state of health and well-being and/or reduction of risk of diseases. Particularly, the added sugar on foods is the major calories source with no additional nutritional value and it has been related to several metabolic abnormalities and other health problems, such as cardiovascular diseases and diabetes as mentioned before (Lustig, Schmidt, & Brindis, 2012). It is important to know that our ancestors only had access to sugar as fruit at certain times of the year (harvest time), or as honey, kept by bees. But over the years, sugar has been added to about all processed foods and consumer choice has been limited (Lustig et al., 2012). So, I have decided to take a trip to the supermarket to see what is happening regarding the sugar, and I have realized that the industries are really making an effort to take off sugar in several products. I was investigating and I took a look on breakfast cereals, beverages, chocolate bars, bread, gums and so on, and it is becoming real, I saw, in some packages, that they are concerned about the claims that they are advertising on the front of pack: “less 30% of sugar”, “Naturally occurring sugar” or “Non added sugar”. In particularly, on chocolate bars and on beverages, like fruit juices, they are even substitute the sugar by natural sugar like Stevia. After this, I have decided to approach chocolate bars because it was one category that aroused my interest and lately it is a very popular topic at a world-wide level. I felt that the chocolate’s industry is becoming aware about the harms of the sugar on chocolate bars and as Torri et al, 2016 exposed on their study, the demand for reduced and zero-sugar food products containing cocoa has expanded constantly. So, the industries are turning them a

little bit healthier for the consumers, starting by having chocolate without added sugar or even substitute the sugar by natural substitutes like Stevia. In order to see the impact that this change, to the substitute of sugar – Stevia and the non-added sugar on the products has on the purchase intention, this dissertation propose to study the impact of the non-added sugar and the natural substitute of sugar have on the purchase intention of chocolate.

## **1.2 Problem Statement**

The aim of this research is to understand the level of health consciousness the consumers have regarding the ingredients' awareness and how this impacts the purchase intention, in other words, if the ingredients' awareness can explain the relationships between consumer health consciousness and purchase intention for chocolate.

This problem statement it substantiates itself in the following research questions:

RQ1: What is the effect of the ingredients' awareness on the purchase intention?

RQ2: Are the consumers willing to switch to the healthy substitutes of sugar?

RQ3: Can Stevia keep the purchase intention?

RQ4: What is the relationship between Health Consciousness and Purchase Intention?

## **1.3 Relevance**

Sugar is a current issue that has been infiltrated over the years in our diet without us even realizing it. We can find it in almost all the foods we consume every day, making it almost impossible to avoid it. Despite the fact that there are people concerned about the problems related with the sugar, there are still many people who do not care about this but the US Department of Agriculture (USDA) and the European Food Safety Authority believe that “attention should be turned to the ‘added sugar’” (Lustig et al., 2012) and so I believe that is important to study how aware are the consumers about the sugar and how do people react to the lack of sugar on goods or the substitution of sugar by natural sweeteners as stevia if they are informed about the health malfunctions of sugar. Overall, my wish is that companies realize that is necessary to cut back on sugar or replace it with natural substances so that they can reduce the disease rates caused by too much sugar consumption.

## **1.4 Research methods**

With the purpose of getting answers to the research questions, mostly primary data will be used. A survey will be developed and it will be distributed via online. After obtaining enough answers, that data will be treated quantitatively applying frequencies (absolute and percentages), measures of central tendency (arithmetic mean and median), measures of dispersion or variability (minimum value, maximum value and standard deviation), coefficients (Cronbach's and Pearson's Alpha) and statistical tests (Pearson's correlation coefficient significance test, ANOVA test and Sobel test) and simple linear regression.

This method can be very effective because it does not require an interviewer, i.e. respondents will be more willing to share the information that will be needed, it is convenient for them, because they can answer wherever they are, there are no costs involved for the researcher and it can be accessed in real time.

## **1.5 Dissertation outline**

The next chapter will guide the study by presenting a literature review and the corresponding hypothesis. The literature review will explain and describe how relevant and impactful each of the variables are for the purchase intention for Chocolates. The third chapter will answer to the hypothesis that will be studied through the methodology used by the construction of a questionnaire where important data can be obtained. On the fourth chapter, and looking at the results of the questionnaire, an analysis will be done and some insights will come. Lastly, the fifth chapter is where some conclusions will be drawn as well as its limitations and some advices for further investigations on this area of study.

## CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Throughout this chapter some important concepts will be approached to achieve the main goals of this research and to know what some authors have discovered so far. Firstly and with the purpose to go further, it will be important to talk about the awareness of the ingredients. Further ahead, and more specific about the sugar, a comparison will be done between the added sugar, the natural occurring sugar and the natural substitute of sugar – Stevia. Additionally, it will be approached the different levels of health consciousness of consumers and the attitude related with the purchase intention.

Lastly, from what previous authors have discovered, some hypothesis will be formulated.

### 2.1. Awareness

#### 2.1.1. *Ingredients' awareness*

When brand awareness is not present on consumers' mind they cannot form intention to buy (Rossiter, J. R. & Percy, 1987). According to (Bornkessel, Bröring, Omta, & van Trijp, 2014), the consumer awareness of the ingredients on functional foods is important for healthy food choices and it is a precondition that is necessary for general knowledge (P. J. Paul, Olson, & Grunert, 1999). In this circumstance, ingredient awareness involves consumers' familiarity with some ingredients whereas the following steps from ingredient awareness coming to knowledge might be the understanding of the underlying health benefits of certain food ingredients. Also, the acceptance and the consumers' perception of functional foods are influenced by the ingredient awareness (Pounis et al, 2011). In this sense, functional foods can be interpreted as the carrier for functional ingredients that brings certain health benefits. Thus, the term ingredient awareness has the focus on the antecedents of knowledge about food ingredients themselves. As Howlett, Burton, Bates, & Huggins, 2009 demonstrated, the provision of nutrient information can affect consumers' purchase intentions, more specifically, “higher motivation to process nutrition information was positively related to repurchase intentions”. Also, according to Howlett, Burton, Bates, & Huggins, 2009, after the exposure to the nutrition information, repurchase intentions should increase or remain stable. Finally, also supported by DiPietro, Remar, & Parsa, 2016, “the awareness of ingredients was found to be a statistically significant predictor of purchase behavior”. Which allows to predict the following:

**Hypothesis 1: *The ingredients' awareness will affect the purchase intention.***

Cocoa (*Theobroma Cocoa* L.) is one of the most appreciated foods in the world, it is a tree, a tropical one, from which the dry beans are the raw material of chocolate (Loureiro et al., 2017). It is considered from high quality, in terms of health benefits, if a baking chocolate contains 70% or more of raw cocoa (Jr., Forehand, & Angle, 2014). In every chocolate the manufacturers are obliged to declare the cocoa content, which is a good way to evaluate the quality of chocolate by the consumers (FSA, 2009). According to Sokolov, Pavlova, Klosterhalfen, & Enck, 2013, the high percentage of cocoa in chocolates contribute to good health maintenance due to phenolic compounds. So it can be stated that this high percentage of cocoa in chocolates will positively impact the purchase intention for consumers that are high health consciousness:

**Hypothesis 1a:** *The awareness of higher Cocoa % in chocolates positively impacts the purchase intention for consumers that are high health consciousness.*

## **2.2. Product ingredients**

### **2.2.1. Added sugar vs. Natural occurring sugar**

Sugars can naturally occur in some foods and beverages or added as ingredients in others. Fundamentally, the flavor is the reason why sugar is added to beverages and foods but it can also have a technical function by enhancing the texture, the color and can help to ensure a proper fermentation and preservation. The 2015–2020 Dietary Guidelines (DGA) refer to added sugars as “syrups and other caloric sweeteners used as a sweetener in other food products”. U.S. Food and Drug Administration (FDA) established the official definition of added sugars as sugars that are, besides other things, packaged as a bag of sugar, added during the production process and present on syrups, honey, concentrated fruit or vegetable juices. On this definition the FDA does not include the concentrated juices of fruits or vegetables from 100 percent juice, also is considered containing naturally-occurring sugars when present to whole foods that contain lactose (from milk), sucrose, glucose or fructose (from fruit). Other sweeteners such as low-calorie sweeteners (e.g. aspartame) and no-calorie natural sweeteners (e.g., stevia leaf extract, honey and fruit sugar) are also not considered added sugars.

The innate preference for sweetness does not necessarily leads to obesity or other diet-related diseases because if the foods contain natural-occurring sugars this tend to be highly nutritious. But the main problem occurs when sugars are concentrated, refined and consumed in large amounts (Ludwig, 2009). The use of products that are reduced in added sugars are a good strategy for weight control (Fitch, Keim, & Academy of Nutrition and Dietetics, 2012).

The DGA and FDA want to keep consumers informed about the problems that come with the added sugars and so, they want to maintain healthful dietary practices by increasing the awareness of the amount of added sugars in foods and beverages.

The reality is that there is a wide market of consumers who demand for sugar-free chocolates related to their concerns about diabetes, for being one of the fastest-growing chronic diseases. Also the US Department of Agriculture (USDA) and the European Food Safety Authority believe that “attention should be turned to added sugar”. And so, to meet this demand, some alternatives, as low calorie sweeteners, have to be implemented on chocolates (Rodriguez Furlán, Baracco, Lecot, Zaritzky, & Campderrós, 2017), but here the main challenge is related to the changes in product texture and flavor, which can compromise the success in the marketplace due to the reduction of sugar content (Raaij, Joop van, Hendriksen, Marieke, Verhagen, 2009).

Then, this leads to predict the following:

**Hypothesis 1b: *The awareness of different types of sugar, impacts differently the purchase intention of chocolate.***

### **2.2.2. *Sugar substitute: Stevia***

To increase sugar-added reduction it is important to approach other sweeteners but, at the same time, the consumer has to have the perception that the liking and the sweet taste were kept (Li, Lopetcharat, & Drake, 2015). A greater than 30% sugar reduction affects the liking of a certain product because sweet taste is a driver of liking for several foods such as chocolates (de Melo, Bolini, & Efraim, 2009).

*Stevia rebaudiana* Bertoni, generally known as Stevia, is an ancient sweet herb native to Paraguay. The plant, more specifically the leaves, can have a sweetening effect until 300 times sweeter than saccharose (Kamarulzaman, Jamal, Vijayan, & Ab. Jalil, 2014) and can be predominantly helpful to those suffering from diabetes, obesity, heart disease and even dental caries (Ghanta, S., Banerjee, A., Poddar, A., & Chattopadhyay, 2007) or, on the other hand, it can be used by consumers wishing to reduce the daily calorie intake (Azevedo, Ferreira, Luccas, & Bolini, 2016). In order to address consumers' demands about reducing sugar intake through chocolate, sugar is increasingly substituted by sweeteners. However, for long-term consumption of low-calorie chocolate, it must be examine about the consumer-acceptance of low-calorie sweeteners (Li et al., 2015).



According to the research of Patterson, Sadler, & Cooper, 2012, with the “no added sugar” claim, consumers expect a similar and meaningful reduction on calories equal to the level of the sugar that would be taken off from the good. From the way that consumers see, they prefer “no added sugar” by thinking that is more “natural” than “taking something out” because the most of the consumers associate this second with a replacement of the same quantity that were taken off by something that is not considered to be natural. And this way this would negatively impact the purchase intention, which allows to predict the following:

**Hypothesis 1c: *The awareness of “No added sugar” has a higher impact than “with Stevia” on consumers’ purchase intention.***

### **2.3. Health consciousness**

#### ***2.3.1. Health consciousness and Ingredients’ awareness***

Health consciousness refers to the degree to which health concerns are incorporated into a person's daily activities (Jayanti & Burns, 1998).

