



CATÓLICA
FACULDADE DE
CIÊNCIAS HUMANAS

LISBOA

ECO-ANXIETY'S ROLE IN INFORMATION AVOIDANCE INDUCED BY CLIMATE CHANGE COMMUNICATION

Dissertation submitted to the Universidade Católica Portuguesa to obtain a
Master's Degree in Psychology of Business and Economics by

Irina Ene

Faculdade de Ciências Humanas

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Abstract

Framing messages so that their effectiveness is increased is a crucial “art” in today's world, where the information environment is often overloaded, being increasingly difficult to “catch” individual’s attention and motivate them to act. This is often the case with climate change communication. Hence, this research aimed to analyse how communication framing as a climate crisis or emergency, could reduce or increase the probability of individuals avoiding related information or engage in sustainable behaviour, as a strategy to adapt to climate change. Moreover, the role of eco-anxiety as a moderator of such relationship was also studied, namely as a motivator for defensive information avoidance. To study this, a quantitative method with an experimental design was implemented with 215 participants. Contrary to initial expectations, globally, eco-anxiety did not exhibit significant moderating effects on information avoidance. However, findings indicated that while urgency (crisis / emergency) in climate change messaging did not directly influence information avoidance, it significantly impacted behavioural engagement, particularly among individuals with lower eco-anxiety. The results seemingly indicate that individuals' anxiety levels may need to be taken into consideration, when framing information highlighting the urgency of climate change, to “catch” individuals’ attention and motivate them to act.

Keywords: Climate Change, Communication Framing, Information Avoidance, Sustainable Behaviour, Eco-anxiety.

Resumo

Enquadrar mensagens de modo a aumentar a sua eficácia é uma "arte" crucial no mundo atual, onde o meio informativo está muitas vezes sobrecarregado, sendo cada vez mais difícil "captar" a atenção dos indivíduos e motivá-los a agir. Este é frequentemente o caso da comunicação sobre as alterações climáticas. Assim, esta investigação teve como objetivo analisar de que forma o enquadramento da comunicação como uma crise ou emergência climática pode reduzir ou aumentar a probabilidade de os indivíduos evitarem informações relacionadas ou adotarem comportamentos sustentáveis, como estratégia de adaptação às alterações climáticas. Para além disso, foi também estudado o papel da eco-ansiedade como moderador dessa relação, nomeadamente como motivador do evitamento de informação defensiva. Para o efeito, foi implementado um método quantitativo com um desenho experimental com 215 participantes. Contrariamente às expectativas iniciais, globalmente, a eco-ansiedade não apresentou efeitos moderadores significativos no evitamento de informação. No entanto, os resultados indicaram que, embora a urgência (crise/emergência) nas mensagens sobre as alterações climáticas não influenciasse diretamente o evitamento de informação, esta tinha um impacto significativo no comportamento de envolvimento, particularmente entre os indivíduos com menor ansiedade ecológica. Os resultados parecem indicar que os níveis de ansiedade dos indivíduos podem ter de ser tomados em consideração, ao enquadrar a informação que realça a urgência das alterações climáticas, para "captar" a atenção dos indivíduos e motivá-los a agir.

Palavras-chave: Alterações Climáticas, Enquadramento da Comunicação, Evitamento de Informação, Comportamento Sustentável, Ansiedade Ecológica.

Table of Contents

1. Introduction.....	10
1.1. Background and problem statement	10
1.2. Study relevance and Contributions	13
2. Literature Review	14
2.1. Message Framing.....	14
2.2. Climate Change Communication.....	16
2.3. Eco-anxiety	18
2.4. Information avoidance and Engagement Behaviour	21
2.5. Habitual Worry	24
3. Conceptual grounding.....	25
3.1. The Model of Defensive Information Avoidance.....	25
3.2. Extended Parallel Process Model	26
3.3. Social Amplification of Risk Framework.....	26
4. Study goals.....	27
5. Methods.....	29
5.1. Sample	29
5.2. Procedure	30
5.3. Instrument	31
5.4. Analysis	35
6. Results.....	36
7. Discussion.....	40
8. Conclusion	44
References.....	46
Appendices.....	54

Figure Index

Figure 1 - Conceptual Model	28
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Table Index

<i>Table 1 - Descriptive Statistics and Reliabilities of Variables</i>	<i>36</i>
<i>Table 2 - Moderation of Eco-anxiety on the relationship between communication framing and information avoidance</i>	<i>37</i>
<i>Table 3 - Moderation of Eco-anxiety on the relationship between communication framing and behavioural engagement.....</i>	<i>38</i>
<i>Table 4 - Moderation of Eco-anxiety on the relationship between communication framing and behavioural engagement- Conditional effects of the focal predictor at values of the moderator.....</i>	<i>38</i>
<i>Table 5 - MANOVA of the impact of communication framing on information avoidance and behavioural engagement.....</i>	<i>39</i>
<i>Table 6 - Moderation of Eco-anxiety and Habitual Worry on the relationship between communication framing and behavioural engagement.....</i>	<i>40</i>

Appendix Index

Appendix 1 – Thesis Questionnaire	54
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1. Introduction

1.1. Background and problem statement

The art of message framing has assumed centre stage in an era characterized by the proliferation of information and the rapid evolution of communication platforms (Jagiello & Hills, 2018), often inducing a communication environment characterized by information overload that may ironically lead people to avoid information in it (Gaspar et al, 2016). Every day, individuals and organizations engage in a strategic dance of words and narratives with the aim of influencing opinions, shaping perceptions, and achieving their goals. This dynamic process involves meticulously crafting messages, selecting specific language, and strategically framing information in order to motivate audiences to act, by eliciting the desired emotions and cognitions from the target audience (Levin & Gaeth, 1998; Chong & Druckman, 2007).

