The impact of COVID-19 on organic and conventional food consumption

Examining the moderating effect of sustainable-self-esteem on the relationship between mortality salience and consumers' choice and evaluations of organic versus conventional food

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Abstract

This study aims to build a deeper understanding of how the consumer choices, attitudes, purchase intention and willingness to pay change in face of the pandemic. This research examines this phenomenon within the food industry, since it is one of the most impacted industries during the pandemic, with a singular focus on organic versus conventional food consumption and self-esteem as a moderator.

Results indicate that the COVID-19 context has increased mortality salience, the awareness that death is inevitable. Yet, mortality salience is not impactful on consumers' evaluations and choice of food, except for the purchase intention for conventional products that seem to decrease in the COVID-19 context for consumers with lower self-esteem coming from sustainable behaviours. Nevertheless, the COVID-19 context shows to lead to more positive attitudes towards the consumption of organic food for consumers who have sustainability behaviours as their source of self-esteem.

This study suggests that retailers can influence consumers positively in the COVID-19 context, by making these products easily available to attract consumers to buy organic food. Also, to take advantage of the positive attitudes by consumers towards this type of products that seem to emerge during the pandemic.

This study provides valuable insight into consumer behaviour regarding organic and conventional food by examining the factors that influence consumers' purchase intentions, willingness to pay, attitudes and choices towards food during a pandemic.

Resumo

Este estudo tem como objetivo compreender mais profundamente como as escolhas, atitudes, intenção de compra e vontade de pagar dos consumidores mudam, face à pandemia. Esta pesquisa examina este fenómeno dentro da indústria alimentar, por ser uma das mais impactadas durante a pandemia, com um foco singular consumo de alimentos orgânicos versus convencionais, utilizando e autoestima como moderadora.

Os resultados indicam que no contexto do COVID-19 houve um aumento da saliência da mortalidade, a consciência de que a morte é inevitável. Todavia a saliência da mortalidade não impactou as avaliações dos consumidores e a escolha dos alimentos, com exceção da intenção de compra de produtos convencionais que parece diminuir no contexto do COVID-19 para consumidores com menos autoestima proveniente de comportamentos sustentáveis. No entanto, o contexto do COVID-19 parece conduzir a atitudes mais positivas em relação aos alimentos orgânicos para pessoas que têm comportamentos de sustentabilidade como fonte de autoestima.

Este estudo sugere que os revendedores podem influenciar os consumidores positivamente no contexto COVID-19, disponibilizando facilmente esses produtos para atrair consumidores para a compra de alimentos orgânicos e aproveitar as atitudes positivas que parecem emergir em relação a este tipo de productos durante a pandemia.

Este estudo fornece informações valiosas sobre o comportamento do consumidor em relação aos alimentos orgânicos e convencionais, examina os fatores que influenciam a intenção de compra, a vontade te pagar, as atitudes e as escolhas de alimentos durante a pandemia.

Keywords: Terror Management Theory; Mortality Salience; COVID-19; Sustainable consumption; Organic food; Conventional food; Attitudes, Purchase intention, Willingness to pay

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1. Introduction

1.1 Problem Definition and Relevance

At the end of 2019, it was spotted a new coronavirus in China, the COVID-19. The virus rapidly spread all around the world and in just 10 months had caused more than 1.1 million deaths and 42.5 million people were infected with the virus (World Health Organization, 2020). In an attempt to contain this virus spread and the consequent deaths the governments have taken several measures such as closing borders, introducing social distancing restriction and lockdown measures (Menzies & Menzies, 2020). With this unusual way of living, the levels of anxiety concerning the virus have raised (Li et al., 2020).

So how did the pandemic affect the consumption of products?

While the future is still uncertain about how the pandemic will shape consumers' behaviour, there are some shifts in retail consumption that can already be observed. Indispensable goods retailers, such as food and healthcare retailers have been increasing in demand. Whereas, retailers for dispensable goods such as clothing and footwear are experiencing a cut in sales (Roggeveen & Sethuraman, 2020). Therefore, the present research will focus on the food industry, since it is one of the industries that mostly, has seen increases in consumer demand during the pandemic.

Additionally, according to the Agronegocios and Speciality Food Magazine (2020), the COVID-19 pandemic has led to an increase in demand for organic and sustainable food. The trend seems to be international, with several companies, like Abel & Cole, Riverford Organic Farmers and Whole Foods Market, reporting that they are selling more than before the pandemic.

Moreover, according to Nunes (2020), there was an increase in organic dairy, eggs, bread, pasta, rice and grains during the first quarter of the year. On the other hand, since consumers are expected to be price-sensitive during 2020, the Organic Trade Association (OAT) predicts a decline in organic food sales, since organic products are, in general, more expensive.

Therefore, the study will focus on how organic food consumption changed due to COVID-19.

Due to the regular information on the COVID-19 confirmed cases and deaths from nearly all the news platforms and the visible death signals camouflaged as a face mask, anti-bacterial sprays, wipes, social distancing and public health campaigns there is an expected increase in

mortality salience effects, the awareness that death is inevitable (Menzies & Menzies, 2020). The mortality salience truly impacts and changes the behaviours of consumers. Research on the topic has demonstrated greater replicability across various dimensions of consumers' life (Burke et al., 2010).

According to the Terror Management Theory literature the anxiety resulting from the mortality salience has been shown to increase pro-social giving (Ferraro et al., 2005; Jonas et al., 2002) and a study by Zaleskiewicz (2015) suggests that mortality salience can increase the desire for pro-social behaviour, namely sustainable consumption (Black & Cherrier, 2010; Jackson, 2005)

According to the theory, the reinforcement of self-esteem should make a person less predisposed to anxiety (Becker, 1973; Pyszczynski et al., 2004). Consequently, if some form of pro-social behaviour supports the credence that one is a meaningful and valuable contributor to one's cultural it will consequently increase his or her self-esteem. Thus reminders of mortality should therefore encourage people to be kinder, by engaging in that form of pro-social behaviour (Crocker et al., 2003; Harmon-Jones et al., 1997; Jonas et al., 2002). As people tend to focus their efforts on living up to their standards, to improve their self-esteem in times of anxiety (Becker, 1973; Ferraro et al., 2005), and to engage in pro-social behaviours, such as sustainable consumption, consumption of organic food should also increase. Therefore, a main question remains to be addressed which is related to how mortality salience increased the consumption of organic food.

1.2 Objectives and Research Questions

This study aims to build a deeper understanding of how consumer's attitudes, purchase intention and willingness to pay will change in the face of the current pandemic. The research will study this phenomenon within the context of the food industry, since it is one of the most impacted industries during the pandemic, with a singular focus on organic food consumption.

The present work will ramp up on the mortality salience literature and the Terror Management Theory, to examine how these impact the consumption of food, particularly organic food consumption.

Since the research on the impacts of COVID-19 on sustainable consumption behaviour is still very scarce due to its newness, the present research will contribute with novel insights to the pandemic literature (Gössling et al., 2020). Additionally, it aims to guide food retailers with regards to organic food trends during the crisis and helping them to cope with food consumption

behavioural change. Even though the future is still uncertain it is likely that some short-term behaviours adopted to cope with the pandemic will turn into a habit in future shopping habits, in the long run (Roggeveen & Sethuraman, 2020). Therefore, the following research questions are proposed:

RQ1: Did COVID-19 impact mortality salience among consumers?

RQ2: How did mortality salience impact consumers' evaluation and choices of food products?

RQ3: How can self-esteem positively (vs. negatively) impact consumers' evaluations and choices of food during the COVID-19 pandemic?

1.3 Dissertation Structure

The dissertation will follow the subsequent structure: After the first chapter was introduced, where the identification of the research problem was defined, as well as the research objectives and questions, the second chapter, will present the literature review of the relevant theory under study. The theory presented in this chapter will be the basis of the present dissertation.

The third chapter will be composed of the study' conceptual map and the hypotheses derived from the literature review. Following this chapter, the methodology will be described. In the fifth chapter, the results of the study will be presented. In the last chapter, the conclusions and the theoretical and managerial implications will be exposed alongside suggestions for further analysis and the study's limitations.

2. Literature review

This chapter aims to show the topics related to the research questions under analysis.

In the first part of the literature review, the focus is on the Terror Management Theory (TMT), which addresses the effects of mortality salience on various dimensions.

Secondly, this literature review will focus on the pandemic implications and how this disease has been shaping the consumers' behaviours, focusing on the relationship between mortality salience (e.g. within the context of Covid-19) and pro-social behaviours, namely on sustainable consumption.

Lastly, the decision making of food purchase will be explored and it will be presented how consumers decide between sustainable and non-sustainable food, namely - consumers' evaluations such as attitudes, purchase intention and willingness to pay behaviours.

2.1 Terror Management Theory (TMT)

A psychological work by Ernest Becker (1973) predicts that there are events that emphasize the individual's death and mortality salience, and these events can result in a high stage of anxiety for the individual (Pyszczynski et al., 2004). Becker explores a framework that aims to explain the impact of worrying about death in individuals' behaviour (Greenberg et al., 1992). This framework is called the Terror Management Theory (TMT).

The TMT has exhibited that mortality salience, the awareness that death is inevitable, affects numerous aspects of people's lives, aspects which are entirely unrelated to death (Greenberg et al., 1994; Pyszczynski et al., 2004). Moreover, it is predicted that mortality salience heavily influences consumers' behavioural responses and consumption behaviours. For instance, after the 9/11 attacks in 2001, there was an increase on alcohol drinks' consumption, smoking, the time dedicated to friends and relatives, shopping, church attendance and people also started overthinking and going off diets (Barnes and Petersen, 2001; Ferraro et al., 2005). Several studies that explored the role of mortality salience revealed that reminders of death increase socially avoidance (Strachan et al., 2007). Also attentional biases towards threat among the social anxious (Finch et al., 2016), and even limiting the ingestion of high caloric foods for women (Goldenberg et al., 2005).

The anxiety-buffer hypothesis might be the explanation for the sudden changes in consumer's behaviours. This hypothesis based on TMT suggests that there can be two ways to reduce death

anxiety. The first way is to defend one's perspective of the cultural worldview, for example, behaving accordingly to the socially accepted norms of one's culture. The second is to reinforce and focus on one's self-esteem, that is related to the pursue of standards that support one´s self-esteem, and that may differ according to one's cultural worldview (Crocker et al., 2003; Greenberg et al., 1992; Pyszczynski et al., 2004). Both structures are important dimensions to protect people from fear, so they will behave under what will sustain their cultural worldview, their self-esteem, or both (Jonas et al., 2002).