Moorman & Matulich noted in 1993 that high health consciousness consumers perform consistent health behaviors (healthy food choices), and Mai & Hoffmann realized, in 2012, that people with high health consciousness pay more attention to nutrition facts, such as information about sugar content, than people with low health consciousness. Also supported by Gould, 1988, he correlates health consciousness with healthful dietary behaviors, indicating that health-conscious people are more likely to consume vitamins and avoid high calorie foods, like the ones with added sugars, than those who are not health conscious. According to Park, Yoon, Cho, & Haugtvedt, 2013, high health consciousness consumers are more disposed to actively seek out nutritional knowledge or enhanced knowledge about nutrition, which leads to healthy choices like low-fat alternatives, vegetables and fruits compared to those individuals with low health consciousness. Also Jayanti & Burns, 1998 found that consumers who have high health consciousness tend to take preventative health behaviors and so the availability of ingredients’ information will also influence purchase behavior (Zhang, H. Y., & Wang, 2009). It was stated by Gould, 1988; Bellisle & Drewnowski, 2007; Ludwig, 2009; Anderson, Foreyt, Sigman-Grant, & Allison, 2012 and Gardner et al., 2012 that to manage the body weight, the sugar intake has to be lower, which leads to the replacement of this sugars by the low-calorie sweeteners. For the current study, high health conscious consumers are defined as the ones that: have “healthful dietary behaviors”; avoid “high calorie foods, like the ones with added sugars”;

give “preference to foods that are superior-quality” and take “preventive health behaviors”. According to Kraft, 1993, a consumer who is not stimulated by preventive behaviors (=Low health consciousness) is less likely to read the ingredients’ composition on food labels and so he is not aware about the ingredients that the product has. This is also supported by Mai & Hoffmann, 2012 where they stated that consumers with low health consciousness are more likely to make decisions based on heuristic cues, such as promotion signals, product country of origin , website interactivity or price and not on the ingredients’ composition on food labels. Which leads to the following hypothesis:

**Hypothesis 2: *Health consciousness positively impacts the ingredients’ awareness.***

### ***2.3.2 Health consciousness and Purchase intention***

Loebnitz & Grunert, 2017 reached the conclusion that consumers with high level of health consciousness only purchase hedonic food products if the product benefit is explicit through the nutrition claims.

Results showed that health consciousness is a significant predictor of purchase decisions (DiPietro et al., 2016). Kumar, 2014 states that health-conscious people give preference to foods that are superior-quality and as a consequence they are willing to pay a higher price for those products. Therefore the following hypothesis can be formulated:

**Hypothesis 3: *Health consciousness positively impacts the purchase intention.***

## **2.4. Attitude and Purchase intention**

According to Baron, Robert & Byrne, Donn & Griffitt, 1974, an attitude is a lasting, general evaluation of people (including one-self) toward an object, an advertisement, or an issue. Allport, 1935 said that an attitude is "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related".

It is important what people think about the product features, and this is having to do with the personal values, they create a favorable or unfavorable attitude towards a certain good or a service. The final decision of buying or not buying is influenced by people's beliefs regarding a brand or even a product (Kahle, Beatty, & Homer, 1986).

Consumer’s purchase intention is influenced by the attitude which frequently form the basis for consumer behavior and actions (Goldsmith, Lafferty, & Newell, 2000; Keller, 2003). Several research studies have proven that purchase behavior is predicted by the strength of the attitude (Fishbein & Ajzen, 1975), the more positive the attitude towards a product, the higher the buying intentions will be (Chiu & Leng, 2016). Previous research revealed that health consciousness fosters purchase intentions (Lockie, Lyons, Lawrence, & Mummery, 2002).

**Hypothesis 4: *Ingredients’ awareness mediates the relationship between health consciousness and purchase intention.***

In order to better understand the present study, figure 1 shows the conceptual framework where the variables of the study, the relationship between them and the hypothesis that will be tested are visually better explained. The model illustrates the effect of health consciousness on consumers’ purchase intention. The mediating effects of ingredients’ awareness are also investigated. All the constructs presented in the model have been previously studied.



**Figure 1: *Conceptual Framework***

## **CHAPTER 3: METHODOLOGY**

Followed by the literature review, the methodology chapter will describe the exact steps that will be undertaken to address the hypothesis done in previous chapter, more specifically, through which techniques the data will be collected and the statistical tests that will be more suitable to test the research hypothesis previously proposed.

### **3.1 Review of Conceptual Model and Research Approach**

As already explained in the first chapter, the conceptual framework of this dissertation has two levels of health consciousness of the consumer, High and Low, and it is predicted that the ingredients' awareness mediate the relationship between the level of health consciousness and the purchase intention of chocolate.

In 2013, Creswell has defined three different kinds of research approach: Qualitative, quantitative and a mix of both. The author described qualitative research as a way to explore and understand the meaning individuals or groups ascribe to a social or human problem and quantitative research as a way to test objective theories by examining the relationship among variables to posteriorly being analyzed using statistical procedures. Hereupon, and in order to accomplish the proposed objectives of this dissertation, the quantitative approach is the one that most applies to it. Moreover, by adopting a qualitative approach, this could be misleading by not allowing us to generalize the results (Creswell, 2013).

One key way to gather some quantitative data is through a survey/questionnaire, which rely on asking the same question in the same way to a large number of people and obtaining a lot of responses to test the specific hypothesis. These responses are then analyzed using statistical techniques to obtain information that can be generalized about the whole population and so this was the technique that most applied to approach this research.

### **3.2 Secondary Data**

In the previous chapter, the secondary data were collected as a literature review from top journals and academic articles. Here some data and information were gathered in order to gain a more in-depth understanding about each one of the variables and then the relationship that exists between them.

### **3.3 Primary Data**

For the purpose of this research, primary data were collected, leading to the formulation of the hypothesis, and then analyzed through the statistical software – SPSS.

### **3.3.1 Data Collection**

In order to invite as many respondents as possible an online survey was shared on Facebook and delivered by email. The only mandatory requirement is that the participant has to be part of the population that consumes and/or purchases chocolates, since other people who do not fit in any of these conditions do not have perception about the product that was subject of study.

According to Marktest, 2016, in 2015, 67.5% of the Portuguese residents over 15 years old, refer they have eaten chocolate in the previous twelve months (chocolate bars or individual chocolates).

In order to obtain data just from people that consumes and/or purchases chocolates, an initial question was made to perceive if the respondent consumes and/or purchase chocolates. Then, to perceive who the High and Low health consciousness consumers were, a second group of questions was made. After this a third and a fourth block of questions were made to, respectively, perceive the ingredients' awareness that people have and their purchase intentions. Lastly, and to collect few basic data from the respondents, a fifth block of questions were asked about: age, gender, education and occupation. All the questions were closed-ended type of: multiple-choice and rating scales.

### **3.3.2 Measurement / Indicators**

In first place, and in order to test the hypothesis previously proposed on the literature review chapter, an online questionnaire was created through *Qualtrics* to measure the relationship between the dependent variable: Health Consciousness; and the independent variable: Purchase intention; mediated by the Ingredients' Awareness.

To measure consumers' perceived level of health consciousness (High vs. Low) and ingredients' awareness, it was asked to the respondents to indicate how much they agreed with each statement on a 5-point scale, from 1 to 5 (1 = strongly disagree; 5 = strongly agree) (Jayanti & Burns, 1998). For ingredients' awareness, the respondents were asked to declare whether the ingredient is unknown or well-known to them (Bornkessel et al., 2014) on a 5 point scale (1 = Unknown; 5 = Extremely known).

To define high and low health consciousness and high and low ingredients' awareness a mean split method was applied, for turning a continuous variable into a categorical one. Essentially, the idea is to find the mean of the continuous variable. Any value below the mean is put it the category "Low" and every value above it is labeled "High" (Iacobucci, Posavac, Kardes,

Schneider, & Popovich, 2015). In this specific case, for health consciousness values it was defined as High the value above 4.1695 and Low the values equal or below 4.1695. For ingredients' awareness it was defined as High the value above 2.70 and Low the values equal or below 2.70.

Finally, purchase intention, combines items from two past studies, for instance, the respondents were asked to rate on a 5-point, dichotomous scale the degree to which their purchase intention choice was based on the available nutritional information on label (1 = Definitely not; 5 = Definitely yes) (DiPietro et al., 2016) and for every image presented in the screen, participants expressed their purchase intentions on a 5-point scale ("How likely would you be to purchase this food item?" 1 = "very unlikely," 5 = "very likely") (Loebnitz & Grunert, 2017).

**Note:** Some of the original articles had a 7-point scale but in order to have the same scale in all the constructs I have decided to change these to a 5-point scale.

With the intention of simplifying what was previously described the following table shows the dissertation's constructs, the literature sources used to build these scales and the number of items.

**Table 1:** *Proposed constructs, number of scale items and relevant literature source*

<b>MEASUREMENT MODEL</b>		
<b>Construct</b>	Literature for Scale Items	Number of Items
<b>HEALTH CONSCIOUSNESS</b>	(Jayanti & Burns, 1998)	6
I worry that there are harmful chemicals in my food		
I am concerned about my drinking water quality		
I usually read the ingredients on food labels		
I read more health-related articles than I did 3 years ago		
I am interested in information about my health.		
I am concerned about my health all the time		
<b>INGREDIENTS' AWARENESS</b>	(Bornkessel et al., 2014)	10
State whether the ingredient is unknown, slightly known, moderately known, very known or extremely known to you		
<b>PURCHASE INTENTION</b>	(DiPietro et al., 2016; Loebnitz & Grunert, 2017)	3
The extent purchase decision was based on the available nutritional information on the label		
How likely would you be to purchase this item?		

### ***3.3.3 Data Analysis***

All data collected from the survey were analyzed using Statistical Package for the Social Science (SPSS), version 26/2017, to which were complemented a custom dialog designated by PROCESS (release 2.16.3) with the aim to evaluate the effect of Health Consciousness mediated by the Ingredients' awareness on the Purchase Intention (Hayes, 2013).

To systematize the information obtained with the application of the elaborated questionnaire, techniques of descriptive statistics and inferential statistics were used. The statistical techniques applied were frequencies (absolute and percentages), measures of central tendency (arithmetic mean and median), measures of dispersion or variability (minimum value, maximum value and standard deviation), coefficients (Alpha Cronbach and Pearson's correlation) and statistical tests (Pearson's correlation coefficient significance test, ANOVA test and Sobel test) and linear regression (simple and multiple).

In the selection of the statistical techniques, namely, the tests, it was taken into account the variables' characteristics and the recommendations presented by Maroco, 2007 and Pestana & Gageiro, 2005.

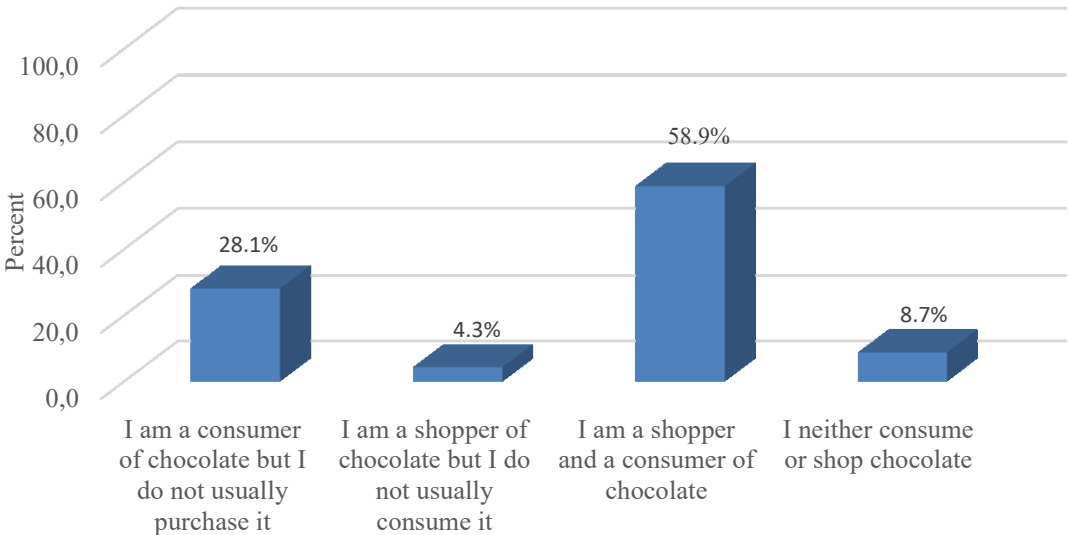
For all statistical tests that were carried out, it was considered a significance level of 5%, therefore,  $H_0$  hypothesis were rejected for a p-value lower than .05, that is, the null hypothesis were rejected when the probability of type I error (probability of rejection of the null hypothesis when it is true) was lower than the set value (when p-value < .05).