The idea of message framing pertains to the cognitive process through which individuals form a specific representation of a subject or alter their cognitive orientation towards it. This phenomenon has gained significant relevance in contemporary society (Chong & Druckman, 2007). Several studies have demonstrated that by framing messages, communicators can emphasize certain aspects while downplaying others, ultimately “catching” people’s attention, how they perceive and respond to the information presented, thus potentially functioning as a motivator to act and playing a significant role in determining individual behaviour (Amatulli et al., 2019; Gallagher & Updegraff, 2012; Smith & Petty, 1996).

A specific example of the above mentioned is climate change communication. We are inundated with news about earthquakes, heat waves, forest fires, and floods on a daily basis. (Mah et al., 2020). Climate change is one of the most pressing issues of our time and a significant threat to human well-being. As the world grapples with the far-reaching repercussions of a changing climate, effective communication and information sharing become increasingly important as a means of mobilizing action, nurturing awareness, and catalysing significant change (Hills, 2018). The complexity of the climate change narrative necessitates effective communication strategies to convey both the urgency and the actionable pathways.

A dynamic and interdisciplinary discipline, climate change communication aims to bridge the gap between scientific understanding and public perception (Bertolotti & Catellani, 2014). However, the purpose is not merely the dissemination of facts. There are numerous ways to approach this communication. Some messages emphasize the scientific evidence for climate

change, while others emphasize its effects on humans. Some messages are intended to motivate people to act by inducing specific emotions, while others are intended to inspire people to act (Mah et al., 2020).

In climate change communication, the use of message frames differing in terms of valence, that emphasize either the positive or negative consequences associated with a certain behaviour, is a common message framing strategy (Jagiello & Hills, 2018). The research conducted by Levin, Schneider and Gaeth (1998) revealed that negatively framed messages are more effective than positively framed messages at promoting pro-environmental behaviour. It is thought that provoking negative emotions, notably anxiety, in individuals will motivate adaptation behaviour and lead to a greater behavioural engagement (Bloodhart, Swim, & Diccio, 2019; Morton et al., 2011; Reser, Morrissey, & Ellul, 2011). Whittemore and Bendor (2018), Morton et al. (2011), and McCright et al. (2016) confirm that positive framing enhanced respondents' perceptions of Climate Change. The study by Morton and colleagues (2011) demonstrates that a negative framing (potential losses) reduces individuals' behavioural engagement, whereas a positive frame increases intentions to act. Another study demonstrates that a loss frame did not result in a change in an individual's behaviour, while a fear frame resulted in the individual continuing to indulge in old behaviours. Wilson et al. (1988) found that only in the context of gain did behaviour change.

Climate change communication has also been subject to efforts aimed at eliciting negative emotions (Bloodhart, Swim, & Diccio, 2019). Thus, the intersection of climate change communication and eco-anxiety emerges as a significant and pressing issue. Eco-anxiety is a visceral emotional response to environmental degradation and climate change-related concerns. The International Journal of Mental Health Nursing (2019) defines eco-anxiety as a mental distress or anxiety related to the deterioration of environmental conditions. Accordingly, communicators, advocates, and policymakers must consider both the dissemination of accurate information and the potential emotional impact of their messages as they navigate this complex environment. Clayton (2020) explains that the manner in which society addresses the issue, or does not address the problem, shapes the anxiety that characterizes the response of some individuals to climate change.

The emergence of the “eco-anxiety” concept, as recently became at the centre of climate change communication. As the news reports more frequent and severe weather events, rising sea levels, and the extinction of species, people struggle with feelings of helplessness, dread,

and grief (Clayton, 2020). Eco-anxiety imposes a significant psychological cost, highlighting the intrinsic relationship between human well-being and the natural environment. It prompts individuals to confront the daunting reality of an uncertain future and challenges the very essence of how we perceive and interact with our environment (Wang et al., 2023). This intersection of climate change communication and eco-anxiety illuminates both the opportunities and ethical obligations of those communicating about climate change. It requires a delicate equilibrium between conveying the gravity of the situation and providing hope and empowerment.

Climate change is a formidable global challenge that necessitates informed participation, collective action, and accountable decision-making. Yet, the emotional toll of comprehending the magnitude and urgency of environmental degradation can cause people to seek refuge from disconcerting realities (Howell, 2016). Information avoidance is a psychological coping mechanism that shields individuals from the overwhelming emotional burden and anxiety associated with the impending ecological crisis. This avoidance can manifest in a variety of ways, including casting a blind eye to news stories, avoiding discussions about climate change, and outright rejecting scientific evidence. The intricate interplay between eco-anxiety and information avoidance raises crucial concerns regarding the potential repercussions of such behaviour.

Information avoidance may provide transient relief from anxiety, but it impedes the development of a well-informed and engaged populace — a crucial element for driving sustainable solutions and advocating for meaningful change. In addition, this avoidance perpetuates a cycle of disconnection between individual actions and their impact on the environment, which may hinder the global response to climate challenges (Yang & Kahlor, 2012).

Amidst the shadows of eco-anxiety lurks the potential for transformative change. The emotional weight of environmental concern can inspire a desire for more environmentally responsible behaviour and lifestyle choices. This intention to align personal actions with environmental values has the potential to ignite a collective movement toward a more harmonious and regenerative relationship with the planet (Bernard, Tzamourani, & Weber, 2023).

As individuals contend with the weight of ecological challenges, eco-anxiety has also sparked a renewed introspection regarding personal intentions and behaviours, catalyzing a more

in-depth consideration of sustainability in daily life. Eco-anxiety is a poignant reminder of the inextricable relationship between human well-being and the welfare of the natural world. It reflects a growing awareness that the intricate web of ecosystems is not only the stage upon which our lives play out, but also a fundamental source of our emotional, psychological, and physical nourishment (Lu et al., 2017). The unease and discomfort associated with eco-anxiety compel people to confront their role in environmental degradation and to doubt their decisions (Howell, 2012).