Even if there are recent studies that question the ability to replicate the outcomes of TMT (Klein et al., 2019) there has been plenty of evidence that has demonstrated that TMT findings are replicated and demonstrate effects on a variety of behaviours (Burke et al., 2010; Chatard et al., 2020). The research hereby presented shows a unique case scenario of real events that show how consumers are behaving toward the consumption of food during a pandemic.

Terror Management Theory and Self-Esteem

In line with the TMT, the reinforcement of self-esteem should make a person less predisposed to anxiety. Consequently, the opposite happens, if self-esteem is weakened, a person will be more prone to anxiety and anxiety-related behaviours (Pyszczynski et al., 1999). Empirical studies reveal that increasing an individual's self-esteem, will decrease their anxiety and that self-esteem's menace produces anxiety (S. Solomon et al., 1991). Additionally, the defensive behaviours caused by the mortality salience can be reduced when self-esteem is manipulated, whether in an experimentally or naturally way, resulting in high self-esteem (Arndt & Greenberg, 1999; Harmon-Jones et al., 1997).

Moreover, increasing one's self-esteem might lead to distinct coping behaviours among each individual. Past research shows also that, when mortality becomes salient, different individuals with different domains of self-esteem react distinctively when pursuing the standards that support their self-esteem (Crocker et al., 2003). For example, for some individuals, it might be crucial the way they look, so feeling good about their body will positively contribute to their self-esteem. Consequently, these individuals will behave according to the norms that their culture accepts, such as those that contribute to a good body. Whereas some individuals being considered righteous might be their source of self-esteem. Consequently, their behaviour should be distinct when they are trying to increase their self-esteem from the afore-mentioned individuals looking into physical appearance (Crocker et al., 2003; Ferraro et al., 2005;

Goldenberg et al., 2000). This happens since, as the TMT suggests, the self-regulatory resources are a crucial player in consumers response behaviour when mortality is made salient (Arndt et al., 1997). Yet, these resources are not infinite and might be exhausted when individuals are focused on cultivating their self-esteem (Muraven & Baumeister, 2000). Therefore, literature proposes that, when mortality is salient, one might opt for a less indulgent behaviour when the domain is a central origin of their own self-esteem. The contrary will happen when the domain is not a vital cause of self-esteem, resulting in the engagement of more indulgent behaviours (Ferraro et al., 2005). So, only the central domains that give origin to the individual self-esteem are expected to reinforce the behaviour's according to the social norms when mortality is made salience. If the domain is not central to an individual, he/she might even start engaging in behaviours that contradict the norms for that domain.

Moreover, as people tend to focus their efforts on living up to their own standards to improve their self-esteem in times of anxiety, those central domains of self-esteem are amongst the factors that may justify the different reactions for each individual in response to mortality salience (Ferraro et al., 2005).

For example, research suggests, that women which their source of self-esteem comes from physical appearance (high-body esteem) are expected to choose less frequently a chocolate cake (more indulgent food) than the fruit salad (less indulgent food), under high mortality salience rather than low. Yet, for low-body self-esteem women, that do not use their body to reinforce their self-esteem, are likely to show a preference for the chocolate cake option when mortality salient is high rather than low (Ferraro et al., 2005; Goldenberg et al., 2000).

2.2 Mortality Salience and COVID-19

Initial research suggests that death worries predict anxiety about the virus. (Menzies & Menzies, 2020). COVID-19 has turned into a real-life constant threat of life, leading to an increase in mortality salience. This effect can influence consumers' decisions in ways they may not even be aware of.

Previous literature backs up the idea that prior epidemics or virus outbreaks, such as swine flu or Ebola, increase the death-related thoughts and increase the defensive behaviours (Arrowood et al., 2017; Bélanger et al., 2013; Van Tongeren et al., 2016). These studies suggest a relationship between death anxiety, resulting from viral diseases spreads, and psychological distress. Thus, this association may be replicated in the current pandemic.

Recent literature has attempted to study the psychological distress during the pandemic due to death anxiety. The assessment of the psychometric dimensions of the Fear of COVID-19 Scale exposed that the item "I am afraid of losing my life because of Coronavirus-19" had the highest factor loading, leading to propose that fear of each individuals' own death is related with the wide fears of the virus (Ahorsu et al., 2020).

Additional studies, which used other scales, also suggest an increase in mortality salience due to COVID-19. The Depression Anxiety and Stress Scale (DASS-21) revealed high levels of stress and depression on China residents. The estimates of fatality suggest that the psychological pain resulted from low belief levels of individuals' ability to survive the crisis (Wang et al., 2020).

A study conducted in Australia by Newton-John et al. (2020), who explored the death anxiety in times of COVID-19, suggests that there is a positive correlation between death fear and anxious beliefs, self-reported health anxiety, general phycological distress and the behaviours related to the COVID-19. The later might do for example, with the estimated likelihood of contracting the virus or wearing a mask socially among others. The results show 22% of the likelihood of dying expectancies from COVID-19 after they contracted the disease in the next 18 months, where the fatality rate at the time in Australia was around 2%. This lead to conclude that respondents indicated exaggerated perceptions related to the death threat and support that mortality is salient.

2.3 TMT and Pro-social Behaviour

Since research on the TMT topic has demonstrated greater replicability of the mortality salience effects across various dimensions in consumers' life (Burke et al., 2010), how does mortality salience affect pro-social behaviours?

The literature proposes that people increase their self-esteem by helping behaviours, after being exposed to threats. For example, there is evidence that women increased their wishes to help in a community project after their driving skills have been disapproved (Steele, 1975). Additionally, the anticipated social approval and salient social norms can increase the helping behaviours as well (Berkowitz, 1972; Cialdini et al., 1991; Kallgren et al., 2000). Also, there are studies that suggest that mortality salience can increase the desire for pro-social behaviours (Rahimah et al., 2020; Zaleskiewicz et al., 2015).

Moreover, it was identified by previous literature that some cultural perceptions are generally accepted. Those general standards that people leave up to increase their self-esteem are generosity, kindness, and altruism (Jonas et al., 2002). Therefore, pro-social behaviours, that have on their nature helping and giving, should contribute to individuals' self-esteem and serve as an anxiety buffer in situations where mortality is made salient.

Nevertheless, TMT defends that only those standards and values that are truly rooted in one's cultural worldview can consequently increase their self-esteem and might change the individuals' behaviours when mortality is made salient. Thus the context of each individual is inserted is very important (Crocker et al., 2003; Ferraro et al., 2005; Solomon et al., 1991). Therefore, there might be some pro-social behaviours that will yield different forms of helping and that may serve as a better anxiety buffer than others (Jonas et al., 2002).

Still, the underlying reasoning is: if some form of pro-social behaviour supports the credence that one is a meaningful and valuable contributor to one's cultural and that consequently increases their self-esteem, then reminders of mortality should encourage people to be kinder, by engaging in that pro-social behaviour (Crocker et al., 2003; Harmon-Jones et al., 1997; Jonas et al., 2002).

Even if the literature on TMT and sustainability consequences is very scarce some studies suggest there is an impact of mortality salience on sustainability behaviours (Fritsche et al., 2010; Hu et al., 2018; Rahimah et al., 2020).

2.4 Pro-social behaviour and Sustainable Consumption

According to the International Institute for Environment and Development, sustainable consumption can be defined as "the economic activity of choosing, using, and disposing of goods and services and how this can be changed to bring social and environmental benefit" (Jackson & Michaelis, 2003, p.14).

Moreover, sustainability not only accounts for environmental/green concern but also covers social affairs problems (Gruber & Schlegelmilch, 2014) such as societal welfare, justice, rights, and other ethical obligations (Rahimah et al., 2020).

Sustainable consumption is a form of pro-social behaviour. As is mention in previous literature, sustainable consumption can also be referred to as "ethical consumption" or "pro-social" consumption (Black & Cherrier, 2010; Jackson, 2005).

Nowadays sustainable consumption is becoming increasingly rooted in the culture as a consequence of the efforts public policies and business practices designs being more focused on sustainable goods and services (Sunstein, 2015). Alongside this phenomenon, various research has been done on consumer's motivations for sustainable consumption. It has been found that sustainable consumption represents a more symbolic rather than economic value for consumers (Abdulrazak & Quoquab, 2018; M. R. Solomon, 1983).

Academics mostly suggest that consumers are driven to consume sustainably generally for its psychological benefits (Cherrier, 2007; Hartmann & Apaolaza-Ibáñez, 2012; Jackson, 2005; Peattie & Collins, 2009; Pepper et al., 2009; Soron, 2010). The consumption of sustainable goods makes consumers feel good about themself and enables personal growth and self-enhancement (Belk, 1988; Etzioni, 2004). Therefore, sustainable consumption can be seen as an echo of a consumer's personality, values, beliefs, and worldviews (Evans & Abrahamse, 2009; Niinimäki, 2010).

The altruistic benefits that come from consuming pro-social products, such as sustainable products, are a reflection of the belief that the purchase of a product can help society and, thus, capture the social dimension of various choices in daily life, including food choice (Van Doorn & Verhoef, 2011).

2.5 Food Decision Making

Studies on consumers' food choices undertake consumers to be more or less rational decision-makers (Cramer & Antonides, 2011). When it comes to the decision-making process it is important to recognize that there is a trade-off between emotional and rational decisions. In emotional choices, it is the desire that is driving the decision rather than the cognitive functionalities, whereas in rational decisions the contrary will happen (Dhar & Wertenbroch, 2000; Okada, 2005; Strahilevitz & Myers, 1998).