**CHAPTER 4: RESULTS AND DISCUSSION**

The following chapter aims to present all the data collected in form of a survey using the methodology determined in the previous chapter, which will allow us to reach relevant conclusions regarding the proposed research questions.

**4.1 Sample Characterization**

Starting by the sample characterization, analyzing the relationship with the chocolate of the 768 respondents, the data from figure 2 allows to verify that the majority (58.7%) answered that they are shoppers and consumers of chocolate, followed by the ones that are consumers but did not usually purchase chocolate (28.1%). Still, it is verified that 61 of the respondents (8.7%) are not consumers nor did they purchase chocolate. These respondents were excluded from the analysis wherefore the sample was constituted of 701 elements.



**Figure 2:** Relationship with chocolate (n = 768)

Analyzing the data presented on table 2, it can be verified that the majority of the sample elements (56.6%) are between the age of 18 and 24, followed by 23.4% that are between 25 and 34 years old and 10.3% who belong the age group between 35 and 44 years old.

Also, approximately, 3 out of 4 individuals (76.3%) were women.

It is verified that 39.9% of the sample are undergraduate (bachelor or equivalent), followed by 36.7% that have a high school degree and 19.7% postgraduate degree (master or equivalent). The remaining 10 individuals who mentioned other qualifications refer: postgraduate (4),



attending master degree (1), experience of life (1), incomplete undergraduate degree, MBA (1), pre-Bologna (1) and one individual did not answer.

Regarding occupation, the majority of the respondents were students (54.2%), followed by the full-time employees (26.4%) and student-workers (12.6%). The remaining 15 elements who mentioned other occupation refer: commercial manager (3), research fellowship (1), postdoctoral fellowship (1), entrepreneur (1), self-employed (1), businessman (1), not studying nor unemployed/vacations (1) and 5 individuals did not answered.

**Table 2:** *Demographic characteristics (n = 701)*

<b>Variable</b>	<b>n</b>	<b>%</b>
<b>Age</b>		
Under 18	12	1.7
18 – 24	397	56.6
25 – 34	164	23.4
35 – 44	72	10.3
45 – 54	41	5.8
55 – 64	11	1.6
65 – 74	2	.3
75 – 84	1	.1
85 or older	1	.1
<b>Gender</b>		
Male	166	23.7
Female	535	76.3
<b>Education</b>		
Less than High School Diploma	9	1.3
High School Degree	257	36.7
Undergraduate Degree (Bachelor or equivalent)	280	39.9
Postgraduate Degree (Master or equivalent)	138	19.7
Professional Degree (PhD or equivalent)	7	1.0
Other	10	1.4
<b>Occupation</b>		
Employed full time	185	26.4
Employed part time	16	2.3
Unemployed looking for work	15	2.1
Student-worker	88	12.6
Retired	2	.3
Student	380	54.2
Other	15	2.1

In what concerns the chocolate characteristics which the individuals consume it is verified (table 3 and table 4) that 81.6% refer tablets, 47% bars, 39.4% bonbons and 33.6% culinary chocolate. The remaining 19 individuals who refer other kinds of chocolate, they refer: cereals and cookies (3), *M&Ms* (2), ice cream (2), biscuits (1), chocolate cookies (2), cocoa 85% (1), cocoa 99% (1), pure cocoa (1), cereals (1), liquid topping (1), nutella (1), snickers (1), kinder eggs (1) or chocolate milk and cereals (1)

The majority (59.8%) refers that spend between 1 and 2 euros for 100g of chocolate, followed by 19.8% who claims to spend less than 1 euro and 16.5% spends between 2 and 3 euros.

It was found that 55.3% of the respondents actively look for cocoa percentage when purchasing chocolate, 19.2% refer no added sugars and 12.4% look for low fat. It was noted that 35.7% refer that do not look for any of the listed characteristics. From the 37 individuals who look for other characteristics, they mention: flavor (11), must be vegan (5), dry fruits (4), pure cocoa or 90% cocoa (3), white chocolate (3), fair trade (2), momentary decision (2), brand (1), country origin (1), no allergens (1), price (1) and 2 did not answered.

Regarding cocoa percentage, 42.4% refer that look for chocolate with more than 70% of cocoa, followed by 41% who purchase chocolate with 70% cocoa.

Still it is verified that 26.4% claim that consume chocolate less than once a week, 25.5% consume 2 to 3 times a week and 20.8% just once a week.

**Table 3: Chocolate characteristics**

Variable	n	%
<b>Kind of chocolates usually purchase (n = 485)</b>		
Bars	228	47.0
Powder	124	25.6
Bonbons	191	39.4
Tablets	396	81.6
Culinary chocolate	163	33.6
Others	17	3.5
<b>Usually spend on a chocolate (100 g) (n = 485)</b>		
Less than €1	96	19.8
€1 - €2	290	59.8
€2 – €3	80	16.5
More than €3	19	3.9

**Table 4: Chocolate characteristics (continuation)**

Variable	n	%
<b>Which of claims actively look for when shopping a chocolate</b> (n = 485)		
Reduced fat	21	4.3
No added sugars	93	19.2
No artificial sweeteners	28	5.8
Low fat	60	12.4
Reduced calorie	48	9.9
With Stevia	27	5.6
Percent cocoa	268	55.3
None of the above	173	35.7
Others	36	7.4
<b>Percent of cocoa when looking for chocolate</b> (n = 268)		
Less than 70% cocoa	45	16.8
70% cocoa	110	41.0
More than 70% cocoa	113	42.2
<b>How often consume chocolates</b> (n = 667)		
Daily	80	12.0
4 – 6 times a week	102	15.3
2 – 3 times a week	170	25.5
Once a week	139	20.8
Less than once a week	176	26.4

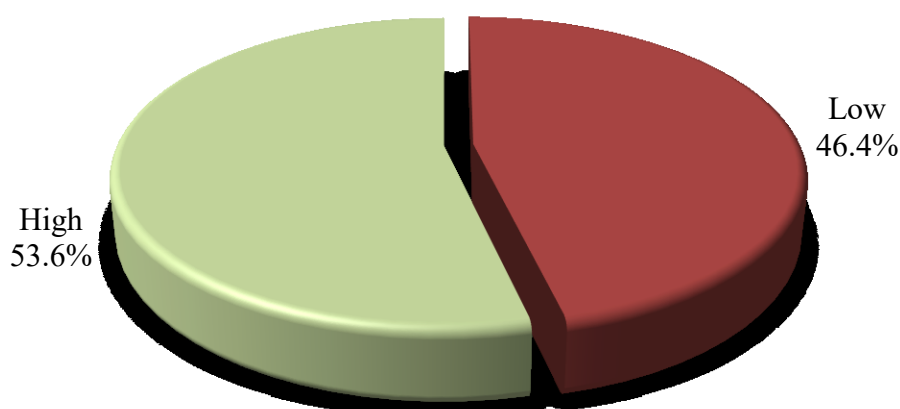
Regarding the items that are part of the health consciousness scale it is verified that individuals evidence higher consciousness on the following items “I am concerned about my health all the time” and “I am interested in information about my health”. In the opposite direction, the items “I usually read the ingredients on food labels” and “I read more health-related articles than I did 3 years ago” were the ones where individuals showed lower health consciousness.

In a 5-point scale, the health consciousness measure got values between 1.17 and 5, being the average  $4.17 \pm .67$  points. Half of the respondents obtained results above 4.33 points.

The figure 3 allows to verify that the majority of the respondents (53.6%) reveals high health consciousness.

**Table 5:** *Health consciousness (n = 701)*

Item	Mean	Median	Std. deviation	Min.	Max.
I am concerned about my health all the time	4.56	5.00	.66	1.00	5.00
I usually read the ingredients on food labels	3.73	4.00	1.28	1.00	5.00
I worry that there are harmful chemicals on my food	4.01	4.00	1.08	1.00	5.00
I am concerned about my drinking water quality	4.28	5.00	0.95	1.00	5.00
I am interested in information about my health	4.51	5.00	.73	1.00	5.00
I read more health-related articles than I did 3 years ago	3.92	4.00	1.24	1.00	5.00
Measure of health consciousness	4.17	4.33	.67	1.17	5.00



**Figure 3:** *Health consciousness (classification) (n = 701)*

Concerning about the ingredients which constitutes the ingredients' awareness scale, in table 6 was verified that the respondents revealed higher awareness in the following ingredients: sugar, vitamin C, honey, calcium, and fruit sugar. On the other hand, the respondents revealed lower awareness in the following ingredients: phytosterols, xylitol, glucosamine, saccharine, aspartame and dietary fiber

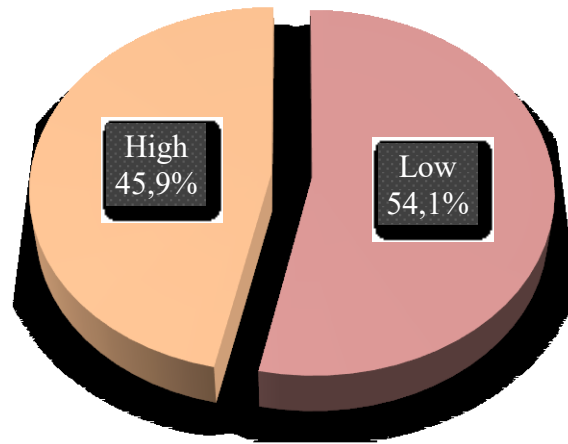
For the ingredients' awareness measure, on a 5-point scale, it was observed the average value of  $2.84 \pm .95$  points, being that, half of the respondents got results lower than 2.70 points

For the sugars' awareness measure, it was observed the average value of  $2.95 \pm .92$  points and half of the respondents got results lower than 2.88 points

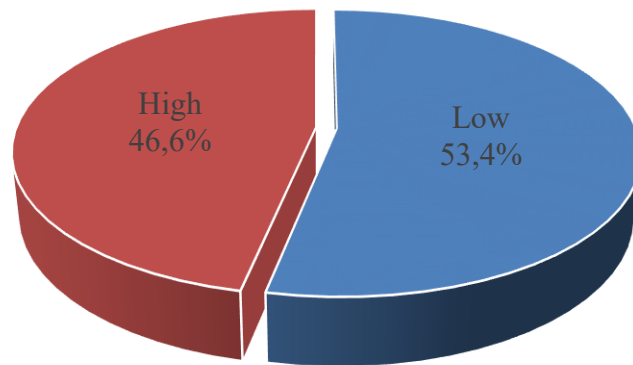
Figures 4 and 5 show that 54.1% and 53.4% of the respondents reveal low ingredients' and sugars' awareness, respectively.