1.2. Study relevance and Contributions

To encourage individuals to actively anticipate and effectively manage the consequences of climate change, it is imperative to address the related risks while also offering explicit guidance on how to mitigate the effects of this stressor (Clayton, 2020). In the current study, we investigate Lu et al.'s research (2017) and use the messages created in the study varying some text's words based on whether they explicitly or implicitly mention the climate change urgency state as causing the threat to global food security.

Hence, this thesis aims to make valuable contributions to scientific literature and business practitioners alike. From a theoretical perspective, it intends to contribute to the third-party mistreatment literature, by drawing links between Climate Change Communication Framing and Information Avoidance via Eco-anxiety, and, moreover, by further exploring is Habitual Worry has an impact on the Eco-anxiety felt by the participants.

While numerous studies have explored the effects of message framing in the context of sustainable behaviours, only a few have examined such effects taking into consideration eco-anxiety and information avoidance. So far, from what we know, no research has explored the role of eco-anxiety, in the relationship between climate change framed communication, and both information avoidance and behavioural engagement. Thus, this study aims to address this gap by exploring climate change communication framing and how this might determine whether eco-anxiety impacts the relationship between framing and information avoidance and behavioural engagement. It may thus highlight potential positive effects of framing in climate change communication.

2. Literature Review

The following chapter outlines previous research that has been conducted regarding the four main topics of the current thesis: Message Framing, Climate Change, Eco-anxiety, and behavioural engagement. Therein, it presents background information about the overall concepts, as well as research that is relevant to observers' relations to the topics at hand.

This literature review aims to explore the key concepts, theoretical frameworks, and empirical findings related to message framing in the context of climate change communication and eco-anxiety as a moderator to information avoidance and behavioural engagement, shedding light on their interconnectedness and impact on climate change awareness and engagement.

2.1. Message Framing

As the global community grapples with the imperative need to address climate change, effective communication strategies are required to convey the gravity, consequences, and potential solutions associated with this complex challenge. Message framing plays a crucial role in shaping how individuals process information, thereby influencing their attitudes, beliefs, and behaviours in response to significant issues such as climate change (Li & Yi-Fan Su, 2018).

Through social transmission of information, humans learn about the prospective effects of climate change that they have not yet personally experienced. This establishes the foundation for the formation of opinions on issues such as climate change (Jagiello & Hills, 2018). According to the statistics of the International Telecommunications Union (2022), more than 5 billion people use the internet today, providing each of them almost immediate access to the capacity to generate and disseminate knowledge. However, when this influence is abused, problems can arise.

The importance of the role of communicators in shaping public perceptions and promoting effective climate action is highlighted by the fact that the presentation of information can either encourage people to take proactive steps toward sustainability or encourage inaction. In this complex web of discourse, the manner in which we present ideas has the potential to increase people's sense of urgency, promote environmentally responsible behaviour, and ultimately determine the path of our planet's environmental future (Amatulli et al., 2019; Gallagher & Updegraff, 2012; Smith & Petty, 1996).

Amos Tversky and Daniel Kahneman (1979) explained framing via the Prospect Theory, a psychological theory that defines how individuals choose between risky alternatives with uncertain probabilities of outcomes. Tversky and Kahneman manipulate probabilities or decision weights through message framing, which involves the deliberate arrangement of information to present a particular perspective or interpretation. Message framing is the strategic selection of words, phrases, and information presentation styles to influence how a message is received. Entman (1993) suggests that the structure or organization of a message can alter its perception.

In communication research, gain-framing (confidence inducing) and loss-framing (frustration inducing) are the two most studied frames. Gain framing emphasizes the potential rewards of a choice and highlights the benefits and positive outcomes of selecting a particular behaviour or action, whereas loss framing emphasizes the risks and negative consequences of inaction or poor decisions and focuses on the potential costs of a decision. In the context of climate change communication, these framing approaches can influence how individuals perceive the urgency of the issue and the efficacy of their actions (Tversky & Kahneman, 1979).

Hope is future-oriented and accentuates the possibility of producing a desired outcome, whereas frustration is a reminder of past failures and generates negativity toward an object and an overall negative attitude toward its surroundings (Brick & Fitzsimons, 2017). It has been demonstrated that positive framing of communications, with an emphasis on the co-benefits of sustainable behaviours, is more persuasive than fear-based approaches. Positive messages are also more powerful when they are elaborated (Homar & Cvelbar, 2021). The study by Chi, Denton, and Gursoy (2021) found that gain-framed objective knowledge of climate change was the most persuasive.

Emergency messages can have varying effects on individuals, depending on the nature of the message, the individual's personality and coping mechanisms, and the context in which the message is received, among other factors. Frequently, urgent communications contain potentially distressing information. When individuals receive such messages, they may experience dread and anxiety. This anxiety may be a normal reaction to a perceived threat or peril, and its intensity can vary depending on the severity of the emergency and the individual's psychological resilience. By mentioning a message's urgency, its negative impact becomes

more apparent. In this sense, it is loss-framing to convey a message as urgent without offering solutions. In some instances, excessive anxiety can result in symptoms of panic or tension.

It is important to note that not everyone reacts to emergency messages in the same manner. Others may experience elevated anxiety that temporarily impairs their ability to take action, whereas some individuals may react swiftly and effectively. Therefore, effective emergency communication strategies should take into account both the possibility of anxiety and the need to provide precise, actionable instructions to assist individuals in responding appropriately in crisis situations.

People are more likely to make decisions that are consistent with the framing of the message, so by understanding the nuances of this complex interplay between words, perceptions, and intentions, we can become more informed and critical information consumers, better equipped to navigate the intricate web of communication in today's interconnected world (Tversky and Kahneman, 1979).

It is essential to understand message framing as a key driver of informed decision making. Once there is comprehension of how the message is framed, you will be in a better position to decide whether or not to act.