According to Verplanken & Faes (1999), the best way to predict the engagement of an individual when performing certain behaviours is one's intention to do it. To illustrate, when it comes to deciding on having a healthier diet the intention is the cue that has been shown to predict consumers' change in behaviour resulting in a healthier diet. Yet, this approach to consumers' decisions discards the unconscious nature of most of the decision-making process. For example, when it comes to food selections the decision is based on simple cues such as taste and convenience, as a consequence of low involvement levels and time limitations

(Blaylock et al., 1999; Verbeke, 2008). As such, literature suggests that the best forecaster for choosing food, compared to attitudes and intention, might be the habits and previous behaviour that one is used to performing (Köster, 2009; Verplanken, 2006). Because consumer in a stable context tend to develop habits as they try to achieve their goals repeatedly through specific means (Wood & Neal, 2009). Since this research would focus on the context of a pandemic, that is not a stable setting, the intention of performing a certain behaviour and their attitudes will be chosen to predict the decision-making on food.

2.6 Organic Food Consumption

Organic food can be defined as food that is produced organically and that is to be attentive on the practices and values of production or technology used, additionally it can be defined as food that is alight with the organic philosophy (Food and Agriculture Organization, 1999; Klonsky & Tourte, 1998). Due to its comprehensive definition, several dimensions are usually highlighted when mentioning organic food such as biologically or naturally produced products (Klonsky & Tourte, 1998), green or environmentally friendly (Yiridoe et al., 2005) and also reduced use of artificial chemicals in production (Food and Agriculture Organization, 1999).

The wider category in the organic food industry is organic produce and it accounts for nearly a third of all organic food sales. According to the Organic Trade Association (OTA 2020), organic fresh fruits and vegetables are the responsible for the produce category success, these segments of the product represented $18 billion in sales in 2019 representing a 5% increase compared to the previous year. The second category that was mostly consumed in 2019, that faced an increase of 2% compared to 2018, was organic dairy products that reached $6.6 billion in sales.

The organic food interest has increased along the years because of the consumers' attention and worries about conventional agricultural practices, food safety, human health concerns, animal welfare considerations and concern about the environment. Whether it is because of environmental pollution, global warming or the excessive use of natural resources (Cornelissen et al., 2008; Gregory, 2000; Harper & Makatouni, 2002; Van Doorn & Verhoef, 2011; Yiridoe et al., 2005). This is reflected in the increasing concerns about corporate social responsibility initiatives (Lichtenstein et al., 2004).

However, some academics outline the choice for or against organic food as a social dilemma. Where consumers must consider individual motives, such as quality and healthfulness

considerations, against collective or social interests, such as a better environment (Auger et al., 2008; Van Doorn & Verhoef, 2011). Since there are consumers that associate organic products to lower quality when compared with conventional food (Bourn & Prescott, 2002).

Overall, the underlying motives for the consumption of organic food is still not a topic of consensus among the academic. Some researchers defend that health, nutrition, taste, lack of chemicals and environmental concerns are the main reasons for the consumption of organic food. Whereas for others the food safety, freshness, care for animals' welfare and personal satisfaction are the main drivers' (Baker et al., 2004; Bryła, 2016; Gottschalk & Leistner, 2013). Within the TMT and mortality salience literature, examining the consumption of organic versus conventional food is important since it may reflect, through product purchasing, how consumers deal indirectly with the context they are living with, namely their attitudes, as reviewed next.

Consumer Attitudes:

Actions stem from attitudes, so the action of consuming organic food will stem form positive attitudes towards it. Attitudes are linked to ideas, motivations and experiences and can be compared to consumer likes and dislikes. That is positive or negative orientations regarding organic or conventionally grown foods (Barnett, 2003).

The consumer's preference for a particular product is based on attitudes towards the available alternatives. In this case the comparison of organic products with those conventionally produced (Fishbein & Ajzen, 1997). Therefore, when consumers are asked to indicate their preference regarding the nature of the food they usually compare their attitudes towards the production methods of the goods and/or the characteristics of the product under consideration, before stating their preferences (Yiridoe et al., 2005).

Overall, the academic literature suggests that various consumer attitudes work in contrasting ways - for and against buying organic products (Barnett, 2003; Goldman & Clancy, 1991).

2.7 Consumer Purchase Intention

In the marketing literature, purchase intention has been considered a good predictor for subsequent purchase behaviour, leading to conclude that this indicator is a good short-term predictor (Morwitz & Schmittlein, 1992). Additionally, it can be defined as the probability that a consumer will purchase a specific product (Morrison, 1979).

Concerning the mortality silence topic, research shows that reminders of death can impact a variety of consumers behaviours, such as purchase intention (Dar-Nimrod, 2008).

Purchase intention for green products is very hard to predict. Some research on this topic as acknowledged a positive relationship between the consumer purchase intention and the label of the organic products (Wessells et al., 1999). On the other hand, there are studies that suggest that purchase intention for organic good is lower because the taste and quality advantage for organic food remains unimpressive (Bourn & Prescott, 2002). The purchase intention for organic food would depend on various factors such as consumers' sociodemographic, health consciousness, and environmental concerns (Grunert & Juhl, 1995; Schifferstein & Oude Ophuist, 1998; Van Doorn & Verhoef, 2011). However, in theory, consumers would prefer organic food, since it offers an additional attribute in comparison to conventionally produced ones, which is being organic (Van Doorn & Verhoef, 2011).

2.8 Consumers' Willingness to Pay

Prior literature has defined willingness to pay as the highest price that consumers are willing to depend on one unit of a certain good or service (Shogren et al., 1994).

On the green products market, it has been suggested that consumers are willing to "pay for the privilege of buying green" (Paul & Rana, 2012, p.412). This is because the claim that products are organic, represents an additional feature to the product, differentiating those type of products from the conventional in the market (Van Doorn & Verhoef, 2011). Moreover, willingness to pay is higher for organic food since consumers intend that the production of those products is more costly (Byrne et al., 1991).

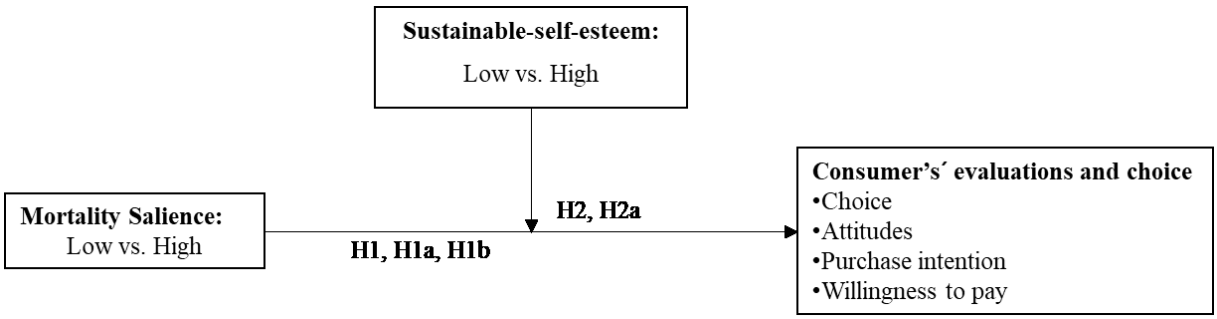
3. Conceptual Model and Hypothesis

In this chapter, it will be presented the conceptual framework and the hypotheses derived from the literature review.

3.1 Conceptual framework

Based on the academic literature review, the present dissertation aims to get a better understanding of mortality salience and how self-esteem impact consumers evaluations and choices between organic and conventional food. Therefore, the independent variable is mortality salience (low versus high), the dependent variables are consumers' purchase intention, willingness to pay, attitudes and choice's and the moderator is sustainable-self-esteem (low versus high).

Figure 1- Conceptual Framework



3.2 Hypotheses

Previous TMT literature suggests that in mortality salience, the awareness that death is inevitable affects numerous aspects of people's lives that may be unrelated to death (Greenberg et al., 1994). Past literature suggests that mortality salience increases pro-social behaviours since activities of such kind make people feel good, valuable to society tend to be living according to the standards of "goodness" (Jonas et al., 2002). Based on this prior literature the following hypotheses are proposed:

H1: Mortality salience will have an impact on consumers' choice and evaluations of (organic vs. conventional) food products (attitudes, purchase intention, willingness to pay).

H1a: The choice of organic versus conventional food will be higher (lower) when mortality salience is high (low).

H1b: Consumers' evaluations will be higher (lower) for organic food than for conventional food when mortality salience is high (low).

TMT suggests that an individual exposed to high mortality salience (vs. low mortality salience), would give greater attention to central domains, which are sources of self-esteem. Additionally, increasing one's self-esteem might lead to distinct coping behaviours among each individual Ferrero et al. (2005). Past research also shows that, as people tend to increasingly pursue the standards that support their self-esteem when mortality becomes salient, different individuals within different domains of self-esteem react distinctively in those circumstances (Crocker et al., 2003). So, people who increase their self-esteem through the feelings of contribution to sustainable causes are likely to increase (vs. decrease) their organic product consumption when mortality salience is made salient. A source of self-esteem may be sustainable consumption - *sustainable-self-esteem*, which the author predicts will act as a moderator on the relationship between mortality salience and consumers' choice and evaluation of food products. The third hypothesis thus proposed, as follows:

H2: The impact of mortality salience on consumers' evaluations and choices of food products will be moderated by *sustainable-self-esteem*.

H2a: When mortality salience is high (low), consumers with high (low) *sustainable-self-esteem* will increase (decrease) their choice and evaluations of organic food products over conventional ones.

4. Methodology and Data Collection

This chapter will describe the variables and the methods used to answer the research questions stated in chapter one.

4.1 Research Method

After analysing the secondary data, quantitative research was conducted to answer the research questions. Two experimental tests were directed: a pilot test of the main study and the main study. The platform used for the predesigned questionnaires was Qualtrics. This software enables innumerable options concerning survey structure, question types, shareability as well as helping instruments such as randomization of questions, which are great features to build customizable surveys to address the objective of the research. The studies took the form of online surveys to attain a vast and fast number of answers at a lower cost. Moreover, through this method, respondents could fill and complete the survey in their usual settings at the most suitable time, ensuring better concentration.

4.2 Sampling

The chosen sample technique was non-probability convenience sampling. This technique was chosen due to the speed, ease and cost-effectiveness (Malhotra et al., 1999) since the data was collected from convenient and easily accessible participants. This method leads to a non-equal probability of members of the population to have a chance to participate in the studies.

4.3 Research Instruments

The two quantitative instruments, a pilot and main survey were run using the previously mentioned software, Qualtrics. The respondents that participated in the pilot study did not enter the main study. The anonymity of the participants was guaranteed with the surveys being shared through an anonymous link via social media platforms (WhatsApp, Instagram and Facebook).