**Table 6:** *Ingredients' awareness (n = 701)*

<b>Ingredient</b>	<b>Mean</b>	<b>Median</b>	<b>Std. deviation</b>	<b>Min.</b>	<b>Max.</b>
Iodine	2.75	3.00	1.38	1.00	5.00
Calcium	3.90	4.00	1.05	1.00	5.00
Vitamin C	3.96	4.00	1.05	1.00	5.00
Antioxidants	3.55	4.00	1.23	1.00	5.00
Probiotics	2.52	2.00	1.48	1.00	5.00
Dietary fiber	2.45	2.00	1.47	1.00	5.00
Omega-3-fatty acids	3.39	4.00	1.30	1.00	5.00
Phytosterols	1.73	1.00	1.14	1.00	5.00
Glucosamine	2.18	2.00	1.39	1.00	5.00
Xylitol	1.93	1.00	1.27	1.00	5.00
Stevia	2.83	3.00	1.46	1.00	5.00
Sugar	4.23	4.00	.92	1.00	5.00
Aspartame	2.43	2.00	1.46	1.00	5.00
Saccharine	2.32	2.00	1.36	1.00	5.00
Honey	3.91	4.00	1.15	1.00	5.00
Fruit sugar	3.79	4.00	1.14	1.00	5.00
Measure of ingredients' awareness	2.84	2.70	.95	1.00	5.00
Measure of sugars' awareness	2.95	2.88	.92	1.00	5.00



**Figure 4:** *Ingredients' awareness (classification) (n = 701)*



**Figure 5:** *Sugars' awareness (classification) (n = 701)*

The data on table 7 allow to say that if a chocolate claims “No added sugars” 46.5% of the respondents said that they expected to find Stevia, 43.2% expected sweeteners, 42.7% fruit sugar and 32.5% aspartame. The ingredients that were less expected to see were gum (4.9%) and sugar (5.0%).

**Table 7:** *Chocolate “No added sugars” (n = 701)*

<b>If a chocolate claims “No added sugars”, which of the following products expect to see in the ingredients</b>	<b>n</b>	<b>%</b>
Sweeteners	303	43.2
Saccharin	155	22.1
Aspartame	228	32.5
Gum	34	4.9
Honey	134	13.1
Stevia	326	46.5
Xylitol	124	17.7
Fruit sugar	299	42.7
Sugar	35	5.0
None of the above	105	15.0

Regarding the ranking of how natural an ingredient is, it was verified in table 8 that respondents considered as extremely natural the following ingredients: fruit sugar and honey and not at all natural: aspartame and xylitol.

**Table 8:** *Ranking of how natural the ingredients are (n = 701)*

<b>Products</b>	<b>Mean</b>	<b>Median</b>	<b>Std. deviation</b>	<b>Min.</b>	<b>Max.</b>
Sugar	2.59	3.00	1.29	1.00	5.00
Fruit sugar	4.50	5.00	.83	1.00	5.00
Xylitol	1.89	2.00	1.09	1.00	5.00
Aspartame	1.64	1.00	.90	1.00	5.00
Saccharine	2.12	2.00	1.18	1.00	5.00
Honey	4.35	5.00	.91	1.00	5.00
Stevia	3.10	3.00	1.40	1.00	5.00

According to the table 8, the respondents tend to purchase, with higher frequency, the chocolates that contain sugar, stevia or fruit sugar, and, on the other hand, the respondents tend to purchase, with lower frequency, the chocolates that contain aspartame, xylitol or saccharine.

**Table 9:** Purchase a chocolate that has the following ingredients (n = 701)

<b>Products</b>	<b>Mean</b>	<b>Median</b>	<b>Std. deviation</b>	<b>Min.</b>	<b>Max.</b>
Sugar	4.18	5.00	1.20	1.00	5.00
Fruit sugar	3.29	4.00	1.33	1.00	5.00
Xylitol	2.89	3.00	1.05	1.00	5.00
Aspartame	2.83	3.00	1.15	1.00	5.00
Saccharine	2.91	3.00	1.10	1.00	5.00
Honey	3.08	3.00	1.34	1.00	5.00
Stevia	3.35	3.00	1.19	1.00	5.00

Regarding purchase intention, the results that are included on table 10 allow to verify that respondents evidence higher purchase intention when purchasing a chocolate that refers on the label “No added sugar”, followed by the chocolates that refer on the label “With Stevia” and, lastly, “purchase decision is based on the nutrition information available on the label”.

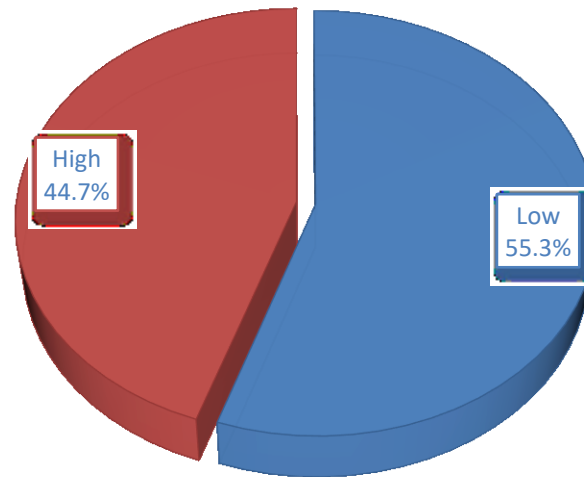
The measure for purchase intention has an average value of  $3.36 \pm .79$  points and half of the sample got punctuations superiors to 3.33 points.

Figure 6 reveals that the majority of the respondents (55.3%) evidenced low purchase intention of chocolate.

**Table 10:** Purchase intention (n = 701)

<b>Item</b>	<b>Mean</b>	<b>Median</b>	<b>Std. deviation</b>	<b>Min.</b>	<b>Max.</b>
My purchase decision is based on the nutrition information available on the label	2.96	3.00	1.16	1.00	5.00
How likely would you be to purchase a product that refers on the label “With Stevia”	3.37	3.00	1.12	1.00	5.00
How likely would you be to purchase a product that refers on the label “No added sugar”	3.76	4.00	1.08	1.00	5.00
Measure of purchase intention	3.36	3.33	.79	1.00	5.00





**Figure 6:** *Purchase intention (classification) (n = 701)*

#### **4.2 Measures Reliability**

In order to study the scales' reliability of the health consciousness, ingredients' awareness, sugars' awareness and purchase intention the internal consistency was evaluated.

The method used consisted on the determination of the Cronbach's alpha coefficient. This statistical procedure is suitable for most scales, especially in Likert scales, and may present results that are between 0 and 1. The greater the values obtained, the more homogeneous are the answers given to the items that constitute the scale and the greater the correlation between them, that is, the better the internal consistency. According to several authors, namely, Nunnally (1978) cited by Maroco, 2007 results equal to or greater than .70 are indicators of good internal consistency. Some authors also consider that values equal to or greater than .60 are acceptable when the number of items involved are low, as (DeVellis, 1991) also cited by Maroco, 2007.

Cronbach's alphas for each measure are shown in Table 11. From its analysis, it can be verified that all the scales presented good consistency or even very good internal consistency, being the values of the coefficient between .74, for the scale health consciousness, and .91, for the ingredients' awareness scale.

**Table 11: Survey items' reliabilities**

Scale	Number of Items	Cronbach's alpha
Health consciousness	6	.74
Ingredients' awareness	10	.91
Sugars' awareness	8	.86
Purchase intention	3	.79

### 4.3 Results from the Hypothesis Testing

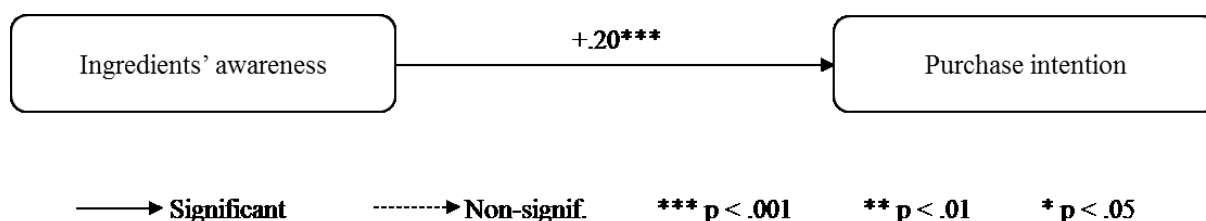
In order to test the formulated hypotheses, a simple linear regression, a classical mediation model and a Pearson correlation coefficient was resorted (and its respective significance test).

#### 4.3.1 Hypothesis 1: The ingredients' awareness will affect the purchase intention.

The measurement of the Pearson's correlation coefficient between the following variables, ingredients' awareness and purchase intention, revealed a value of +.23 with a  $p < .001$ , which allows to conclude that between these variables there is a positive correlation, statistically significant and that the ingredients' awareness explains 5.5% of the purchase intention variation.

A regression analysis was performed between the two variables, ingredients' awareness ( $m_{ia}$ ) and purchase intention ( $m_{pi}$ ), which allowed to get the regression coefficient of +.20 with  $p < 0.001$  (figure 7), then, the regression equation can be written as:  $\widehat{m_{ia}} = 2.81 + .20 \times m_{pi}$ , revealing the ANOVA test that the model is statistically significant ( $F_{(1;699)} = 40.53$  ;  $p < .001$ ).

In conclusion, hypothesis 1 can be confirmed and it can be said that the respondents with a higher value of ingredients' awareness tend to evidence a higher purchase intention.

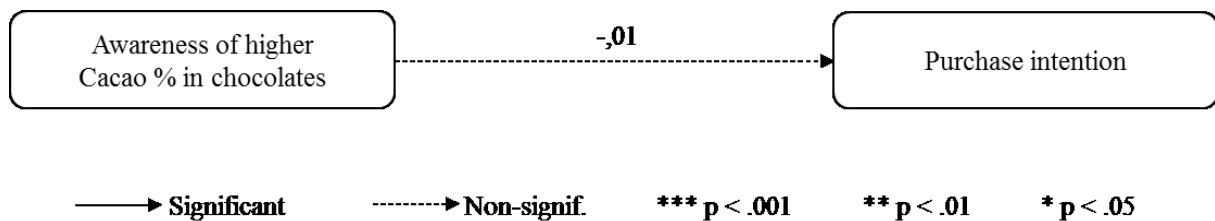


**Figure 7: Variable Relationship for total sample ( $H_1$ )**

**4.3.2 Hypothesis 1a: The awareness of higher Cocoa % in chocolates affects the purchase intention for consumers that are high health consciousness.**

Between awareness of higher Cocoa % in chocolates (m\_ahc%) and purchase intention (m\_pi) the value -.01 was obtained for the Pearson’s correlation coefficient, with p=.907.

It can be concluded that there are no statistical evidences that hypothesis 1a can be confirmed, it means that for high health consciousness consumers the awareness of higher Cocoa % in chocolates not affects the purchase intention.



**Figure 8:** Variable Relationship for consumers that are high health consciousness ( $H_{1a}$ )

**4.3.3 Hypothesis 1b: The awareness of different types of sugar affects differently the purchase intention.**

The Pearson’s correlation coefficient obtained between the different types of sugar and the purchase intention was +.29 with  $p < .001$  and the regression analysis between purchase intention and awareness of different types of sugar allowed to obtain the regression coefficient of +.25 with  $p < .001$  (figure 9).

The regression equation can be written as:

$\widehat{m_{pi}} = 2.62 + .25 \times \text{awareness of different types of sugar}$  and the model is statistically significant ( $F_{(1,699)} = 65.28$  ;  $p < .001$ ). Also, it was verified that 8.5% of the purchase intention variation can be explained by the awareness of different types of sugar.

In conclusion, hypothesis 1b can be confirmed and it can be said that respondents that have higher awareness of different types of sugar tend to evidence a higher purchase intention.

**4.3.4 Hypothesis 1c: The awareness of "No added sugar" has a higher impact than "With Stevia" on consumers' purchase intention.**

For the hypothesis 1c, a multiple regression model were applied, considering as independent variables: awareness of "No added sugar" and awareness of "With Stevia" and as dependent variable: purchase intention.