2.2. Climate Change Communication

Climate change is one of the greatest and most complex challenges humanity faces in the twenty-first century. Climate Change refers to the significant, long-term changes in the Earth's average temperature, weather patterns, and other climate parameters (Global Change, 2023). Human activities, such as the burning of fossil fuels, deforestation, and industrial processes, which release significant quantities of greenhouse gases into the atmosphere, are primarily responsible for these changes. Through the greenhouse effect, greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, capture heat and contribute to the warming of the planet (Palinkas & Wong, 2020; Mikhaylov et al, 2020).

Rising global temperatures, more frequent and severe weather events (such as hurricanes, droughts, and floods), shifting precipitation patterns, rising sea levels, and disruptions to ecosystems and biodiversity are all consequences of climate change. The impacts of climate change on agriculture, water resources, health, and infrastructure pose significant challenges to human societies. (Shukla et al., 2019). Mitigation and adaptation to climate

change have become crucial global priorities for reducing its detrimental effects and promoting a sustainable and resilient future.

According to Palinka and Wong (2020), the consequences of ecological events encompass both direct and indirect effects. Direct impacts include heat stress and exposure to extreme weather events. Indirect impacts encompass economic loss, threats to health and well-being, displacement and forced migration, collective violence and civil conflict, and alienation from a degraded and potentially uninhabitable environment. As the global community grapples with the imperative need for action, effective communication becomes a crucial instrument for “catching people’s attention” and raising awareness, fostering understanding, and motivating individuals and societies to act to address this complex issue. Effectively communicating climate change is intrinsically difficult due to its complexity, long-term nature, and the inherent psychological barriers individuals frequently encounter when acknowledging and responding to distant and complex hazards (e.g., anxiety, fear, lack of control) (Cianconi, Betr, & Janiri, 2020).

Research emphasizes the significance of comprehending diverse audiences and adapting communication strategies to various demographic groups. Effective climate change communication acknowledges that diverse cultural, socioeconomic, and educational backgrounds may require messages to be framed differently. The presentation of climate change messages has a significant impact on public perceptions and responses. The impact of framing climate change as an environmental issue, a public health concern, an economic challenge, or a social justice issue is the subject of numerous studies. The selection of language, metaphors, and narratives affects how information is interpreted (Ros, LaRoche, Fortinsky, & Nicholas, 2020).

Climate change poses complex hazards with lasting repercussions. Effective risk communication requires conveying the urgency and gravity of the issue without inducing paralysis-inducing dread. It is essential for increasing global awareness of the urgency and severity of climate-related problems. Studies examine the impact of various risk communication strategies on public comprehension and action motivation (Bertolotti & Catellani, 2014). Individuals' responses to climate change communication are affected by psychological factors such as perceived efficacy, cognitive dissonance, and social norms.

Understanding these psychological processes is essential for crafting messages that resonate with diverse audiences and encourage behaviour change (Cianconi, Betr, & Janiri, 2020).

The literature investigates strategies to increase public engagement and climate compliant action. It educates the public on the scientific underpinnings of climate change, its far-reaching effects, and the need for collective action by means of plain and accessible messaging. Effective communication functions as a catalyst for meaningful change by encouraging individuals, communities, and policymakers to adopt sustainable practices, support climate-friendly policies, and collaborate internationally (Bertolotti & Catellani, 2014; Ros et al., 2020).

In addition, climate change communication is essential for combating scepticism, refuting misinformation, and fostering a shared understanding among diverse stakeholders (Treen, Williams, & O'Neill, 2020). It contributes to the creation and implementation of solutions that address the complex challenges posed by climate change by fostering consensus, empowering communities, and encouraging innovation. The power of climate change communication ultimately resides in its capacity to inspire informed decisions, shape behaviours, and foster a global commitment to building a resilient and sustainable future (Ros et al., 2020; Lu, 2022; Parmesan, Morecroft, & Trisurat, 2022).

2.3.Eco-anxiety

There is a growing focus on the emotional reactions linked to the awareness of ecological issues including climate change. Climate change is a multifaceted issue that encompasses not just environmental implications but also psychological and social dimensions.

Climate change is widely recognized as a significant global health concern in the 21st century, encompassing a multitude of consequences that extend to several aspects of human well-being, including mental health. The aforementioned occurrence is commonly referred to as eco-anxiety (Verplanken, Marks, & Dobromir, 2020). Elevated levels of stress can be attributed to various factors, including apprehensions regarding the future, the gravity of environmental issues, and the perceived insufficiency of global efforts in addressing these concerns.

In light of the accumulating body of information, it is imperative to engage in a thorough examination of the potential ramifications of climate change on mental well-being (Coffey, et al, 2021; Usher, Durkin & Bhullar, 2019).

The phenomenon of climate change is frequently regarded as a significant and existential peril, which in turn has the potential to exacerbate feelings of eco-anxiety. Individuals may encounter feelings of bereavement, sorrow, and apprehension for the welfare of subsequent generations and the environment. In a recent study conducted by Clayton and Karazsia (2020), a comprehensive examination was undertaken to explore the association between anxiety and climate change. The findings revealed a significant and robust correlation between climate change anxiety and both general anxiety and depression. These results indicate that climate change anxiety may have detrimental implications for mental well-being.

The manifestation of anxiety in individuals over climate change is influenced, to some extent, by the societal approach, or lack thereof, to resolving the issue (Clayton, 2020). The influence of media coverage and communication regarding climate change can have a substantial impact on the development and manifestation of eco-anxiety.

Eco-anxiety refers to the psychological distress that individuals experience as a result of the ecological crisis (Pihkala, 2020). Based on a variety of scholarly sources, it can be seen that eco-anxiety encompasses significant components of existential anxiety, and frequently manifests as "practical anxiety," which influences problem-solving orientations.

Previous research has demonstrated a correlation between eco-anxiety and many emotional states, including fear, concern, and anxiety. Additionally, there exists a strong association between anxiety and other emotions such as anger, frustration, despair, guilt, humiliation, and grief (Coffey, et al, 2021; Pihkala, 2020). Understanding the anxiety reaction is crucial due to the diverse population it might influence, encompassing individuals with varying levels of personal vulnerability and relative safety who possess knowledge about climate change. Additionally, comprehending the behavioural repercussions associated with climate anxiety further emphasizes its significance.