Pilot Test Study

Before releasing the main study, the pilot survey was launched between the 16th and the 17th of November of 2020. The study was answered by twenty participants, which tested if the manipulations for high (COVID-19 scenario) and low (back pain scenario) mortality salience were clear. Additionally, through this study, the author tested if the different food stimuli were perceived as sustainable and non-sustainable food. Moreover, the survey was launched to

improve the wording, the clarity and to test the functionality of the survey flow for the main experimental study.

The results for the independent sample *t-test* indicate there is a significant difference in the fear feel scores for participants exposed to the high versus low mortality salience scenario ($M_{Fear\_High\_Mortality}$ = 5.92 vs. $M_{Fear\_Low\_Mortality}$ = 4.13; t (1,20) = -3.99, $p < .001$]. This indicates that the participants in the high mortality (COVID-19) condition demonstrated a significantly higher agreement with the feeling of anxious, afraid and scared when compared to the low mortality salience (back pain) participants (see Table 1). Results confirm that the manipulation check performed according to the authors' expectation where this negative feeling emerged when the participants are exposed to a mortality salience context.

Table 1- Manipulation Check - Pilot test

	High mortality salience (COVID-19)		**Low mortality salience (Back pain)**		
	Mean	*SD*	*Mean*	*SD*	*t-test*
Fear feel	5.92	.75	4.13	1.38	- 3.99***
Positive feel	1.36	.72	2.50	2.20	1.81

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

Main Study

The main study was translated into two different languages, Portuguese and English. 351 responses were registered, from which only 239 were completed and fulfilled the attention task and consequently used in the analyses. The abandonment rates for online surveys are usually quite high, resulting in participants not reaching the end of the questionnaire. The reasons for this may have to do with the lack of a sense of commitment to finish the research or be easily distracted (Reips, 2002). From the valid responses, 127 were exposed to the COVID-19 scenario and 112 to the back-pain scenario.

The participants were also randomly assigned to two of the three conditions regarding food choices (rice, eggs and ice cream). 162 participants were exposed to the rice scenario, 155 were exposed to the egg's scenario and, lastly, 161 participants were exposed to the ice cream scenario.

4.4 Design and Procedure

The main objective of this study is to analyse the impact of COVID-19 on food consumption. The data used in the study was collected from the 18th to the 20th of November of 2020. The main study started with a small introduction about the study, thanking the participants and ensuring their anonymity. The survey was elaborated based on the mortality salience experimental research. Some participants were exposed to a condition where they were reminded of their mortality (i.e., COVID-19), while others were subjected to a control condition, where were jog someone's memory of an unpleasant theme that is unconnected with death (i.e., back pain) (Ferraro et al., 2005; Harmon-Jones et al., 1997; Menzies & Menzies, 2020). Thus, participants were randomly assigned to one of the two conditions. The study designed followed a 2 (mortality salience: high, low) between-within subjects' design with self-esteem as measured (continuous) variable. The participants were randomly exposed to different manipulations. This was done using the even randomization function on Qualtrics.

Afterwards, the manipulation check scale, that measured how participants were feeling, was presented. This scale's objective was to measure the effects of each scenario on respondents' feelings related with anxiety, fear and positive feelings to check differences between those exposed to the high mortality salience (COVID-19) condition versus those in the low mortality salience (back pain) condition. Since fear and anxiety, are specific feelings associated with the thought of one's own death, the low mortality salience condition (back pain) should not generate these feelings. Regarding the positive feelings, the respondents were expected not to exhibit differences since none of the scenarios was trying to generate positive feelings (Greenberg et al., 1994; Pyszczynski et al., 1999). Next, participants were exposed to two sets of products– an organic and a conventional food of the same type (see Appendix 2: Different Products Presented) and were asked to choose between each. Participants were also asked to provide reasons for their choices through a list of choice attributes provided to them. Then, they were asked about their purchase intention and willingness to pay for each (organic vs. conventional) product. The self-esteem scale was then, presented followed by the organic product consumption frequency. Lastly, they were asked about their attitudes towards organic food using an adapted scale from literature (Sparks & Shepherd, 1992). The second manipulation check was used at this point in the survey. The survey ended with the demographic's questions. This questions included whether they were healthcare professionals or not since that might affect the response to death (Hu et al., 2018)), as well as about their gender, nationality, age, education, occupation and income. See Appendix 1: Main Survey for the full questionnaire.

4.5 Stimuli Development

The study stimuli were composed by a brief text contextualizing the participants about the scenario each one was exposed. These texts provided numerical data: For COVID-19 scenario, participants were presented with numbers of worldwide confirmed cases and deaths due to the virus at the time the survey was launched. For the back-pain scenario, the inquiries were exposed to data regarding the incidence of back pain problems worldwide. Additionally, to try to put the respondent's minds in the right mindset for the questionnaire, participants were asked to imagine themselves in one of the scenarios. Participants were then asked to answer two open-ended questions adapted from traditional TMT research (Arndt et al., 2002; Arrowood et al., 2017; Ferraro et al., 2005): "Please briefly describe in one word the emotion that contracting COVID-19 arouses in you," and "Write down as specifically as you can what do you think it will happen to you physically if you contract the COVID-19 virus.". The participants in the control group answered about back pain, adapted from prior TMT literature where they typically ask about dental pain (Arndt et al., 2002; Pyszczynski et al., 1999), "Please briefly describe in one word the emotion that the thought of experience back pain arouses in you," and "Write as specifically as you can what do you think it will happen to you physically should you experience back pain." (see Appendix 1: Main Survey).

4.6 Variable Description

All the independent and dependent were measured after the exposure of the participants to the stimuli. Most of them were measured and assessed using 7-point scales.

Manipulation Check:

The manipulation check concerning the mortality salience was measured with a 5-items scale adapted from PANAS scale (Watson et al., 1988). The participants had to rate the level of agreement (1- Strongly agree, 7- Strongly disagree) with statements regarding how the situation previously presented (the manipulation scenarios) made them feel. The statements had positive and negative feelings. This scale's objective was to measure the effects of the manipulation scenarios and study if, participants' negative feelings associated with anxiety, fear and scaredness were higher in participants exposed to the high mortality (COVID-19) rather than the low mortality salience (back pain) scenario since those are feelings that mortality salience should amplify.

The second manipulation check was used to assess if the manipulation effect was valid through the whole questionnaire, participants were asked to rate if during the survey they were thinking about COVID-19 on a scale from 1 (Definitely not) to 7 (Definitely yes).

Independent Variables

Mortality Salience: the mortality salience was presented as the stimuli where participants were either exposed to COVID-19 manipulation (high mortality salience) or the back-pain manipulation (low mortality salience) scenarios.

Dependent Variables

Choice: Participants were presented with two out of three scenarios represented by different product type (rice, eggs, or ice -cream). In each scenario, they had an organic and a conventional option for the same product. Participants were asked to choose one of the products (organic or conventional) (See Appendix 2: Different Products Presented). This type of choice method was adapted from a prior TMT research from Ferraro et al. (2005).

Purchase intention: For each type of product presented (rice, eggs and ice-cream), participants were asked about their purchase intentions for both organic and conventional products on a seven-point scale ("How likely would you be to purchase this food item?" 1= Extremely unlikely, 7= Extremely likely). This method was adapted from previous literature (Juster, 1966; Loebnitz & Grunert, 2018).

Willingness to pay: For each type of product (rice, eggs and ice-cream), participants were asked about their willingness to pay for the organic and conventional products, on a seven-point scale ("How much are you willing to pay for an organic/conventional version of each product type)?", adapted from previous research on the topic (Van Doorn & Verhoef, 2011).

Attitudes: To measure the attitudes towards organic food subjects were asked to respond on three items to the statement "Eating organic food is:" on a scale from 1= Extremely bad to 7= Extremely good; 1= Extremely unenjoyable, 7=Extremely enjoyable; 1= Extremely unhealthy, 7= Extremely healthy. The method used was adapted from prior research methods (Sparks & Shepherd, 1992).

Covariates:

Reasons for the Choice: After choosing the product, the respondents sated the reasons for their choice (either organic or conventional). The scale regarding the choice reasons was on a scale

adapted from the literature on food choice dimensions when purchasing organic and conventional products (Baudry et al., 2017). Participants were asked to rate the level of importance related with eight items (environmental impact, animal cruelty, respect for workers/human rights, price, taste, health benefits, packaging attributes and quality) on a 7-point Likert scale (1-Extremely unimportant, 7-Extremely important).

Organic consumption frequency: this question was asked after the self-esteem scale and asked participants their frequency of organic product consumption, on a 7-point scale (1-Extremely rare, 7-Extremely frequent).

Moderator

Sustainable-self-esteem: Participants' self-esteem was measured on a scale adapted from the Contingencies of Self-Worth Scale (Crocker et al., 2003). This scale was used in previous TMT research (Ferraro et al., 2005). Participants were asked to rate their level of agreement with four items related to self-esteem from sustainable behaviours ("Whenever I do something good for the environment my sense of self-esteem gets a boost.") on a 7-point scale (1- Strongly agree, 7- Strongly disagree).

An attention check item was present in the middle of the *sustainable-self-esteem* scale. Participants were asked to select a specific option, strongly agree. Whoever did not select that option, and was identified as an outlier, was not considered valid, due to high suspicion of lack of concentration in the completion of the survey (Abbey & Meloy, 2017).

5. Analysis and Results

5.1 Sample Characterization

The data analysed in the main study was composed of 239 participants. These responses represented 478 observations since each participant was exposed to two scenarios (two product types). The sample was in majority represented by females (68.2%) while only 31.8% were male. Moreover, there was a minority of healthcare professionals (17.6%). The sample was mainly composed by Portuguese (95.8%) and a smaller representation of other nationality, such as German, Brazilian, Italian and Azerbaijanian. The majority of participants (62.3%) were aged between 18-24 years old, followed by the age group of 25 to 34 (18.8%). The third age group most present in the sample was from 55 to 64 years old (7.5%) just before the 45 to 54 years old (6.7%). The least present age groups were from 35 to 44 years old (3.3%) and 65 or older (1.3%). As far as the educational level is concerned, most of the participants had completed a bachelor's degree (53.1%) or a master's degree/MBA (35.8%). Most of the participants were employed (47.3%), students (40.2%) or working students (7.1%). Lastly, the annual income levels varied from under €10,000 (12.6%), €10,000 - €19,999 (14.2%), €20,000 - €29,999 (15.5%), €30,000 - 39,999 (7.1%), €40,000 - 49,999 (7.1%), €50,000 - 74,999 (21.3%), €75,000 - 99,999 (7.9%), €100,000 - 150,000 (5.0%) and over €150,000 (9.2%).