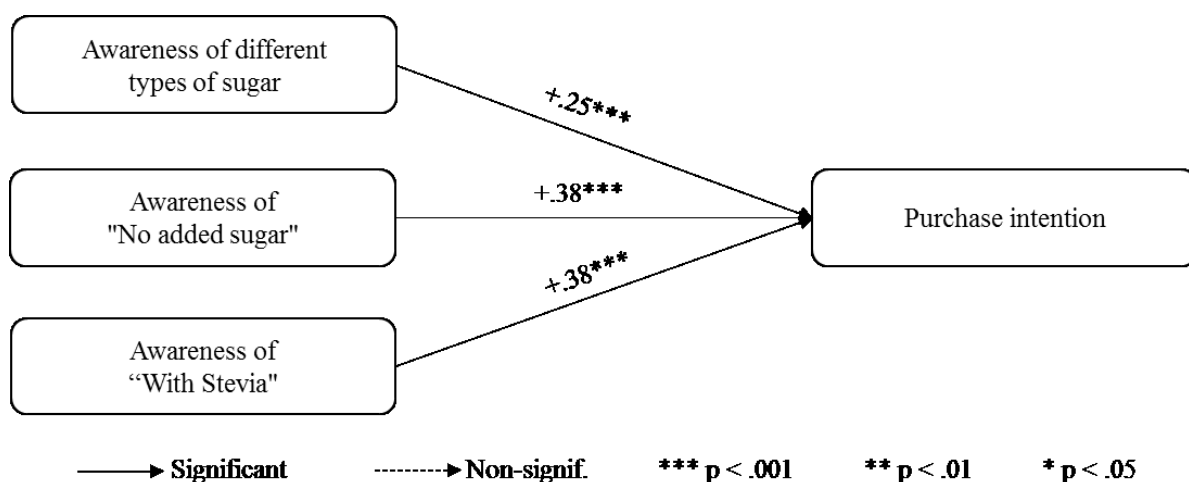
It was verified that the correlation between purchase intention and awareness of "No added sugar" is +.73 with  $p > .001$  and the correlation between purchase intention and awareness of "With stevia" is +.74 with  $p < .001$ . Thus, the awareness of "No added sugar" explains 52.8%, while the awareness of "With stevia" explains 55.1% of purchase intention variation.

Taking a look on figure 4, the regression model allowed to obtain the coefficient +.38 for both variables: awareness of "No added sugar" and awareness of "With Stevia", being both statistically significant ( $p < .001$ ). The regression equation can be presented as:

$$\widehat{m_{pi}} = 1.35 + .38 \times \text{awareness of "No added sugar"} + .38 \times \text{awareness of "With Stevia"} ,$$

being the model statistically significant ( $F_{(2;698)} = 1170.67 ; p < .001$ ).

Based on the obtained results, it can be concluded that individuals with higher awareness of "No added sugar" and higher awareness of "With Stevia" tend to evidence higher purchase intention. However, both independent variables influence in a similar way on the dependent variable. Then, it cannot be claimed that hypothesis 1c is confirmed.



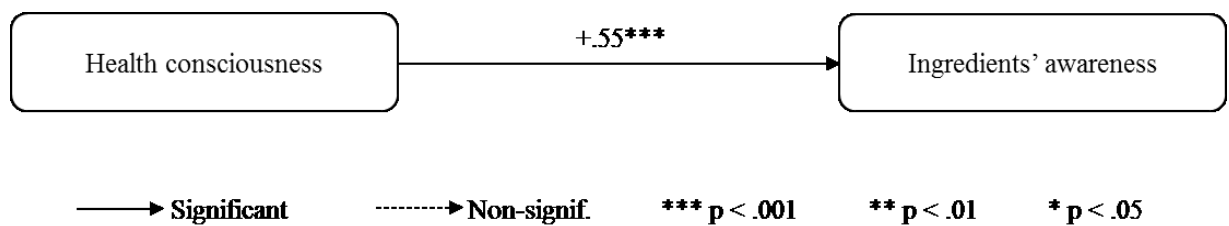
**Figure 9: Variable Relationship for total sample ( $H_{1b}$  and  $H_{1c}$ )**

**4.3.5 Hypothesis 2: Health consciousness impacts positively the ingredients' awareness.**

The Pearson's correlation coefficient obtained between health consciousness and ingredients' awareness was +.39 with  $p < .001$ , thus, it can be said that between the two variables there is a positive correlation, statistically significant and health consciousness explains 15.1% of the ingredients' awareness variation.

A regression analysis was performed between the two variables, ingredients' awareness ( $m_{ia}$ ) and health consciousness ( $m_{hc}$ ), which allowed to get the regression coefficient of +.55 with  $p < 0.001$  (figure 10), then, the regression equation can be written as:  $\widehat{m}_{hc} = .55 + .55 \times m_{ia}$ , revealing the ANOVA test that the model is statistically significant ( $F_{(1;699)} = 123.84 ; p < .001$ ).

In conclusion, hypothesis 2 can be confirmed and it can be said that respondents that have higher health consciousness tend to evidence a higher ingredients' awareness.



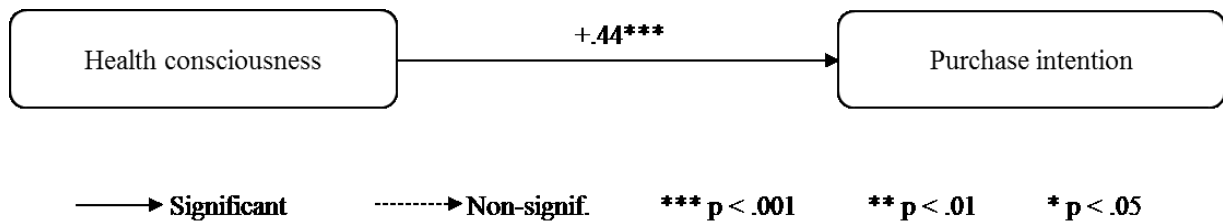
**Figure 10: Variable Relationship for total sample (H<sub>2</sub>)**

**4.3.6 Hypothesis 3: Health consciousness positively impacts the purchase intention.**

The Pearson's correlation coefficient obtained between health consciousness and purchase intention was +.38 with  $p < .001$  and the regression analysis between purchase intention ( $m_{pi}$ ) and health consciousness ( $m_{hc}$ ) allowed to obtain the regression coefficient of +.44 with  $p < .001$  (figure 11).

The regression equation can be written as:  $\widehat{m}_{pi} = 1.51 + .44 \times m_{hc}$ , being the model statistically significant ( $F_{(1;699)} = 115.40 ; p < .001$ ). It was also found that 14.2% of purchase intention variation can be explained by health consciousness.

In conclusion, hypothesis 3 can be confirmed and it can be said that respondents that have higher health consciousness tend to evidence a higher purchase intention.



**Figure 11: Variable Relationship for total sample (H<sub>3</sub>)**

**4.3.7 Hypothesis 4: Ingredients’ awareness mediates the relationship between health consciousness and purchase intention.**

For this hypothesis, a classic mediation model was used through a custom dialog developed by Hayes, 2013 for SPSS.

The mediation model is commonly used to estimate the indirect effect of an independent variable (X) on another dependent variable (Y) through an intermediate variable called by mediator variable (M). This variable (M) helps to explain the relationship between the independent (X) and dependent (Y) variables.

The aim of this study is to estimate the indirect effect of the health consciousness variable (X=m<sub>hc</sub>) on purchase intention variable (Y=m<sub>pi</sub>), through an intermediate variable (mediator) ingredients’ awareness (M=m<sub>ia</sub>).

The *a-path* and *b-path* are, respectively, the estimation of the health consciousness effect on the ingredients’ awareness and the estimation of the ingredients’ awareness on purchase intention. The *b-path* is obtained through *a*, the *c’-path* is the estimation of the direct effect of health consciousness on purchase intention, and, lastly, *c-path* is an estimation of the total effect of health consciousness on purchase intention. The relationship between the coefficients can be translated by the following equation:  $c = c' + a \times b$ .

The entire model is based on the following regression equations:

$$\widehat{m_{pi}} = K_0 + c \times m_{hc} + \varepsilon$$

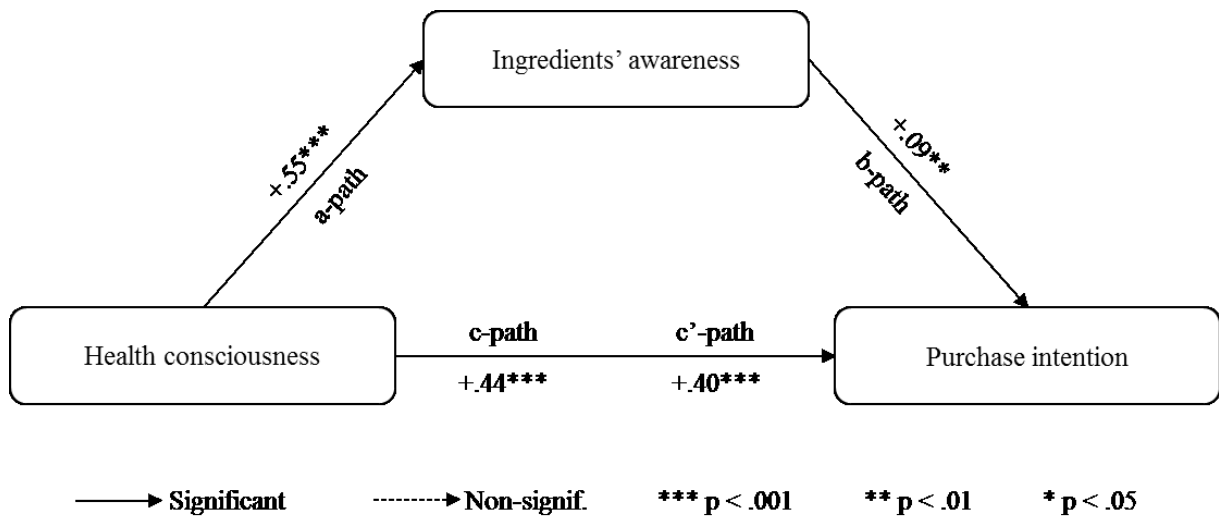
$$\widehat{m_{pi}} = K_1 + c' \times m_{hc} + b \times m_{ia} + \varepsilon$$

The underlying idea on this mediation analysis is that the direct effect of the independent variable, health consciousness, on the independent variable, purchase intention, can decrease after the mediator variable, ingredients’ awareness, being added to the model, in other words,

$c'$  may decrease comparing with  $c$ . The lower the  $c'$ , comparing with  $c$ , the higher is the mediator effect of ingredients' awareness in the relation between health consciousness and purchase intention. If  $c'$  equals to zero or, at least, statistically non-significant it can be considered that the mediation effect is total or very important. In the cases in which  $c'$  is lower than  $c$  but both coefficients are statistically significant, it can be considered that mediation is only partial. An alternative to estimate the indirect effect and its significant is the Sobel test (Sobel, 1982) which consists of a Z-test on whether the difference between  $c$ -path and  $c'$ -path is statistically significant and different from zero. The same conclusion can be obtained through the indirect effect (IE) and its confidence interval of 95% (CI<sub>95%</sub>). If this interval does not contain the zero value, it can be concluded that there is mediation effect and that it is statistically significant.

The magnitude of the mediation effect can be determined through the percent mediation (P<sub>M</sub>), which represents, in percentage, the difference between  $c$  and  $c'$  in relation to  $c$ .

The results presented on figure 12 show that ingredients' awareness variable has a partial mediating effect in the relationship between health consciousness and purchase intention variables, because  $c'$  (.40) is less than  $c$  (.44) but both are statistically significant ( $p < .001$ ), it means that total effect is less than direct effect but both are significant. The difference between both coefficients is also statistically significant whether considered the Sobel test ( $z = 2.65$ ;  $p = .008$ ) or the indirect effect value (IE = .05; CI<sub>95%</sub> = [.01; .09]). Lastly, the mediating effect of ingredients' awareness variable represents 10.7% of the total effect of health consciousness on purchase intention variable.



**Notes:**

**Indirect Effect (IE):** .05 with  $CI_{95\%} = [.01 ; .09] \Rightarrow$  does not include zero so mediation occurs.

**Percent mediation (Pm):** .107  $\Rightarrow$  the mediator accounts for 10.7% of the total effect.

**Sobel test** ( $z = 2.65 ; p = .008$ ): significant indirect effect of health consciousness on purchase intention.

**Figure 12:** *The mediating role of ingredients' awareness on the relationship between health consciousness and purchase intention for total sample (H<sub>4</sub>)*



## CHAPTER 5: CONCLUSIONS AND LIMITATIONS

### 5.1 Main Findings & Conclusions

In first place, it was found that the sample shows a certain degree of bias in terms of age and gender since 80% of the respondents are people with ages between 18 and 34 and in terms of gender, about 76% are women which is not representative.