Although the terms "eco-anxiety" and "climate anxiety" are frequently used synonymously to refer to the psychological toll that environmental challenges have on people and communities, there are some subtle distinctions between them.

Anxiety pertaining to ecological issues is referred to as "eco-anxiety" in general. Concerns about a broad range of environmental problems, including habitat degradation, deforestation, pollution, and biodiversity loss, go beyond climate change (Coffey et al., 2021; Pihkala, 2020). While people who suffer from eco-anxiety could feel overpowered by the scope of environmental issues and the apparent inaction in addressing them. Anxiety about climate change is explicitly referred to as climate anxiety. The effects of climate change, such as harsh

weather, rising sea levels, habitat loss, food and water scarcity, and community displacement, may cause people to become more anxious (Clayton & Karazsia, 2020).

In summary, eco-anxiety encompasses a broader range of environmental concerns and Climate anxiety became perhaps the most discussed form of eco-anxiety (Clayton, 2020).

The findings of Stanley, Hogg, Leviston, and Walker (2021) indicate that employing communications strategies that elicit feelings of anxiety or depression around climate change may prove ineffective or may pose a risk to the overall well-being of communities. The utilization of sensationalistic or terrifying depictions of environmental challenges, in conjunction with a perceived need for immediate action, has the potential to elicit heightened emotional reactions. Regrettably, subsequent to the escalation of public consciousness regarding this subject matter and the subsequent comprehension of the prevailing climate issue, a surge in worry has been seen (Coffey, Y. et al, 2021).

The younger demographic, specifically, exhibits a growing prevalence of eco-anxiety. The recognition of the inheritance of a planet that is confronted with environmental issues, in conjunction with apprehensions regarding the future, has the potential to engender distress among the younger generation (Clayton, 2020).

According to a recent study focusing exclusively on European nations, it was found that a significant majority (77%) of European Union (EU) citizens consider climate change to be an exceedingly grave concern in the presenttime (European Commission, 2023). According to Verplanken, Marks, and Dobromir (2020), several studies establish a correlation between eco-anxiety and the experience of grief and bereavement linked to the deterioration of the environment, the extinction of species, and the modification of ecosystems. The aforementioned emotional reaction demonstrates a profoundpreoccupation with the ecological equilibrium and the interdependence of life forms on the planet.

Moreover, it is worth noting that climate anxiety has the potential to function as a catalyst for eco-paralysis, a concept originally used by Albrecht (2011), whereby individuals experience such profound pain in relation to the climate crisis, that they find themselves incapable of taking action. Occasionally misconstrued as a manifestation of apathy, this phenomenon might impede individuals from engaging in efficacious endeavours. It is posited that the aforementioned observation signifies a condition characterized by a dichotomy between the stimulating and inhibiting consequences.

Stanley et al. (2021) have identified several coping techniques that individuals apply

to address eco-anxiety. These strategies encompass seeking social support, engaging in environmental activism, adopting sustainable lifestyles, and participating in climate change projects. The experience of eco-anxiety varies among different demographic groups. The scholarly literature recognizes the concept of intersectionality in relation to eco-anxiety, taking into account many characteristics such as socio-economic status, geographical location, and cultural background (Clayton, 2020; Whitmarsh et al., 2022). Education and awareness initiatives that disseminate knowledge regarding climate change, its underlying factors, and prospective remedies have the potential to play a crucial role in mitigating eco-anxiety. According to Pihkala (2020), fostering climate literacy and highlighting the importance of collective action can enable individuals to effectively channel their concerns towards constructive involvement.

In brief, the scholarly literature underscores the emotional and psychological aspects of climate change, underscoring the necessity of a holistic strategy that encompasses not only the physical and psychological consequences of environmental deterioration, but also the potential remedies and pro-environmental actions (International Journal of Mental Health Nursing, 2019).

2.4. Information avoidance and Engagement Behaviour

The intersection of climate change communication, anxiety, and behavioural change has emerged as a central theme in the global environmental crisis discourse. As awareness of climate change grows, individuals frequently experience a complex interplay of emotions, including apprehension regarding the imminent consequences (Pihkala, 2020). This heightened awareness can paradoxically lead to information avoidance, a psychological defence mechanism designed to insulate oneself from distressing realities (Yang & Kahlor, 2012).

Understanding the delicate equilibrium between communication-induced anxiety and the propensity to avoid information is essential to the development of effective strategies for behaviour modification. It not only affects how people perceive and respond to climate-related information, but also plays a crucial role in determining the success of initiatives designed to promote sustainable actions and resilience in the face of climate challenges (Whitmarsh, Poortinga, & Capstick, 2021). In this context, delving into the psychological nuances of climate change communication becomes essential to navigate the delicate path toward a more informed, adaptive, and collectively responsive society.

Yang and Kahlor (2012) examined the psychological complexity of information avoidance in the context of climate change, which functions a lot of times as a defence mechanism to reduce anxiety and fear related to the perceived threat of climate change (Golman, Hagmann, & Loewenstein, 2017). Research indicates that people frequently perceive climate change as a spatially and temporally distant and abstract threat (Leiserowitz, 2006). This perceived distance can contribute to the avoidance of information, as individuals may feel removed from the immediate effects and consequences.

Furthermore, Neben (2015) explains that a more negative/urgent frame can induce a psychological defence mechanism in which the person tries to "protect" themselves from information that causes a negative emotional reaction by avoiding information and behavioural engagement. Moreover, when people feel threatened, they tend to respond with suppression or problem avoidance, and therefore information avoidance (Uhl, Klackl, Hansen and Jonas, 2018).