5.2 Data Screening and Multivariate Outliers

Before proceeding with the main study analysis, a multivariate outlier analysis was performed. This analysis was performed to identify unusual responses or possible errors that can influence the results. This method analyses the combination of two or more variables and identifies if those combinations are uncommon (Pallant, 2001; Seltman, 2015). So, a distance from Mahalanobis was calculated for each participant and responses with a p-value of less than .05 ($p < .05$) were considered outliers. As a result, six multivariate outliers were identified. From those only four have been removed from the sample, as they had not fulfilled the attention check. As the literature is not unanimous concerning maintaining or excluding outliers, the decision was considered and the best solution the decision was for this research (Osborne & Overbay, 2004; Orr et. al.,1991).

5.3 Scales Reliability

The scales consistency was then measured. Firstly, factor analysis was done for all scales since all had more than two items, to find if all items were measuring the same construct. The internal consistency of the scales was then measured by analysing Cronbach's alpha coefficient since it is one of the most commonly used methods to access if all the items in a scale are measuring the same underlying construct (Pallant, 2001). To verify the internal consistency, the coefficient values should be above .60, values .65 and .70 are minimally accepted, where values between .80 and .90 are considered very good (DeVellis, 1991).

For the Feelings' scale, a factor analysis procedure with a principal component analysis and varimax rotation was conducted (see Appendix 3: Factor analysis results). The factor analysis indicated that the items measuring the feelings' measure loaded on two factors –positive and negative feelings. Therefore, this scale was further divided into two scales – a negative feelings' scale - the Fear Feelings' scale composed by the items "I feel anxious", "I feel afraid" and "I feel scared" (Cronbach α = .81). And a Positive feelings' scale - composed of two items "I feel inspired" and "I feel enthusiastic" (Cronbach α = .86). The internal consistency was then accessed using Cronbach's alpha coefficient and both showed very good consistency (See Table 2).

For the Choice Attributes scale also recorded two components in the factorial analyses. Further information on this scale can be found in Appendix 3: Factor analysis results and Appendix 4: Choice attributes scale reliability. For the *Sustainable-self-esteem* scale and Attitudes' scale, the factor analyses loaded one component only and had high reliability (See Table 2).

Table 2- Reliability test for multi-item scales

Scale	Number of Components	Initial Number of items	Dived into (X) Scales	Cronbach's alpha	Cronbach's alpha if items deleted	Final number of items
Feelings	2	5	2	-	-	-
Fear Feel	1	3	-	.806	-	3
Positive Feel	1	2	-	.858	-	2
Choice Attributes	2	6	2	-	-	-

Others Benefit	1	3	-	.848	-	3
Quality Perceptions	1	2	-	.669	-	2
Sustainable-self-esteem	1	4	-	.849	-	4
Attitudes	1	3	-	.889	-	3

5.4 Results Manipulation Check

To test the manipulation check an independent-samples *t-test* at a 95% confidence interval was conducted and the results indicate there is a significant difference in the fear feel scores for participants exposed to the high versus low mortality salience scenario ($M_{Fear\_High\_Mortality} = 5.26$ vs. $M_{Fear\_Low\_Mortality} = 4.35$; t (1,476) = -6.96, $p < .001$]. This indicates that the participants in the high mortality (COVID-19) condition demonstrated a significantly higher agreement with the feeling of anxious, afraid and scared when compared to the low mortality salience (back pain) participants (see Table 3- Manipulation check – Fear feel (Independent-sample t-test)). These results confirm that the manipulation check performed according to the authors' expectation where this negative feeling emerged when the participants are exposed to a mortality salience context.

Table 3- Manipulation check – Fear feel (Independent-sample t-test)

	High mortality salience (COVID-19)		**Low mortality salience (Back pain)**		
	Mean	*SD*	*Mean*	*SD*	*t-test*
Fear feel	5.26	1.37	4.35	1.48	- 6.96***
Positive feel	2.07	1.24	2.07	1.48	-.63

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

To test the priming effect of the manipulation check, an independent-samples *t-test* was conducted to compare the remembrance of COVID-19 for the participants exposed to the different manipulation's salience. There was a significant difference in the mean of

remembrance of COVID-19 during the survey for participants exposed to high mortality salience (COVID-19) scenario when compared with participants exposed to low mortality salience scenario (back pain) ($M_{COVID\text{-}19\_Remembrance\_High\_Mortality}$= 3.13, SD= 1.86 vs. $M_{COVID\text{-}19\_Remembrance\_Low\_Mortality}$ =2.16, SD = 2.08; t (472) = - 5.374, $p < .05$]. The results suggest that the participants exposed to the COVID-19 scenario were thinking more about COVID-19 than the ones exposed to the back-pain scenario (see Table 4).

Table 4- Manipulation Check for Mortality Salience- t-test- Remembrance of COVID-19

	High mortality salience (COVID-19)		**Low mortality salience (Back pain)**		
	Mean	*SD*	*Mean*	*SD*	*t-test*
Remembrance of COVID-19	3.13	1.86	2.16	2.08	-5.37***

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

5.5 Main Results

After ensuring the variables' reliability and the successful test of the manipulations check for the different scenarios, the hypotheses' tests were conducted to test the impact of mortality salience on the dependent variables: Choice of products (organic versus conventional), the purchase intention, willingness to pay and attitudes towards organic food. Additionally, *sustainable-self-esteem* was tested as a moderator on the aforementioned relationship.

5.6 The impact of mortality salience

H1: Mortality salience will have an impact on consumers' choice and evaluations of (organic vs. conventional) food products (attitudes, purchase intention, willingness to pay).

H1a: The choice of organic versus conventional food will be higher (lower) when mortality salience is high (low).

To test H1a a chi-square indicator was analysed ($\chi^2 = 1.70$; $p > .05$). Results show that the proportion of participants who chose organic food products is not significantly different from the proportion of participants who chose conventional products in either high or low mortalities

salience scenarios, not validating H1a (see Table 5Table 5- Impact of mortality salience on choices).

Table 5- Impact of mortality salience on choices

	High mortality salience (COVID-19)		**Low mortality salience (Back pain)**		
	Organic	*Conventional*	*Organic*	*Conventional*	*Chi-square*
Choice between Organic and Conventional	40.9%	59.1%	46.9%	53.1%	1.70

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

H1b: Consumers' evaluations will be higher (lower) for organic food than for conventional food when mortality salience is high (low).

A one-way analysis of variance (ANOVA) was performed to investigate the mortality salience impact on consumers' evaluations of food. The five dependent variables were tested: purchase intention for organic food, the purchase intention for conventional food, WTP for organic food, WTP for conventional food and attitudes. A non-significant mortality salience main effect was observed on the dependent variables: (all *Fs p >.05;* NS), also rejecting H1b, which suggests that mortality salience did not show differences in participants' evaluations between organic and conventional products (see Table 6).

Table 6- Impact of mortality salience on consumers' evaluations

	High mortality salience (COVID-19)		**Low mortality salience (Back pain)**		
	Mean	*SD*	*Mean*	*SD*	*F*
PI Organic	4.41	1.87	4.61	1.88	1.27
WTP Organic	2.29	1.49	2.31	1.49	.03
PI Conventional	5.47	1.61	5.71	1.58	2.63
WTP Conventional	1.87	1.22	1.94	1.39	0.41
Attitudes	5.81	1.06	5.87	0.89	0.38

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

After carefully analysing the results we do not reject the null hypotheses and reject the hypotheses that mortality salience will have an impact on consumers' evaluations and choice between conventional and organic products. Therefore, H1 is not validated.

The moderating effect of *sustainable-self-esteem*

H2: The impact of mortality salience on consumers' evaluations and choices of food products will be moderated by sustainable-self-esteem.

H2a: When mortality salience is high (low), consumers with high (low) sustainable-self-esteem will increase (decrease) their choice and evaluations of organic food products over conventional ones.

To test hypothesis 2, a multiple regression analysis was conducted using model 1 of the PROCESS macro (Model 1; (Hayes, 2012; 2018)), to assess how *sustainable-self-esteem* moderated the relationship between mortality salience and consumers' choice and evaluations of food products. Mortality salience was entered in the regression as a dichotomous independent variable (low vs. high) *sustainable-self-esteem* as a (continuous) moderator, and attitudes towards organic foods, purchase intention of organic and conventional food, WTP of organic and conventional food, and choice between organic and conventional food, as the dependent variables. *Sustainable-self-esteem* linearly moderates the effect of mortality salience on the

dependent variables if the regression coefficient for the interaction is different from zero between lower and upper-level confidence intervals (Hayes, 2012; Hayes, 2018).

Results show that the interaction term was statistically significant (B = .29 SE = .08, *t (*474) = 3.68, $p < .01$, 95% CI = [.13, .44]) in our model, indicating that self-esteem was a significant moderator of the effect of mortality salience on attitudes towards organic food products.

However, the main effect of mortality salience on attitudes was not significant (B = -.49, SE = .08, *t* (470) = -.59, $p = .56$, 95% CI = [-.21, .11]), yet, *sustainable-self-esteem* was positive and significant (B = .19, SE = .06, *t* (470) = 3.31, $p < .01$, 95% CI = [.75, .29].