Regarding purchase intention, it is important to highlight that the majority has a low purchase intention, which would be expected and even desirable if there was a high purchase intention because chocolate is proven to be good for the health (equal or greater than 70% cocoa), which in this study the opposite is verified, in terms of mean and median values, lies exactly in the middle, around 3 in a scale from 1 to 5, then it can be concluded that purchase intention is low. With respect to the respondents who do not consume chocolate, these represents 13% in which 4.3% are shoppers of chocolate and 8.7% do not shop for chocolate.

From the ones who actively look for the percentage of cocoa when shopping a chocolate, 83.2% consume chocolate with 70% or more of cocoa, which is what is intended to be, since, as already emphasized before, chocolates with higher percentage of cocoa (equal or greater than 70% cocoa) are good for the health. But, a large proportion of those who consume chocolate, 47.2%, only do it once a week or less and for the ones who buy chocolate, the majority (59.8%) refers that spend between 1 and 2 euros for 100g of chocolate, followed by 19.8% who claims to spend less than 1 euro and 16.5% spends between 2 and 3 euros. There are no statistical evidences that the awareness of higher cocoa % in chocolates affects the purchase intention for consumers that are high health consciousness, it means that for high health consciousness consumers the awareness of higher Cocoa % in chocolates not affects the purchase intention.

Regarding the items that are part of the health consciousness scale it is verified that individuals evidence higher consciousness on the following items “I am concerned about my health all the time” and “I am interested in information about my health”. In the opposite direction, the items “I usually read the ingredients on food labels” and “I read more health-related articles than I did 3 years ago” were the ones where individuals showed lower health consciousness.

Going back to the aim of this study which is not just answering the research questions but also to understand the level of health consciousness that consumers have regarding the ingredients’ awareness and how this impacts the purchase intention, in other words, if the ingredients’ awareness can explain the relationships between consumer health consciousness and purchase

intention for chocolate, it can be concluded that there is a partial mediating effect in the relationship between health consciousness and purchase intention, ingredients' awareness variable represents 10.7% of the total effect of health consciousness on purchase intention variable.

**RQ1: What is the effect of the ingredients' awareness on the purchase intention?**

The term ingredient awareness has the focus on the antecedents of knowledge about food ingredients themselves. As Howlett, Burton, Bates, & Huggins, 2009 demonstrated, the provision of nutrient information can affect consumers' purchase intentions, more specifically, "higher motivation to process nutrition information was positively related to repurchase intentions". Supported by this study, which meets Howlett et al., 2009 study, it can be said that between this variables there is a positive correlation, statistically significant and that the ingredients' awareness explains 5.5% of the purchase intention variation. Also, respondents with a higher value of ingredients' awareness tend to evidence a higher purchase intention.

**RQ2: Are the consumers willing to switch to the healthy substitutes of sugar?**

The reality is that there is a wide market of consumers who demand for sugar-free chocolates related to their concerns about diabetes, for being one of the fastest-growing chronic diseases. Also the US Department of Agriculture (USDA) and the European Food Safety Authority believe that "attention should be turned to added sugar". And so, to meet this demand, some alternatives, as low calorie sweeteners, have to be implemented on chocolates (Rodriguez Furlán, Baracco, Lecot, Zaritzky, & Campderrós, 2017). As an example of natural sweeteners there is stevia leaf extract, honey and fruit sugar, which were the base for study if the consumers are willing to switch for the healthy substitutes of sugar and it was concluded that, for fruit sugar, 50,2% of the respondents says that they are likely to purchase a chocolate if it has fruit sugar, for honey, 45.5% of the respondents says that they are likely to purchase a chocolate if it has honey and for stevia, 48.5% of the respondents says that they are likely to purchase a chocolate if it has stevia. Comparing these healthy substitutes of sugar with the sugar itself, it can be said that they are very low, 79.2% keep choosing chocolates with sugar. Still there is a long way to change consumers' mind about chocolate.

**RQ3: Can Stevia keep the purchase intention?**

It can be concluded that individuals with higher awareness of "No added sugar" and higher awareness of "With Stevia" tend to evidence higher purchase intention. However, both independent variables influence in a similar way on the dependent variable, thus Stevia can keep the purchase intention for individuals that have high ingredients' awareness.

**RQ4: What is the relationship between Health Consciousness and Purchase Intention?**

Following the conclusion reached by Loebnitz & Grunert, 2017, consumers with high level of health consciousness only purchase hedonic food products if the product benefit is explicit through the nutrition claims, also the results from DiPietro, Remar, & Parsa, 2016 showed that health consciousness is a significant predictor of purchase decisions. Then with this study it can be said that respondents that have higher health consciousness tend to evidence a higher purchase intention. It was also found that 14.2% of purchase intention variation can be explained by health consciousness.

On the table below (Table 12) are displayed the conclusions from the Hypotheses proposed in the Literature Review.

**Table 12: Status of Hypothesis H1 → H4**

	Verdict
(H1) The ingredients' awareness will affects the purchase intention	✓
(H1A) The awareness of higher Cocoa % in chocolates affects the purchase intention for consumers that are high health consciousness	✗
(H1B) The awareness of different types of sugar affects differently the purchase intention	✓
(H1C) The awareness of "No added sugar" has a higher impact than "With Stevia" on consumers' purchase intention	✗
(H2) Health consciousness impacts positively the ingredients' awareness	✓
(H3) Health consciousness positively impacts the purchase intention	✓
(H4): Ingredients' awareness mediates the relationship between health consciousness and purchase intention	✓

## **5.2 Academic/ Managerial Implications**

Despite the fact that several authors have investigated Purchase intention, none had investigated the ingredients' awareness as a mediator of the relationships between health consciousness and purchase intention. Therefore, this dissertation contributes to the knowledge of consumer behavior in what concerns the purchase intention as well as the important role of ingredients' awareness.

This research is academically relevant since there is a lack of academic research on purchase intention focused on chocolates, which can be very pertinent because each category has its own particularities which stimulate consumers to behave in a certain way. Also it would be interesting to go deeper on the relation between health consciousness and ingredients' awareness since nowadays people have their minds changed about the food market, they are more and more concerned about their own health and they are searching for more information about healthy products.

In terms of managerial implications, retailers and manufacturers acting in the chocolate market can find support in this dissertation to keep up with this change of mind by consumers since, as previously found, higher health consciousness tend to evidence a higher purchase intention, so it could be important to give more information to consumers, on the labels, for specific products, not just chocolate, in order to increase sales and to attract more customers.

## **5.3 Limitations and Further Research**

Further research should be approached to complement and to go deeper in this topic and, more importantly, to go beyond some of the limitations present in this dissertation.

In first place, the collected sample on the survey cannot be considered representative of the Portuguese market, as this sample contained mostly respondents (about 80%) with ages between 18 and 34 and 76% were female. For further research it would be very important to focus in collecting new results from a sample including older respondents and more men. Besides, there was a number of respondents (about 200) who started the survey and did not conclude it, constituting invalid answers, hence creating a non-random sample.

Secondly, the sugars' awareness scale, which was based in the ingredients' awareness scale, to which 6 items were added, lacks validation from previous researches.

The third limitation has to do with the mean split method, previously used to measure high and low health consciousness and ingredients' awareness. The first is purely logical, when a continuum is categorized, every value above the mean, for example, is considered equal, which does not make sense, having a value just above the mean that is considered the same as values way at the end. So one solution it would be to split the sample into three groups, not two, then drop the middle group. This at least creates some separation between the two groups. The obvious problem, here though, is that a third group it would be lost. The second problem with categorizing a continuous predictor, regardless of how is done, is loss of power (Aiken, L. S., & West, 1991). It's simply harder to find effects that are really there. Because categorizing continuous variables is the only way to stuff them into an ANOVA, it was the method that best applied to this study.

Fourthly, in further researches, instead of only using a survey, it would be interesting if a survey could be complemented with a field experiment in order to validate, if what consumers expect to do consists with what they really do.

Fifthly, as this specific research is more focused in chocolate it would be interesting to research for other products, as an example, baby foods or fruit juices.

Lastly, the impact of health consciousness on other dependent variables, besides purchase intention, could serve as a topic for further research.

## REFERENCE LIST

- A.T. Diplock, P.J. Aggett, M. Ashwell, F. Bornet, E.B. Fern, M. B. R. (1999). Scientific concepts of functional foods in Europe: consensus document. *British Journal of Nutrition*, S1–S27.
- Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Newbury Park: Sage.
- Allport, G. W. (1935). Attitudes. *Handbook of Social Psychology*, 798–844.
- Anderson, G. H., Foreyt, J., Sigman-Grant, M., & Allison, D. B. (2012). The use of low-calorie sweeteners by adults: impact on weight management. *The Journal of Nutrition*, 142(6), 1163S–9S
- Azevedo, B. M., Ferreira, J. M. M., Luccas, V., & Bolini, H. M. A. (2016). The Influence of the Rebaudioside A Content of Stevia ( *Stevia rebaudiana* Bertoni) on the Determination of Sweetness Equivalence in Bittersweet Chocolates, Using the Time-Intensity Analysis. *Journal of Food Science*, 81(12), S3006–S3014
- Baron, Robert & Byrne, Donn & Griffitt, W. (1974). Social Psychology: Understanding Human Interaction.
- Bellisle, F., & Drewnowski, A. (2007). Intense sweeteners, energy intake and the control of body weight. *European Journal of Clinical Nutrition*, 61(6), 691–700.
- Bornkessel, S., Bröring, S., Omta, S. W. F., & van Trijp, H. (2014). What determines ingredient awareness of consumers? A study on ten functional food ingredients. *Food Quality and Preference*, 32(PC), 330–339.
- Chiu, W., & Leng, H. K. (2016). Consumers' intention to purchase counterfeit sporting goods in Singapore and Taiwan. *Asia Pacific Journal of Marketing and Logistics*, 28(1), 23–36. <https://doi.org/10.1108/APJML-02-2015-0031>
- Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Research design Qualitative quantitative and mixed methods approaches.*
- de Melo, L. L. M. M., Bolini, H. M. A., & Efraim, P. (2009). Sensory profile, acceptability, and their relationship for diabetic/reduced calorie chocolates. *Food Quality and Preference*, 20(2), 138–143.
- DeVellis. (1991). Scale development: Theory and applications. *Newbury Park: Sage Publications, Inc.*
- DiPietro, R. B., Remar, D., & Parsa, H. G. (2016). Health consciousness, menu information, and consumers' purchase intentions: An empirical investigation. *Journal of Foodservice*

- Business Research*, 19(5), 497–513.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior : an introduction to theory and research*. Addison-Wesley Pub. Co.
- Fitch, C., Keim, K. S., & Academy of Nutrition and Dietetics. (2012). Position of the Academy of Nutrition and Dietetics: Use of Nutritive and Nonnutritive Sweeteners. *Journal of the Academy of Nutrition and Dietetics*, 112(5), 739–758.
- Gardner, C., Wylie-Rosett, J., Gidding, S. S., Steffen, L. M., Johnson, R. K., Reader, D., & Lichtenstein, A. H. (2012). Nonnutritive Sweeteners: Current Use and Health Perspectives A Scientific Statement from the American Heart Association and the American Diabetes Association ON BEHALF OF THE AMERICAN HEART ASSOCIATION NUTRITION COMMITTEE OF THE COUNCIL ON NUTRITION, PHYS.
- Ghanta, S., Banerjee, A., Poddar, A., & Chattopadhyay, S. (2007). (2007). Oxidative DNA damage preventive activity and antioxidant potential of Stevia rebaudiana (Bertoni) Bertoni, a natural sweetener. *Journal of Agricultural Food Chemistry*, 10962–10967.
- Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. *Journal of Advertising*, 29(3), 43–54.
- Gould, S. J. (1988). Consumer Attitudes Towards Health and Health Care: A Differential Perspective. *Journal of Consumer Affairs*.
- Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis*.
- Howlett, E. A., Burton, S., Bates, K., & Huggins, K. (2009). Coming to a Restaurant Near You? Potential Consumer Responses to Nutrition Information Disclosure on Menus. *Journal of Consumer Research*, 36(3), 494–503.
- Iacobucci, D., Posavac, S. S., Kardes, F. R., Schneider, M. J., & Popovich, D. L. (2015). The median split: Robust, refined, and revived. *Journal of Consumer Psychology*, 25(4), 690–704.
- Jayantani, R. K., & Burns, A. C. (1998). The Antecedents of Preventive Health Care Behavior: An Empirical Study. *Journal of the Academy of Marketing Science*, 26(1), 6–15.
- Jr., M. C., Forehand, M. R., & Angle, J. W. (2014). Riding Coattails: When Co-Branding Helps versus Hurts Less-Known Brands. *Journal of Consumer Research*.
- Kahle, L. R., Beatty, S. E., & Homer, P. (1986). Alternative Measurement Approaches to Consumer Values: The List of Values (LOV) and Values and Life Style (VALS).