Information avoidance can also be correlated with perceptions of personal effectiveness and control. If individuals perceive that their actions cannot make a substantial difference or that they have limited control over the outcomes, they may be more likely to avoid climate change-related information (Haltinner & Sarathchandra, 2018). Literature emphasizes the dangers of information excess and fatalism, in which individuals believe that the challenges posed by climate change are insurmountable. To avoid feelings of helplessness, some may choose to avoid information (Yang & Kahlor, 2013).

Understanding information avoidance is essential for the development of effective communication strategies. Approaches that acknowledge and address the psychological factors that contribute to avoidance, while providing actionable and optimistic information, may be more effective at engaging individuals and fostering a sense of collective responsibility in addressing climate change (Haltinner & Sarathchandra, 2018). Uhl, Klackl, Hansen, and Jonas (2018) identify personal experiences, emotional appeals, and a sense of moral responsibility as potent motivators for pro-environmental behaviour.

The presentation of climate change information can influence information avoidance. Fear-based messages may result in audience avoidance, whereas positive messages that emphasize solutions and individual responsibility may be more effective at engaging audiences (Spence, Uzzell & Pidgeon, 2009). Individuals who actively avoid information may be less likely to engage in pro-environmental behaviour or support policies intended to mitigate climate change (Stanley, Hogg, Leviston, & Walker, 2021). It is possible to surmount avoidance tendencies by balancing the presentation of the severity of climate change with narratives of

hope, by emphasizing agency, and by providing concrete steps for action (Brick and Fitzsimons, 2017).

Lu et al. (2017) studied the effects of messages discussing the benefits of GM crops in the context of climate change impacts with motivated reasoning and psychological reactance. They focused on negative message evaluations and anger as possible mediators for the psychological reactance, and their results show that message evaluations served as a significant mediator explaining why liberals experienced psychological reactance in the “climate change” cue condition. When liberals read the message with the “climate change” cue, they reacted less positively to the message than when exposed to a message without any mention of “climate change.”

According to the findings of a study conducted by d'Adda, Galliera, and Tavoni (2020), messages that elicit a sense of urgency exhibit a twofold increase in effectiveness compared to generic messages. The heightened perception of urgency motivates individuals to act. The authors believe that “Imposing a sense of urgency is a strong motivator of engagement.”

Moreover, some studies found that negative/urgent messages generate higher levels of negative emotions, such as guilt, which is linked to consumers’ attitudes toward the cause, therefore, it is not surprising that guilt fails to positively influence consumer attitudes toward the issue. (Stadlthanner et al., 2022).

According to a study conducted by Morris et al. (2019), narratives exhibit greater efficacy in encouraging self-reported transportation and pro-environmental behaviour than informational narratives. The findings indicate that narratives are more effective at inducing autonomic reactivity and emotional arousal, and consequently, pro-environmental behaviour. Cultural and contextual factors influence how people perceive and respond to climate change. Strategies must take into account cultural values, economic conditions, and local environmental challenges (Whitmarsh et al., 2021).

In conclusion, the literature emphasizes the multidimensional nature of climate change and the dynamics of behavioural change. In order to foster a collective and sustainable response to climate challenges, effective strategies frequently combine psychological insights, targeted communication, positive framing, and community involvement.

2.5. Habitual Worry

According to Verplanken et al. (2020), worry primarily manifests as a cognitive process of problem-solving or self-regulation in situations characterized by uncertainty, however, it also encompasses an emotional dimension due to its connection with anxiety.

Habitual worry is characterized by a pattern of repetitive and intrusive thoughts centred around potential threats or negative outcomes. Individuals who experience habitual worry often find themselves caught in a cycle of rumination, where their minds continuously dwell on what could go wrong in various aspects of their lives, such as work, relationships, or health. This pattern of worry becomes ingrained into their daily routines, leading to a heightened state of anxiety and distress (Borkovec et al., 1983).

Countless authors describe two different types of worry: constructive (a motivated pro-environmental response) or unconstructive (a symptom of pathological worry). Verplanken et al. (2020), for example, believes that for many individuals, the concern about global warming is deemed unproductive and linked to internal psychological distress. However, for others, it is regarded as a constructive reaction that is deeply ingrained in a sense of environmental identity.

The study conducted by McNeill and Dunlop (2016) demonstrated a positive correlation between constructive worry and both timeliness and wildfire readiness. Conversely, constructive worry was found to have a negative correlation with trait-anxiety and the level of worry experienced. Unconstructive worry, on the other hand, was positively associated with trait-anxiety and amount of worry, and negatively associated with punctuality and wildfire preparedness, thereby showing that having a tendency to worry in an unconstructive manner does not prohibit one from worrying in a constructive manner as well.

Gaining insight into the distinctions between the two inclinations towards worry and distinguishing their assessment facilitates a more comprehensive comprehension of the significance of worry in both typical behaviour and psychopathological conditions.

Although pathological worry is mostly linked to concerns about personal matters, individuals afflicted with this disorder are also prone to experiencing anxieties about other matters, such as global warming, when these concerns are triggered.

Watkins (2008) defends that worry is also proposed to serve a number of constructive functions when it is objective, controllable, and brief: (a) an alarm function that interrupts ongoing behaviour and directs attention to an issue demanding immediate priority; (b) a prompt function, keeping an individual aware of potential unresolved threats; and (c) a preparation

function, motivating an individual to prepare for difficulties and to adopt adaptive behaviours that reduce potential threat.

Habitual worry can exacerbate and perpetuate eco-anxiety, particularly in individuals who are highly sensitive to environmental issues. Those experiencing eco-anxiety may find themselves caught in a cycle of persistent worry regarding the state of the environment, the impact of human activities on ecosystems, and the future of the planet (Verplanken and Fisher, 2014).

Habitual worry in the context of ecological concerns can lead to heightened levels of anxiety, stress, and feelings of helplessness or despair. Over time, this chronic state of worry can negatively impact an individual's mental and physical well-being, interfering with their ability to function effectively in daily life. Moreover, habitual worry can reinforce maladaptive coping strategies, such as avoidance behaviours or excessive reassurance-seeking, which further reinforce the cycle of anxiety (Sciberras & Fernando, 2022).