Since the interaction term in our model was statistically significant, we want to explore the interaction, to better interpret the nature of the moderated relationship between mortality salience and attitudes. Slope analysis (Aiken & West, 1991; Fitzsimons, 2008) then revealed that differences emerged at one standard deviation below and above the mean. That is, at -1 SD (i.e., at -1.07) on the centred self-esteem variable (representing low self-esteem), the relationship between mortality salience and attitudes was negative and significant (B = -.36, SE = .12, *t* (470) = -3.07, $p < .01$, 95% CI = [-.59, -.13])). At, the mean (i.e., at 0) on the centred moderator variable (representing medium self-esteem), the relationship was negative but non-significant (B = -.05, SE = .08, *t* (470) = -0.59, $p > .05$, 95% CI = [-.21, .11]). Finally, at +1SD (i.e., +1.07) on the centred self-esteem variable (represent high self-esteem), the relationship was positive and significant (B = .25, SE = .12, *t* (470) = 2.12, $p < .05$, 95% CI = [.02, .48]).

The results were also analysed when covariates were included in the study, and there was no significant difference in the results. The outcome of the analysis shows that mortality salience significantly influences individuals' attitudes towards organic food when they have higher (+1SD) and lower self-esteem scores (-1SD). (see Table 7).

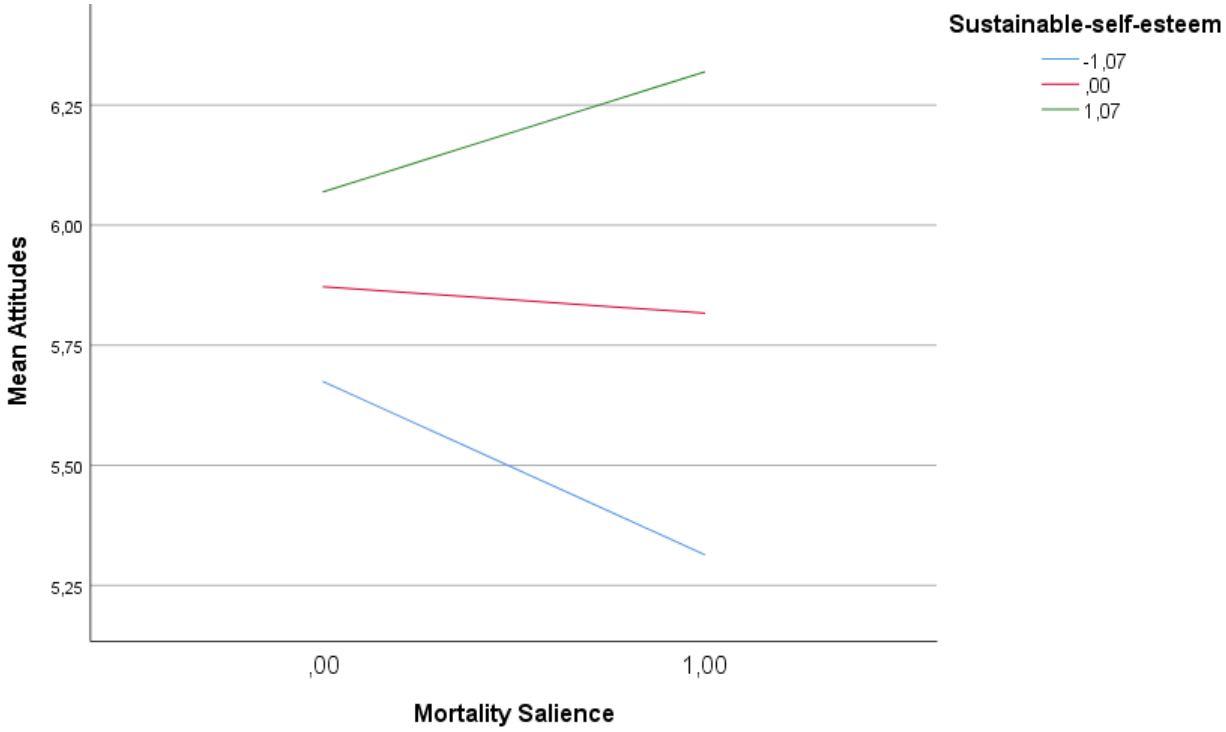
Table 7- Sustainable-self-esteem as a moderator on the effect of mortality salience on consumers´ attitudes towards organic food products- Linear Regression

		Coefficient	***SE***	***Low CI***	***Upper CI***
Outcome	*Sustainable-self-esteem** mortality salience	.29***	.08	.13	.44
Conditional Values	Low *Sustainable-self-esteem* (-1 SD)	-.36**	.12	-.58	-.12
	Medium *Sustainable-self-esteem*	-.05	.08	-.21	.11
	High *Sustainable-self-esteem* (+1 SD)	.25*	.12	.02	.48

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

Interestingly, findings show that at higher self-esteem scores the interaction leads to higher attitudes toward organic food scores, which are related to more positive attitudes. On the other hand, at lower self-esteem scores the interaction leads to lower attitudes towards organic products scores.

Figure 2- Sustainable-self-esteem as a moderator on the effect of mortality salience on consumers´ attitudes - Linear Regression



Using a regression analysis (Hayes, 2012; Hayes, 2018, Model 1), the cause mortality salience x self-esteem scores interaction shows a non-significant effect on the purchase intention of conventional food products (B = .23 SE = .14, *t* (474)= 1.71, *p* > .05, 95% CI = [-.04, .50]) nor on the purchase intention of organic products (B = .22 SE = .15, *t* (474)= .88, *p* > .05, 95% CI = [-.27, .31]).

When this interaction was tested further by adding the choice attributes quality perceptions and price as covariates in the analysis, a significant mortality salience x sustainable-self-esteem interaction emerged (B = .27 SE = .14, *t* (470) = 1.99, *p* < .05, 95% CI = [.00, .54]) indicating that *sustainable-self-esteem* was a significant moderator of the effect of mortality salience on the purchase intention of conventional products when choice reasons (e.g., social and self-benefits, quality perceptions and price) are entered as covariates.

However, the main effect of mortality salience on purchase intention of conventional products was not significant (B = -.18, SE = .08, *t* (470) = -.59, *p* = .56, 95% CI = [-.21, .11]). In spite that, *sustainable-self-esteem* was positive and significant (B = .19, SE = .06, *t* (470) = 3.31, *p* < .01, 95% CI = [.75, .29].

Since the interaction term in our model was statistically significant, the effects of the interaction were explored further.

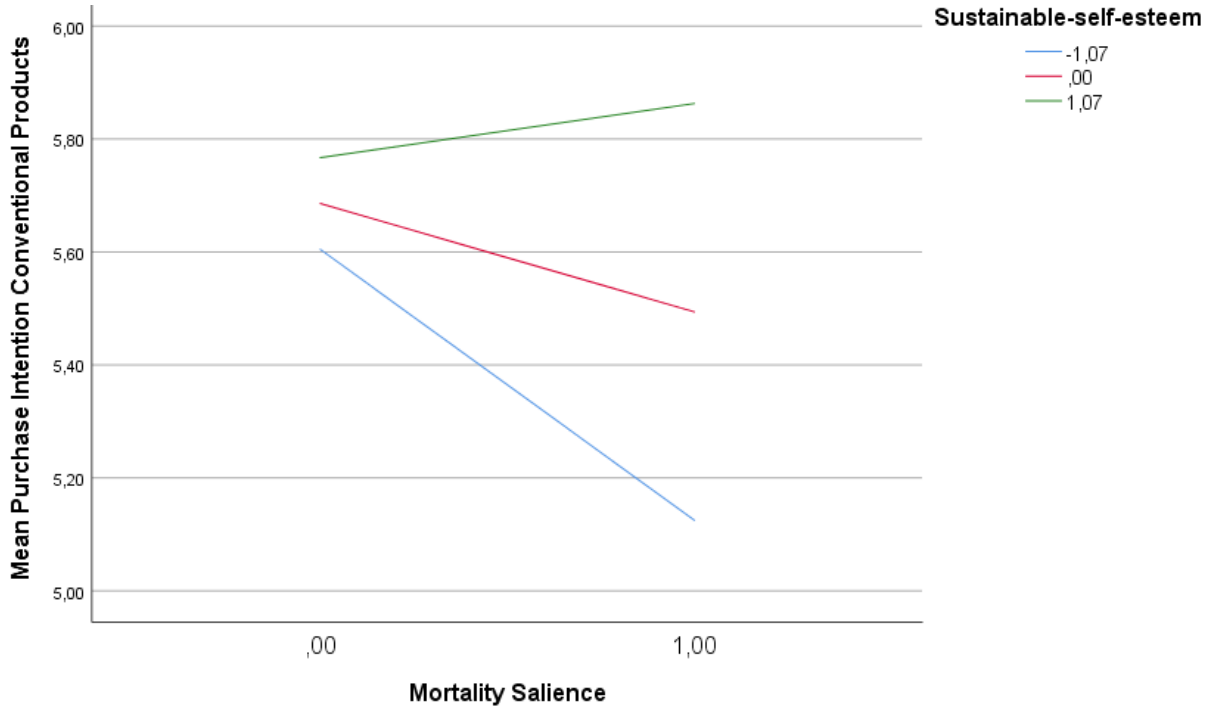
Looking at the conditional values, we can see that at -1 SD (i.e., at -1.07) on the centred self-esteem variable (representing low self-esteem), the relationship between mortality salience and the purchase intention of conventional products was negative and significant (B = -.48, SE = .20, t (470) = -2.35, $p < .05$, 95% CI = [-.88, -.08]). In contrast, mortality salience did not influence the purchase intention of conventional for individuals with high self-esteem (+1SD). Results show that mortality salience significantly influences individuals' purchase intention of conventional food products when they have lower *sustainable-self-esteem* (-1SD), (see Table 8)

Table 8- Sustainable-self-esteem as a moderator and choice attributes as covariates on the effect of mortality salience on consumers´ purchase intention of conventional products- Linear Regression

		Coefficient	***SE***	***Low CI***	***Upper CI***
Outcome	*Sustainable-self-esteem** mortality salience	.27*	.14	.00	.54
Conditional Values	Low *Sustainable-self-esteem* (-1 SD)	-.48*	.20	-.88	-.08
	Medium *Sustainable-self-esteem*	-.19	.14	-.48	.09
	High *Sustainable-self-esteem* (+1 SD)	.10	.20	-.31	.50

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

Figure 3- Sustainable-self-esteem as a moderator and choice attributes as covariates on the effect of mortality salience on consumers´ purchase intention for conventional products - Linear Regression



The cause mortality salience x sustainable-self-esteem scores interaction shows a non-significant effect on the purchase intention of organic products nor the willingness to pay for the organic and conventional product nor the choice between organic and conventional products ($|ts| < -.10$, $ps > .31$), partially validating H2. These findings suggest that *sustainable-self-esteem* is positively correlated with consumers' attitudes toward organic food products but not on purchasing behaviours.