- Journal of Consumer Research*, 13(3), 405.
- Kamarulzaman, N. H., Jamal, K., Vijayan, G., & Ab. Jalil, S. M. (2014). Will Consumers Purchase Stevia as a Sugar Substitute?: An Exploratory Study on Consumer Acceptance. *Journal of Food Products Marketing*, 20(sup1), 122–139.
- Keller, K. L. (2003). Strategic Brand Management: Building, Measuring, and Managing Brand Equity.
- Kraft, F. & W. G. P. (1993). Identifying the Health Conscious Consumer. *Journal of Health Care Marketing*, 18–25.
- Kumar, S. (2014). Indian Consumer Attitudes Toward Food Safety: An Exploratory Study. *Journal of Food Products Marketing*, 20(3), 229–243.
- Li, X. E., Lopetcharat, K., & Drake, M. A. (2015). Parents' and Children's Acceptance of Skim Chocolate Milks Sweetened by Monk Fruit and Stevia Leaf Extracts. *Journal of Food Science*, 80(5), S1083–S1092.
- Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating 'green': motivations behind organic food consumption in Australia. *Sociologia Ruralis*, 42(1), 23–40.
- Loebnitz, N., & Grunert, K. G. (2017). Impact of self-health awareness and perceived product benefits on purchase intentions for hedonic and utilitarian foods with nutrition claims.
- Loureiro, G. A. H. A., Araujo, Q. R., Sodr e, G. A., Valle, R. R., Souza, J. O., Ramos, E. M. L. S., ... Grierson, P. F. (2017). Cacao quality: Highlighting selected attributes. *Food Reviews International*, 33(4), 382–405.
- Ludwig, D. S. (2009). Artificially Sweetened Beverages. *JAMA*, 302(22), 2477.
- Lustig, R. H., Schmidt, L. A., & Brindis, C. D. (2012). The toxic truth about sugar.
- Mai, R., & Hoffmann, S. (2012). Taste lovers versus nutrition fact seekers: How health consciousness and self-efficacy determine the way consumers choose food products. *Journal of Consumer Behavior*, 11(4), 316–328.
- Markttest. (2016). Consumo de chocolate preto aproxima-se do chocolate de leite. *Markttest*. Retrieved from <http://www.markttest.com/wap/a/n/id~2032.aspx>
- Maroco, J. (2007). *An lise Estat stica – Com Utiliza o do SPSS*. Lisbon: Edi oes S labo, LDA.
- Moorman, C., & Matulich, E. (1993). A Model of Consumers' Preventive Health Behaviors: The Role of Health Motivation and Health Ability.
- Park, S. H., Yoon, H. J., Cho, S. H., & Haugtvedt, C. P. (2013). Assessing the Provision of Nutritional Information on Quick Service Restaurant Menu Item Choices for College Students. *Journal of Foodservice Business Research*, 16(4), 329–346.



- Patterson, N. J., Sadler, M. J., & Cooper, J. M. (2012). Consumer understanding of sugars claims on food and drink products. *Nutrition Bulletin*, 37(2), 121–130.
- Paul, J., & Rana, J. (2017). Consumer behavior and purchase intention for organic food. *Journal of Consumer Marketing Journal of Indian Business Research Iss Internet Research Iss Universidade Católica Portuguesa At*, 29(10), 412–422.
- Paul, P. J., Olson, J. C., & Grunert, K. (1999). Book reviews“ Consumer Behavior and Marketing Strategy: European Edition,” 3, 404–405.
- Pestana, M. H., & Gageiro, J. N. (2005). *Análise de Dados para Ciências Sociais – A Complementaridade do SPSS*. Lisbon: Edições Sílabo, LDA.
- Pounis G.D., Makri S., Gougiar L., Makris H., P., & nou M., Panagiotakos D.B., K. M. (2011). Consumer perception and use of iron fortified foods is associated with their knowledge and understanding of nutritional issues. *Food Quality and Preference*, 683–688.
- Raaij, Joop van, Hendriksen, Marieke, Verhagen, H. (2009). Foods, Potential for improvement of population diet through reformulation of commonly eaten. *National Agricultural Library*, 325–330.
- Rodríguez Furlán, L. T., Baracco, Y., Lecot, J., Zaritzky, N., & Campderrós, M. E. (2017). Influence of hydrogenated oil as cocoa butter replacers in the development of sugar-free compound chocolates: Use of inulin as stabilizing agent. *Food Chemistry*, 217, 637–647.
- Rossiter, J. R. & Percy, L. (1987). *Advertising and Promotion Management*.
- Sokolov, A. N., Pavlova, M. A., Klosterhalfen, S., & Enck, P. (2013). Chocolate and the brain: Neurobiological impact of cocoa flavanols on cognition and behavior. *Neuroscience and Biobehavioral Reviews*, 37(10), 2445–2453.
- Zhang, H. Y., & Wang, H. J. (2009). Consumers willingness to pay for green agricultural products in Guangzhou City. *Journal of Agrotechnical Economics*, 62–69.

## APPENDICES

### Appendix 1 - Survey (English version – Original)

#### Introduction

Dear participant,

Thank you for taking your time to complete this survey, which purpose is to gather data for my thesis as the final stage of my MSc in Management at Universidade Católica Portuguesa. The main topic is about the impact of health consciousness on purchase intention. Your participation is crucial for the conclusion of this program.

The survey will take approximately 4 minutes to complete.

All the answers that you provide will be kept anonymous so I ask you to answer honestly and spontaneously since there are no right or wrong answers.

Thank you very much for your collaboration,

Gabriela Andrade

#### 1. What of the bellow sentences best describes your relationship with chocolate?

- I am a consumer of chocolate but I do not usually purchase it (1)
- I am a shopper of chocolate but I do not usually consume it (2)
- I am a shopper and a consumer of chocolate (3)
- I neither consume or shop chocolate (4)

*[Skip To: End of Survey If Q1 = 4; Skip To: Q7 if Q1 = 1]*

#### 2. What kind of chocolates do you usually purchase? Tick all that apply.

- Bars (1)
- Powder (2)
- Bonbons (3)
- Tablets (4)
- Culinary chocolate (5)
- Others (which?): (6) \_\_\_\_\_

**3. How much do you usually spend on a chocolate with 100grams?**

- Less than €1 (1)
- €1 - €2 (2)
- €2 - €3 (3)
- More than €3 (4)

**4. Which of the following claims, if any, do you actively look for when you are shopping a chocolate for you? Tick all that apply.**

- Reduced fat (1)
- No added sugars (2)
- No artificial sweeteners (3)
- Low fat (4)
- Reduced calorie (5)
- With Stevia (6)
- % Cocoa (7)
- Non of the above (8)
- Others (which?): (9) \_\_\_\_\_

*[Display This Question:If Q4 = 7]*

**5. Which % of cocoa do you usually purchase when looking for a chocolate?**

- Less than 70% cocoa (1)
- 70% cocoa (2)
- More than 70% cocoa (3)

*[Display This Question:If Q1 = 1 Or Q1 = 3]*








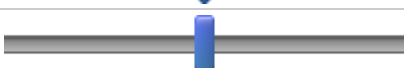


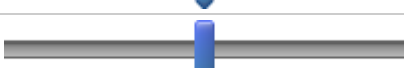





**6. How often do you consume chocolates?**

- Daily (1)
- 4-6 times a week (2)
- 2-3 times a week (3)
- Once a week (4)
- Less than once a week (5)

**7. Please indicate to what extent do you agree or disagree with the following statements**

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I am concerned about my health all the time (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually read the ingredients on food labels (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry that there are harmful chemicals on my food (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am concerned about my drinking water quality (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am interested in information about my health (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I read more health-related articles than I did 3 years ago (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**8. On a 5 point scale please indicate your degree of knowlegde about the following ingredients**

	Unknown	Well-known		
	1	2	4	5
Iodine (1)				
Calcium (2)				
Vitamin C (3)				
Antioxidants (4)				
Probiotics (5)				
Dietary fiber (6)				
Omega-3-fatty acids (7)				
Phytosterols (8)				
Glucosamine (9)				
Xylitol (10)				
Stevia (11)				
Sugar (12)				
Aspartame (13)				
Saccharine (14)				
Honey (15)				
Fruit sugar (16)				

9. If a product claims "No Added Sugars", which of the following would you expect to see in the ingredients? Tick all that apply

- Sweeteners (1)
- Saccharin (2)
- Aspartame (3)
- Gum (4)
- Honey (5)
- Stevia (6)
- Xylitol (7)
- Fruit sugar (8)
- Sugar (9)
- Non of the above (10)

10. Rate each of the following products as to how natural you consider them to be (if you don't know, please guess) on a scale of 1 to 5, where 1 is Not at all natural and 5 is Extremely natural.

	Not at all natural	Extremely natural
	1	2      4      5
Sugar (1)		
Fruit Sugar (2)		
Xylitol (3)		
Aspartame (4)		
Saccharine (5)		
Honey (6)		
Stevia (7)		

**11. How likely would you be to purchase a chocolate that has the following ingredients?**

	Extremely unlikely (1)	Somewhat unlikely (2)	Neither likely nor unlikely (3)	Somewhat likely (4)	Extremely likely (5)
Sugar (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit sugar (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Xylitol (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aspartame (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saccharine (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honey (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stevia (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12. To what extent does the following sentence describes you?**

*"My purchase decision is based on the nutrition information available on the label"*

Does not describe me at all      Describes me extremely well

1                      2                      4                      5



**13. How likely would you be to purchase a product that refers on the label..**

	Extremely unlikely (1)	Somewhat unlikely (2)	Neither likely nor unlikely (3)	Somewhat likely (4)	Extremely likely (5)
"With Stevia" (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"No added sugar" (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**14. Age**

- Under 18 (1)
- 18 - 24 (2)
- 25 - 34 (3)
- 35 - 44 (4)
- 45 - 54 (5)
- 55 - 64 (6)
- 65 - 74 (7)
- 75 - 84 (8)
- 85 or older (9)

**15. Gender**

- Male (1)
- Female (2)

**16. Education**

- Less than High School Diploma (1)
- High School Degree (2)
- Undergraduate Degree (Bachelor or equivalent) (3)
- Postgraduate Degree (Master or equivalent) (4)



Professional Degree (PhD or equivalent) (5)

Other (6) \_\_\_\_\_

**17. Occupation**

Employed full time (1)

Employed part time (2)

Unemployed looking for work (3)

Student-worker (4)

Retired (5)

Student (6)

Other (7) \_\_\_\_\_

## Appendix 2 – SPSS Output – Demographic

What of the bellow sentences best describes your relationship with chocolate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I am a consumer of chocolate but I do not usually purchase it	216	28,1	28,1	28,1
	I am a shopper of chocolate but I do not usually consume it	33	4,3	4,3	32,4
	I am a shopper and a consumer of chocolate	452	58,9	58,9	91,3
	I neither consume or shop chocolate	67	8,7	8,7	100,0
	Total	768	100,0	100,0	

### Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 18	12	1,6	1,7	1,7
	18 - 24	397	51,7	56,6	58,3
	25 - 34	164	21,4	23,4	81,7
	35 - 44	72	9,4	10,3	92,0
	45 - 54	41	5,3	5,8	97,9
	55 - 64	11	1,4	1,6	99,4
	65 - 74	2	,3	,3	99,7
	75 - 84	1	,1	,1	99,9
	85 or older	1	,1	,1	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
	Total	768	100,0		

### Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	166	21,6	23,7	23,7
	Female	535	69,7	76,3	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
	Total	768	100,0		

**Education - Selected Choice**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than High School Diploma	9	1,2	1,3	1,3
	High School Degree	257	33,5	36,7	37,9
	Undergraduate Degree (Bachelor or equivalent)	280	36,5	39,9	77,9
	Postgraduate Degree (Master or equivalent)	138	18,0	19,7	97,6
	Professional Degree (PhD or equivalent)	7	,9	1,0	98,6
	Other	10	1,3	1,4	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

**Occupation - Selected Choice**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed full time	185	24,1	26,4	26,4
	Employed part time	16	2,1	2,3	28,7
	Unemployed looking for work	15	2,0	2,1	30,8
	Student-worker	88	11,5	12,6	43,4
	Retired	2	,3	,3	43,7
	Student	380	49,5	54,2	97,9
	Other	15	2,0	2,1	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

### Appendix 3 – SPSS Output – Measure variables

Measure of health consciousness (classification)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	325	42,3	46,4	46,4
	High	376	49,0	53,6	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

#### Frequencies

##### Statistics

Measure of health concern

N	Valid	701
	Missing	67
Mean		4,1695
Median		4,3333
Std. Deviation		,67211
Minimum		1,17
Maximum		5,00

Measure of ingredients' awareness (classification)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	379	49,3	54,1	54,1
	High	322	41,9	45,9	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

#### Frequencies

##### Statistics

Measure of ingredients' awarene

N	Valid	701
	Missing	67
Mean		2,8351
Median		2,7000
Std. Deviation		,94946
Minimum		1,00
Maximum		5,00

**Measure of sugars' awareness (classification)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	374	48,7	53,4	53,4
	High	327	42,6	46,6	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

**Frequencies**

**Statistics**

Measure of sugars' awareness

N	Valid	701
	Missing	67
Mean		2,9535
Median		2,8750
Std. Deviation		,91719
Minimum		1,00
Maximum		5,00

**Measure of purchase intention (classification)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	388	50,5	55,3	55,3
	High	313	40,8	44,7	100,0
	Total	701	91,3	100,0	
Missing	System	67	8,7		
Total		768	100,0		

**Frequencies**

**Statistics**

Measure of purchase intention

N	Valid	701
	Missing	67
Mean		3,3609
Median		3,3333
Std. Deviation		,79174
Minimum		1,00
Maximum		5,00

## Appendix 4 – SPSS Output – Inferential Statistics

**Hypothesis 1: The ingredients awareness will affects the purchase intention**

### Correlations

		Measure of purchase intention
Measure of purchase intention	Pearson Correlation	
	Sig. (2-tailed)	
	N	
Measure of ingredients' awareness	Pearson Correlation	,234**
	Sig. (2-tailed)	,000
	N	701

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Measure of ingredients' awareness <sup>b</sup>	.	Enter

a. Dependent Variable: Measure of purchase intention

b. All requested variables entered.

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,234 <sup>a</sup>	,055	,053	,77029

a. Predictors: (Constant), Measure of ingredients' awareness

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24,048	1	24,048	40,530	,000 <sup>b</sup>
	Residual	414,752	699	,593		
	Total	438,800	700			

a. Dependent Variable: Measure of purchase intention

b. Predictors: (Constant), Measure of ingredients' awareness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,807	,092		30,624	,000
	Measure of ingredients' awareness	,195	,031	,234	6,366	,000

a. Dependent Variable: Measure of purchase intention

**Hypothesis 1a: The awareness of higher Cocoa % in chocolates affects the purchase intention for consumers that are high health consciousness**

**Correlations**

		Measure of purchase intention
Measure of purchase intention	Pearson Correlation	
	Sig. (2-tailed)	
	N	
Which % of cocoa do you usually purchase when looking for a chocolate?	Pearson Correlation	-,009
	Sig. (2-tailed)	,907
	N	181

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Which % of cocoa do you usually purchase when looking for a chocolate? <sup>b</sup>		Enter

a. Dependent Variable: Measure of purchase intention

b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,009 <sup>a</sup>	,000	-,006	,75344

a. Predictors: (Constant), Which % of cocoa do you usually purchase when looking for a chocolate?

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,008	1	,008	,014	,907 <sup>b</sup>
	Residual	101,613	179	,568		
	Total	101,621	180			

a. Dependent Variable: Measure of purchase intention

b. Predictors: (Constant), Which % of cocoa do you usually purchase when looking for a chocolate?

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,718	,196		19,015	,000
	Which % of cocoa do you usually purchase when looking for a chocolate?	-,009	,080	-,009	-,116	,907

a. Dependent Variable: Measure of purchase intention

**Hypothesis 1b: The awareness of different types of sugar affects differently the purchase intention**

**Correlations**

		Measure of purchase intention
Measure of purchase intention	Pearson Correlation	
	Sig. (2-tailed)	
	N	
Measure of sugars' awareness	Pearson Correlation	,292 <sup>**</sup>
	Sig. (2-tailed)	,000
	N	701

\*\* . Correlation is significant at the 0.01 level (2-tailed).



**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Measure of sugars' awareness <sup>b</sup>	.	Enter

a. Dependent Variable: Measure of purchase intention

b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,292 <sup>a</sup>	,085	,084	,75772

a. Predictors: (Constant), Measure of sugars' awareness

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37,482	1	37,482	65,284	,000 <sup>b</sup>
	Residual	401,318	699	,574		
	Total	438,800	700			

a. Dependent Variable: Measure of purchase intention

b. Predictors: (Constant), Measure of sugars' awareness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,616	,097		27,090	,000
	Measure of sugars' awareness	,252	,031	,292	8,080	,000

a. Dependent Variable: Measure of purchase intention

**Hypothesis 1c: The awareness of "No added sugar" has a higher impact than "With Stevia" on consumers purchase intention**

**Correlations**

		Measure of purchase intention
Measure of purchase intention	Pearson Correlation Sig. (2-tailed) N	
How likely would you be to purchase a product that refers on the label.. - "No added sugar"	Pearson Correlation Sig. (2-tailed) N	,727** ,000 701
How likely would you be to purchase a product that refers on the label.. - "With Stevia"	Pearson Correlation Sig. (2-tailed) N	,742** ,000 701

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	How likely would you be to purchase a product that refers on the label.. - "With Stevia", How likely would you be to purchase a product that refers on the label.. - "No added sugar" <sup>ab</sup>		Enter

a. Dependent Variable: Measure of purchase intention

b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,878 <sup>a</sup>	,770	,770	,37997

a. Predictors: (Constant), How likely would you be to purchase a product that refers on the label.. - "With Stevia", How likely would you be to purchase a product that refers on the label.. - "No added sugar"

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	338,027	2	169,014	1170,667	,000 <sup>b</sup>
	Residual	100,773	698	,144		
	Total	438,800	700			

a. Dependent Variable: Measure of purchase intention

b. Predictors: (Constant), How likely would you be to purchase a product that refers on the label.. - "With Stevia", How likely would you be to purchase a product that refers on the label.. - "No added sugar"

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations
		B	Std. Error	Beta			Zero-order
1	(Constant)	,676	,058		11,697	,000	
	How likely would you be to purchase a product that refers on the label.. - "No added sugar"	,376	,015	,511	25,811	,000	,727
	How likely would you be to purchase a product that refers on the label.. - "With Stevia"	,378	,014	,537	27,129	,000	,742

Coefficients<sup>a</sup>

Model		Correlations	
		Partial	Part
1	(Constant)		
	How likely would you be to purchase a product that refers on the label.. - "No added sugar"	,699	,468
	How likely would you be to purchase a product that refers on the label.. - "With Stevia"	,716	,492

a. Dependent Variable: Measure of purchase intention

## Hypothesis 2: Health consciousness impacts positively the ingredients awareness

Correlations

		Measure of ingredients' awareness
Measure of ingredients' awareness	Pearson Correlation	
	Sig. (2-tailed)	
	N	
Measure of health consciousness	Pearson Correlation	,388**
	Sig. (2-tailed)	,000
	N	701

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Measure of health consciousness <sup>b</sup>	.	Enter

a. Dependent Variable: Measure of ingredients' awareness

b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,388 <sup>a</sup>	,151	,149	,87573

a. Predictors: (Constant), Measure of health consciousness

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94,972	1	94,972	123,838	,000 <sup>b</sup>
	Residual	536,065	699	,767		
	Total	631,037	700			

a. Dependent Variable: Measure of ingredients' awareness

b. Predictors: (Constant), Measure of health consciousness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,550	,208		2,645	,008
	Measure of health consciousness	,548	,049	,388	11,128	,000

a. Dependent Variable: Measure of ingredients' awareness

### Hypothesis 3: Health consciousness positively impacts the purchase intention

**Correlations**

		Measure of purchase intention
Measure of purchase intention	Pearson Correlation	
	Sig. (2-tailed)	
	N	
Measure of health consciousness	Pearson Correlation	,376**
	Sig. (2-tailed)	,000
	N	701

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Measure of health consciousness <sup>b</sup>	.	Enter

a. Dependent Variable: Measure of purchase intention

b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,376 <sup>a</sup>	,142	,140	,73403

a. Predictors: (Constant), Measure of health consciousness

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62,180	1	62,180	115,405	,000 <sup>b</sup>
	Residual	376,620	699	,539		
	Total	438,800	700			

a. Dependent Variable: Measure of purchase intention

b. Predictors: (Constant), Measure of health consciousness

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,512	,174		8,673	,000
	Measure of health consciousness	,443	,041	,376	10,743	,000

a. Dependent Variable: Measure of purchase intention

## Appendix 5 – SPSS Output – Mediation

### Hypothesis 4: Ingredients awareness mediates the relationship between health consciousness and purchase intention

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.16.3 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Model = 4  
Y = m\_pi  
X = m\_hc  
M = m\_ia

Sample size  
701

\*\*\*\*\*

Outcome: m\_ia

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3879	,1505	,7669	123,8382	1,0000	699,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	,5501	,2080	2,6448	,0084	,1417	,9584
m_hc	,5480	,0492	11,1283	,0000	,4513	,6447

\*\*\*\*\*

Outcome: m\_pi

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3884	,1508	,5338	61,9918	2,0000	698,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,4644	,1744	8,3975	,0000	1,1220	1,8068
m_ia	,0864	,0316	2,7394	,0063	,0245	,1484
m_hc	,3961	,0446	8,8845	,0000	,3085	,4836

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

Outcome: m\_pi

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,3764	,1417	,5388	115,4052	1,0000	699,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,5120	,1743	8,6732	,0000	1,1697	1,8543
m_hc	,4434	,0413	10,7427	,0000	,3624	,5245

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,4434	,0413	10,7427	,0000	,3624	,5245

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,3961	,0446	8,8845	,0000	,3085	,4836

Indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,0474	,0191	,0121	,0875

Partially standardized indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,0598	,0241	,0148	,1104

Completely standardized indirect effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,0402	,0163	,0103	,0747

Ratio of indirect to total effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,1068	,0460	,0248	,2084

Ratio of indirect to direct effect of X on Y

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,1196	,0591	,0255	,2633

R-squared mediation effect size (R-sq\_med)

Effect	Boot SE	BootLLCI	BootULCI	
m_ia	,0457	,0120	,0246	,0717

Normal theory tests for indirect effect

Effect	se	Z	p
,0474	,0179	2,6500	,0081

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Number of bootstrap samples for bias corrected bootstrap confidence intervals:  
5000

Level of confidence for all confidence intervals in output:  
95,00