The constant exposure to distressing environmental news and images through media and social channels can fuel this cycle of worry and exacerbate eco-anxiety symptoms (Verplanken and Fisher, 2014).

3. Conceptual grounding

The current thesis draws upon three behaviour-related theories in order to outline a theoretical rationale for its research model: The Model of Defensive Information Avoidance (Neben, 2015), Extended Parallel Process Model (Witte, 1992), and Social Amplification of Risk Framework (Pidgeon & Kasperson, 1988).

3.1. The Model of Defensive Information Avoidance

The Model of Defensive Information Avoidance (DIA), developed by Tillmann Neben in 2015, is a conceptual framework that explores how individuals may consciously or unconsciously avoid information that could challenge their existing beliefs, attitudes, or emotional well-being. This model supports this study's hypothesis by suggesting that people may engage in defensive strategies to avoid information that threatens their self-concept or psychological comfort.

3.2. Extended Parallel Process Model

Theoretical framework known as the Extended Parallel Process Model (EPPM) was formulated by Kim Witte during the 1990s. Its purpose is to comprehend and forecast the reactions of humans towards fear-inducing persuasive communications, with a specific focus on health communication and risk management. The Extended Parallel Process Model (EPPM) proposes that an individual's response to a fear-inducing message is contingent upon two fundamental elements: the perception of threat and the perception of efficacy. Furthermore, when individuals are exposed to negative/urgent climate change framing, they perceive the danger to be of high severity and consider themselves as susceptible to it, which leads to an increased likelihood of experiencing dread. Individuals with low perceptions of efficacy are more prone to displaying maladaptive responses, such as rejecting the message or engaging in defensive avoidance.

3.3. Social Amplification of Risk Framework

The Social Amplification of Risk Framework (SARF) is a conceptual framework that has been created within the domain of risk perception and communication. Its purpose is to elucidate the mechanisms by which risks undergo processes of amplification, attenuation, or distortion as they are disseminated and assimilated within society. The concept of Social Amplification of Risk Framework (SARF), which was first introduced by Nick Pidgeon and Roger Kasperson during the latter part of the 20th century, acknowledges that risk perceptions are not exclusively shaped by objective information, but are significantly impacted by social, psychological, and cultural elements. This supports the idea that when individuals feel eco-anxiety this may impact their risk perception and therefore lead to information avoidance.

The SARF framework encompasses various essential elements, including the primary hazard event, communication routes, social and psychological processes, and the resulting outcomes of risk amplification or reduction. This implies that the communication of a risk event or danger across several channels might experience many stages of amplification or attenuation. Various factors, such as trust in information sources, personal beliefs, and social dynamics, contribute significantly to the creation of risk perception and subsequent responses. In essence, the concept of Social Amplification of Risk Framework (SARF) enables us to get insights into the reasons behind the overemphasis or underestimation of certain hazards within

public discussions.

4. Study goals

Within the context of climate change communication, we hypothesize that the framing of climate change information influences information avoidance (DV). Specifically, individuals exposed to climate change messages framed in an urgent manner, highlighting the situation as a “crisis” or “emergency” (IV), will have a higher levels of information avoidance than individuals exposed to climate change messages framed in a positive manner (as a problem to resolve).

Furthermore, we propose that this relationship will be moderated by the level of eco-anxiety (moderator variable) experienced by individuals. We expect that individuals with high levels of eco-anxiety will be more sensitive to the framing of climate change communication, with a stronger reduction in information avoidance when exposed to positive framing, compared to individuals with low eco-anxiety.

Hence, the study addressed the following goals:

1. Adaptation for the Portuguese language and preliminary validation of the following scales: attitudes toward food produced through Genetically Modified (GM) crops (Fransen et al., 2010); Intentions to consume GM foods (de Liver, van der Pligt, & Wigboldus, 2005); Climate change anxiety (Clayton & Karazsia, 2020); Habitual Worry (Verplanken et al., 2007); Information Avoidance (Howell & Shepperd, 2016); Information Seeking (Valkengoed, Perlaviciute & Steg, 2021); and Climate change communication messages frames (developed by Lu et al., 2017).
2. Understand what type of Climate Change framed Communication induces more information avoidance.
3. Understand if Eco-anxiety is a moderator between climate change framed communication and information avoidance.
4. Understand if Eco-anxiety is a moderator between climate change framed communication and behavioural engagement.

The corresponding research model is depicted in Figure 1.

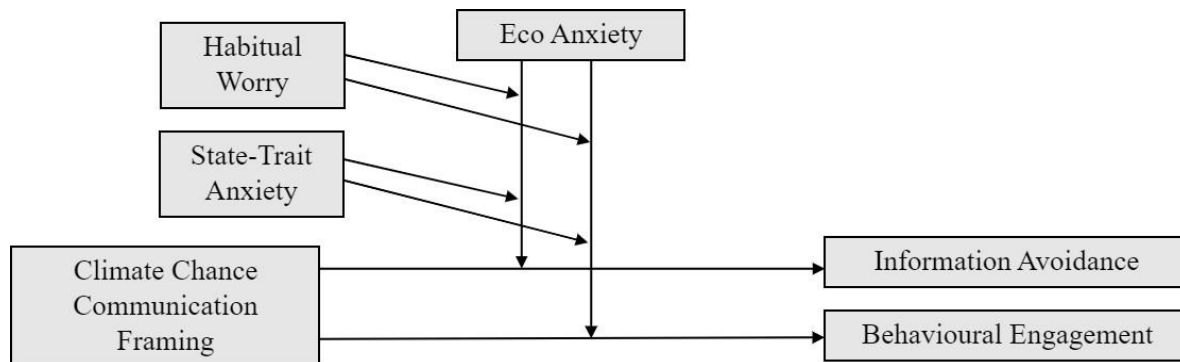


Figure 1 - Conceptual Model

The following hypothesis outlines the expected relationships between the variables: climate change communication framing (IV), information avoidance (DV), behavioural engagement (DV), the moderating effect of eco-anxiety (Mo).