6. Further Analysis

6.1 Consumers' evaluations across different products nature.

Since both the purchase intention and willingness to pay were collected for organic and conventional products, a paired-samples *t-test* was conducted to evaluate the impact of the mortality salience on those variables.

Results show that there is a significant difference in the purchase intention and WTP for the different products (organic and conventional). The purchase intention for conventional products was significantly higher than for organic products ($M_{PI\_Organic\_High\_Mortality\_Salience} = 4.41$, $SD = 1.88$ *vs* $M_{PI\_Conventional\_High\_Mortality\_Salience} = 5.47$, $SD = 1.61$; $t\ (253) = -7.47$; $p < .001$) and ($M_{PI\_Organic\_Low\_Mortality\_Salience} = 4.60$, $SD = 1.88$ *vs* $M_{PI\_Convnetional\_Low\_Mortality\_Salience} = 5.71$, $SD =$

1.58; t (223) = -6.45; $p < .001$), when participants were exposed to the high and the low mortality salience condition showing that consumers' purchase intention is likely to be higher for conventional food products than for organic ones.

Conversely, results show that participants were willing to pay more for organic products when exposed to the high mortality salience scenario ($M_{WTP\_Organic\_High\_Mortality\_Salience} = 2.29$, $SD = 1.49$ *vs* $M_{WTP\_Conventional\_High\_Mortality\_Salience} = 1.87$, $SD = 1.22$; t (253) = 8.11; $p < .001$) and ($M_{WTP\_Organic\_Low\_Mortality\_Salience} = 2.31$, $SD = 1.49$ *vs* $M_{WTP\_Convnetional\_Low\_Mortality\_Salience} = 1.94$, $SD = 1.39$; t (223) = 6.54; $p < .001$)

Findings show that consumers' evaluations differed between conventional and organic products. Although for purchase intentions, participants were more likely to purchase conventional than organic products in both the high and low mortality salience conditions. The WTP for organic products was higher when participants were exposed to the high mortality salience condition. Consequently, an interesting phenomenon seems to arise, since the outcome suggests that participants are in fact willing to pay more for organic products. However, when it comes to the decision of deciding to buy, consumers end up deciding to buy conventional products instead of the organic ones (see Table 9).

Table 9- Consumers evaluations (further analysis)

	Organic		**Conventional**		
	Mean	*SD*	*Mean*	*SD*	*t-test*
Purchase intention- Low mortality salience	4.60	1.88	5.71	1.58	-6.45***
Purchase intention- High mortality salience	4.41	1.88	5.47	1.61	-7.47***
Willing to pay - Low mortality salience	2.31	1.49	1.94	1.39	6.54***
Willing to pay - High mortality salience	2.29	1.49	1.87	1.22	8.11***

Note: ***$p < .001$, **$p < .01$, *$p < .05$, +$p \leq .1$

6.2 Consumers' Emotions

Different emotions emerged between the two groups (high and low mortality salience scenarios) when the "Please briefly describe in one word the emotion that contracting COVID-19/ experiencing back pain arouses in you" question was studied. The results from the open-ended questions that each participant was exposed to were codified and analysed. All the responses were organized in alphabetical order and words with the same meaning were codified as one single word, e.g. anxious and anxiety were both codified as anxiety. The list of emotions was then placed on a word cloud generator to generate Figure 4 and Figure 5.

For the participants exposed to the high mortality salience (COVID-19) the most common emotion expressed was fear followed by anxiety. We can see the difference in frequency in the size of the words in Figure 4. For participants exposed to the low mortality salience (back pain) scenario, there were more dispersed emotions but discomfort and annoyance were the most mentioned ones (see Figure 5).

Figure 4- Emotions on high mortality salience

Figure 5- Emotions on low mortality salience

7. Conclusions and Implications

The study main purpose is to understand if COVID-19 impact mortality salience among consumers (RQ1). Also, if there was an impact on the consumer's evaluations and choice of food products (RQ2). Lastly, this research intended to study how self-esteem could positively (vs. negatively) impact consumers' evaluations and choices of food during the COVID-19 pandemic (RQ3).

Focusing on the first research question (RQ1), findings suggest that there is an increase in the mortality salience in the COVID-19 context. These findings are in line with previous literature that indicates that the COVID-19 context has increased mortality salience (Arrowood et al., 2017; Bélanger et al., 2013; Van Tongeren et al., 2016).

According to the literature, the increase in mortality salience is likely to change the consumers' evaluations of organic and conventional food (Rahimah et al., 2020; Van Doorn & Verhoef, 2011). However, the results show that the mortality salience did not impact the consumer's choice and evaluations of food. So, regarding the second research question, we can say that our results did not fulfil the forecasted expectations (RQ2).

The differences between consumers' evaluations of organic and conventional food were further analysed. Results show that there was a decreased purchase intention of organic products compared to conventional products. However, there was a higher WTP organic products when compared with the conventional ones indicating that consumers value organic foods.

Moreover, the third research question was then explored (RQ3). Findings suggest that mortality salience (COVID-19) leads to more positive attitudes towards organic food for consumers that have sustainability behaviours as their source of self-esteem. That is, for higher levels of self-esteem respondents showed more positive attitudes towards organic food when mortality salience was high (COVID-19), whereas the contrary happened for lower levels of self-esteem. That is, there were less positive attitudes toward organic food when mortality salience was high. These results follow the TMT theory that suggests only the central domains that give origin to the individual self-esteem are expected to reinforce the behaviour's according to the social norms when mortality is made salience (Arndt et al., 1997; Crocker et al., 2003; Ferraro et al., 2005; Greenberg et al., 1992).

Interesting results also emerge suggesting that mortality salience leads to a lower purchase intention for conventional products for consumers with lower sustainability behaviours as their

source of self-esteem. So even for the common of mortals that are not highly interested in sustainable consumption the purchase intention for common products would decrease in the COVID-19 context.

7.1 Theoretical Implications

This research contributes to the literature on Terror Management Theory (TMT), self-esteem, and sustainable consumption. It extends the application of TMT to sustainability consumption namely the organic food industry. Linking the mortality salience theory to food consumption is novel and builds on prior literature in this domain (Fritsche et al., 2010; Hu et al., 2018; Rahimah et al., 2020).

It also provides insights regarding how consumers are reacting to the COVID-19 in their shopping behaviours as manifested by purchase intention, willingness to pay and attitudes towards food. Linking the mortality salience theory to the actual Covid-19 context and the consumption of organic food is novel and builds on prior literature in this domain (Campbell et al., 2020; Crocker et al., 2003; Menzies & Menzies, 2020; Pyszczynski et al., 1999; S. Solomon et al., 1991; Van Doorn & Verhoef, 2011).

Overall, findings followed the Terror Management Theory (S. Solomon et al., 1991) by using high and low self-esteem. The results are in line with the literature since research suggested that high mortality salience leads to more positive attitudes towards organic food for consumers who have high self-esteem. For consumers who showed low self-esteem, the results show that mortality salience leads to less positive attitudes towards organic products.

Additionally, the research on the COVID-19 behaviour is still very scarce due to its novelty presence and this research would also contribute with insights to the pandemic literature as a response to Campbell (2020) and Gossling et al.'s (2020) work. Results show trends that might be emerging in this new pandemic which are the less purchase intention for conventional products.

Lastly, the study expands on organic food consumption (Van Doorn & Verhoef, 2011). An interesting phenomenon seems to arise, as the outcome suggests that participants are in fact willing to pay more for the organic products, which is aligned with the literature. However, when it comes to purchasing decisions consumers seem to show a preference for conventional products, which may be a signal of the economic crisis that is emerging with the pandemic. Since conventional products are perceived as less pricy than organic food products, there are

managerial implications to marketers and product managers that should be accounted for, as mentioned next.

7.2 Managerial Implications

While the future is still uncertain on how the pandemic circumstances shape consumer's behaviours, this research has highlighted some shifts in consumers food consumption. COVID-19 lead to more positive attitudes towards organic food and less purchase intention for conventional goods. According to McKinsey (2020), one-fourth of consumers feel that sustainability has gained importance in their purchase decision during the pandemic (McKinsey, 2020). These insights can help food retailers to use this information and invest in the organic food market since some short-term behaviours adopted to cope with the pandemic will likely turn into a habit in future shopping in the long run (Roggeveen & Sethuraman, 2020). This study suggests that retailers can influence consumers positively in the COVID-19 context, by making these products easily available to attract consumers to buy organic food and take advantage of the positive attitudes that seem to emerge towards this type of products during the pandemic.

Additionally, willing to pay for organic products is higher than the conventional ones. This difference aligned with the positive attitudes towards organic food can lead to a good market opportunity for companies to invest in sustainable products. However, the purchase intention seems to not be very high which suggests that these products might not be placed in the right place. It is in the best interest of the food retailers to place this type of products in spotlight places since those products are likely to bring a higher margin due to their increased willingness to pay when compared with conventional ones.

Also, there is evidence that better value is the primary reason for consumers to try new brands, so individuals are more focused on better prices, better value and better shipping/delivery costs than the natural or organic feature of the products (McKinsey, 2020). This suggests, as it was previously mentioned, that consumers are likely to be more price-sensitive during this current crisis and therefore introducing better prices and discounts in organic products is likely to attract new customers to this category.

Lastly, online food purchasing increased during the pandemic and according to Nielson (2020), these percentages are likely to remain high (Nielsen, 2020). The online platforms offer a shopping environment with less distraction and extra place to display information. The food

retailers could take advantage of this emerging trend and display more information about the origin and production of the organic products in the hope to inform consumers what are the advantages for them, the environment, the producers and all stakeholders involved in the organic food industry.

8. Limitations and Further Research

This research has some limitation mainly due to time and resources available.

There was a higher probability of biased results due to the sample technic chosen, the non-probability convenience sampling. Therefore, the sample does not represent the whole population. As a result, there was a very large proportion of Portuguese respondents, even if the survey was available in two languages (Portuguese and English). To get a deeper understanding of the topic studied, further research on more diverse nationalities would be beneficial for the TMT field.

The fact that we used an online survey, also increased the probability of biased the sample, since it was distributed via social media. This method also does not guarantee a high level of concentration for the participants, neither control over the environment within they are answering the survey. Mortality salience design questionnaires are typically done in person, therefore further research should be done on in-person experiments run in the lab or using field studies.

Additionally, there might have been a social desirability biases, in which there is a tendency for respondents to present themselves in the best possible way in regards to social and ethical issues and people perceived themselves has retained more self-esteem from sustainable motives than what they actually would. This biased could have led to results that do not reflect the consumer's behaviour in reality.

The type of products chosen was very limited due to time constraints, but further analyses are suggested to better understand the organic market and to compare the products from different natures, i.e. hedonic versus utilitarian.

Lastly, sustainable scale self-esteem was very comprehensive to capture all the sustainable dimensions that can increase self-esteem. It could be interesting to develop a study to understand if the source of sustainability reason could trigger different effects among sustainable consumers. Since the impact of COVID-19 in the attitude towards organic products might be different between individuals with sustainability behaviours because of their source of self-esteem. The identification of these changes in attitude can help businesses better characterise their target audiences and, therefore, plan better strategies to reach them.

9. Appendices

9.1 Appendix 1: Main Survey

Introduction

Dear Participant,

Thank you for your willingness to participate in this survey. This questionnaire is being conducted to gather data to be used in my master's dissertation aiming to study the consumption habits. Please read carefully all the questions and make sure that you state your own opinion- there are no right or wrong answers.

It will take approximately 8 minutes to complete it, and your anonymity is ensured. In case of any doubt, please do not hesitate to contact me: beatriz.ribeirinho@gmail.com Please click on the "Next" button to begin the survey.

Manipulation: Scenario 1- High Mortality Salience

COVID-19-Text: At the moment this questionnaire was shared there were 50.7M confirmed cases and 1.2M confirmed deaths all over the world due to COVID-19. Please imagine how you felt when you first heard about COVID-19 and please remember where you were. Did you ever imagine it would spread to your country?

COVID-Emotions: Please briefly describe in one word the emotion that contracting COVID-19 arouses in you:

COVID-Physically: Write down as specifically as you can what do you think it will happen to you physically if you contract the COVID-19 virus:

Manipulation: Scenario 2- Low Mortality Salience

Text Neutral: At the moment this questionnaire was shared the percentage of people around the world who are expected to experience back pain in their lives is around 80%. Please imagine how you felt when you first had back pain and please remember where you were. Did you ever imagine it *would tak*e that amount of time to pass the pain?

Neutral- Emotions: Please briefly describe in one word the emotion that the thought of experience back pain arouses in you:

Neutral- physically: Write as specifically as you can what do you think it will happen to you physically should you experience back pain:

Feelings scale:

How does the situation just presented makes you feel? (On a scale from 1 (strongly disagree) to 7 (strongly agree) please rate your level of agreement)

	1. Strongly disagree	2. Disagree	3. Somewhat disagree	4. Neither agree nor disagree	5. Somewhat agree	6. Agree	7. Strongly agree
I feel anxious	o	o	o	o	o	o	o
I feel afraid	o	o	o	o	o	o	o
I feel inspired	o	o	o	o	o	o	o
I feel enthusiastic	o	o	o	o	o	o	o
I feel scared	o	o	o	o	o	o	o

Definition of organic :

Now imagine that you are going to the supermarket. You are in need of stocking your pantry. Next are some options, please **select the ones that most suit you**.

*Note: According to the Agriculture and Food Organization (1999), organic food, fresh or processed food, is produced by organicfarming methods. It means that it is grown with the use of environmentally friendly practices.

Choice:

*W*hich type of rice would you choose? (please select from below options)

- o Organic Rice
- o Conventional Rice

Choice attributes scale:

On a scale from 1 (extremely unimportant) to 7 (extremely important) please rate the importance of the following considerations when you choose the type of rice?

	1. Extremely unimportant	2. Unimportant	3. Slightly unimportant	4. Neither important nor unimportant	5. Slightly important	6. Important	7. Extremely important
Environmental impact	o	o	o	o	o	o	o
Animal cruelty	o	o	o	o	o	o	o
Respect for human/workers' rights	o	o	o	o	o	o	o
Price	o	o	o	o	o	o	o
Taste	o	o	o	o	o	o	o
Health Benefits	o	o	o	o	o	o	o
Packaging attributes	o	o	o	o	o	o	o
Quality	o	o	o	o	o	o	o

Purchase intention Organic:

How likely would you be to purchase organic rice?

	1. Extremely unlikely	2. Moderately unlikely	3. Slightly unlikely	4. Neither likely nor unlikely	5. Slightly likely	6. Moderately likely	7.Extremely likely
1kg of Organic Rice	o	o	o	o	o	o	o

Willingness to pay Organic:

How much are you willing to pay for:

	0 0 1 1 2 2 2 3
1kg of Organic Rice ()	

Purchase intention Conventional:

How likely would you be to purchase conventional rice?

	1. Extremely unlikely	2. Moderately unlikely	3. Slightly unlikely	4. Neither likely nor unlikely	5. Slightly likely	6. Moderately likely	7.Extremely likely
1kg of Conventional Rice	o	o	o	o	o	o	o

Willingness to pay for Conventional:

How much are you willing to pay for:

	0 0 1 1 2 2 2 3
1kg of Conventional Rice ()	

Sustainable-self-esteem scale:

On a scale from 1 (strongly disagree) to 7 (strongly agree) please rate your level of agreement with the following statements:

	1. Strongly disagree	2.	3.	4.	5.	6.	7. Strongly agree
Whenever I do something good for the environment my sense of self-esteem gets a boost.	o	o	o	o	o	o	o
I feel better about myself if I know I am consuming products that care about animal welfare.	o	o	o	o	o	o	o
Please select the option Strongly agree	o	o	o	o	o	o	o
It is important for my self-esteem to behave in a socially conscious way.	o	o	o	o	o	o	o
Doing something I know is healthy makes me increase my self-esteem.	o	o	o	o	o	o	o

Organic frequency:

On a scale from 1 (Extremely rare) to 7 (Extremely frequent) please rate the frequency that you buy organic food products?

- o Extremely rare
- o Rare
- o Slightly rare
- o Neither frequent nor rare
- o Slightly frequent
- o Frequent
- o Extremely frequent

Attitudes scale:

On a scale from 1 (Extremely bad) to 7 (Extremely good) please rate how do you feel about organic food products?

	1. Extremely bad	2. Moderately bad	3. Slightly bad	4. Neither good nor bad	5. Slightly good	6. Moderately good	7. Extremely good
Eating organic food is:	o	o	o	o	o	o	o

On a scale from 1 (Extremely unenjoyable) to 7 (Extremely enjoyable) please rate how do you feel about organic food products?

	1. Extremely unenjoyable	2. Moderately unenjoyable	3. Slightly unenjoyable	4. Neither unenjoyable nor enjoyable	5. Slightly enjoyable	6. Moderately enjoyable	7. Extremely enjoyable
Eating organic food is:	o	o	o	o	o	o	o

On a scale from 1 (Extremely unhealthy) to 7 (Extremely healthy) please rate how do you feel about organic food products?

	1. Extremely unhealthy	2. Moderately unhealthy	3. Slightly unhealthy	4. Neither healthy nor unhealthy	5. Slightly healthy	6. Moderately healthy	7. Extremely healthy
Eating organic food is:							

Mortality Sal Check

COVID-19 During this survey were you thinking about COVID-19?

- Definitely not
- 2.
- 3.
- 4. Might or might not
- 5.
- 6.
- 7. Definitely yes

Demographics:

Are you a healthcare professional?

- Yes
- No

Gender

- Male
- Female

What is your nationality?

(list of countries)

How old are you?

- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 or older

What was the last level of education that you finished?

- Less than high school
- High school graduate
- Bachelor Degree
- Master Degree
- Doctorate
- Other

What is your current occupation?

- Employed
- Unemployed
- Retired
- Student
- Working Student
- Disabled

What is your (approximate) annual household income in Euros:

- Under €10.000
- € 10.000 - 19.999
- € 20.000 - 29.999
- € 30.000 - 39.999
- € 40.000 - 49.999
- € 50.000 - 74.999
- € 75.000 - €99.999
- € 100.000 - 150.000
- Over € 150.000

Thank you for participating in the survey! Please do not discuss the nature of the study with any other participants, as it may bias future results. Please click on the button below to end the survey.

Powered by Qualtrics

9.2 Appendix 2: Different Products Presented

Rice:

Organic Rice

Conventional Rice

Eggs:

Conventional Eggs

Organic Eggs

Ice-cream:

Organic Ice cream

Conventional Ice cream

9.3 Appendix 3: Factor analysis results

Figure 6- Feelings Factor Analysis

	Component	
Feelings items	1	2
I feel anxious	.77	.03
I feel afraid	.90	-.13
I feel inspired	-.03	.94
I feel enthusiastic	-.11	.93
I feel sacred	.88	-.11

Figure 7- Choice Attributes Factor Analysis

	Component	
Choice attributes items	1	2
Environmental impact	.87	.13
Animal cruelty	.84	-.02
Respect for human/workers' rights	.85	.10
Price	-.00	.40
Taste	.10	.84
Health Benefits	.66	.17
Packaging attributes	.34	.23
Quality	.31	.74

9.4 Appendix 4: Choice attributes scale reliability

The Choice attributes scale also recorded two components in the factorial analyses. Therefore, the scale was divided into two different scales and the other items were not deleted since this scale would only be used as a covariate. Then the Cronbach's alpha was analysed for the two scales that result from Choice Attributes Scale: Others Benefit Scale composed by the items "Environmental Impact" "Animal Cruelty" and "Respect for humans rights" and Quality Perceptions Scale composed by "Taste" and "Quality". For the first, there was a very high consistency, whereas for the second it there was only moderate reliability.

Scale	Number of Components	Initial Number of items	Dived into (X) Scales	Cronbach's alpha	Cronbach's alpha if items deleted	Final number of items
Choice Attributes	2	6	2	-	-	-
Others Benefit	1	3	-	.848	-	3
Quality Perceptions	1	2	-	.669	-	2

10. References

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