H1: Climate Change Communication framing is a positive predictor of information avoidance. It is expected that individuals exposed to climate change messages framed in an urgent manner (crisis or emergency) will have a higher probability of exhibiting higher levels of information avoidance, and vice-versa.

H2: Eco anxiety moderates the relationship between communication framing and information avoidance. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a higher probability of exhibiting higher levels of information avoidance, and vice-versa, with this effect being stronger for those individuals experiencing greater eco-anxiety.

H3: Climate Change Communication framing is a positive predictor of behavioural engagement. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a lower probability of exhibiting behavioural engagement, and vice-versa.

H4: Eco anxiety moderates the relationship between communication framing and behavioural engagement. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a lower probability of exhibiting behavioural engagement, and vice-versa, with this effect being stronger for those individuals experiencing greater eco-anxiety.

H5a: Habitual Worry moderates the relationship between communication framing and behavioural engagement. It is expected that individuals exposed to climate change messages

framed in an urgent manner will have a lower probability of exhibiting behavioural engagement, and vice-versa, with this effect being stronger for those individuals experiencing greater habitual worry.

H5b: Habitual Worry moderates the relationship between communication framing and information avoidance. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a higher information avoidance, and vice-versa, with this effect being stronger for those individuals experiencing greater habitual worry.

H6a: State-Trait Anxiety moderates the relationship between communication framing and behavioural engagement. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a lower probability of exhibiting behavioural engagement, and vice-versa, with this effect being stronger for those individuals with higher levels of State-Trait Anxiety.

H6b: State-Trait Anxiety moderates the relationship between communication framing and information avoidance. It is expected that individuals exposed to climate change messages framed in an urgent manner will have a higher information avoidance, and vice-versa, with this effect being stronger for those individuals with higher levels of State-Trait Anxiety.

5. Methods

5.1. Sample

From the 202 participants in this study, 78 were male (38.6%), and 124 were female (61.4%), with ages between 18 and 61 ($M = 27.8$; $SD = 9.4$). Regarding the level of education, 50.5% had a bachelor's degree, 29.7% a master's degree and 18.8% graduated high school.

Concerning nationality, the majority of sample was Portuguese (81.7%), followed by German (Germany) (5.4%); Spanish (Spain) (5%); English (United Kingdom) (3%); Americans (United States of America) (2.5%); and 2.5% including nationals from Romania, Belgium, Moldova, Norway and France.

Within the sample, 27 people lived alone and 175 with someone else. From the latter, 57 individuals (32,5%) lived with three people, 57 individuals (32,5%) lived with two people, 36 individuals (20,6%) lived with one other person, and the remaining 25 individuals (14,3%) lived with between four to seven people. Lastly, only 11 people (6,3%) live with another person with less than 6 years of age.

5.2. Procedure

215 participants were recruited through a Non-Probability Sampling – Snowball technique.

Only the questionnaires completed correctly were considered. Thirteen respondents were removed prior to analysis for not fulfilling the inclusion criteria check: age between 18 and 70 years old, individuals who were not diagnosed with clinical anxiety or depression in the last six months, resulting in a sample with 202 participants.

Grounded on a quantitative method of data collection, a survey technique was applied using a questionnaire for data collection, through the online survey Qualtrics platform in mid-May 2023. Moreover, this research used an experimental design in the form of a vignette study embedded in the questionnaire. Vignette studies are a popular means among behavioural research and have been shown to serve well in order to determine attitudes and behavioural intentions of research participants towards climate-change communication (Aguinis & Bradley, 2014).

The questionnaire had two version, in two languages – Portuguese and English – to allow reaching a more heterogenous sample of participants. A link for the survey was shared on social media (Instagram, Facebook and LinkedIn), from which participants were recruited from various countries. The survey had both an experimental design and correlational design, involving the experimental manipulation of climate change messages framing and an assessment of predictive relationships between a set of predictors and criterion variables.

Initially, participants gave their informed consent for their participation and provided their socio-demographic data. Subsequently, they first answered questions related to their mental health in order to assess if they fulfilled any exclusion criteria.

Next, participants answered in scales representing control variables (Habitual Worry and Trait Anxiety) and were subsequently randomly assigned to one of four experimental conditions: 1) no message condition (n=48), 2) “climate change” cue (n=57), 2), 3) "climate emergency" (n=49), and 3) “climate crisis” cue (n=48). Those in the control condition proceeded directly to the remaining of the survey without reading any message, while those assigned to one of the three message conditions proceeded to a page showing them the corresponding message. Subsequently, all participants answered a set of scales representing the predictors and criterion variables of the study. Answers were forced for all questions in order

to avoid missing data.

Data collection occurred for one month and the average time to complete the questionnaire was 13 minutes and 45 seconds. The fastest participant took around 6 minutes and the slowest one took approximately 22 minutes to answer all questions.

After one month, all valid answers were inserted in the SPSS program for statistical analysis.

In order to motivate individuals to participate in this study, there was a raffle to win a TicWatch S2 smartwatch from Mobvoi (market value €167,18). The requirements to participate in the raffle were to answer the questionnaire and provide their email address at the end of the questionnaire when asked.

5.3. Instrument

For the English version of the questionnaire, pre-existing and validated scales for the English language were used. However, for the Portuguese version, some scales had to be translated and a preliminary validation performed.

As far as we know, there was no Portuguese version of the following scales: Habitual Worry Scale of Verplanken et al. (2007), the Climate Change Anxiety Scale (Clayton & Karazsia, 2020); Information Avoidance Scale (Howell, 2016); Information Seeking Scale (Valkengoed, Perlaviciute & Steg, 2022); Intentions to consume food from GM crops (Spence & Townsend, 2006); Attitude towards food from GM crops (Fransen et al., 2010). In addition, the communication messages used in the manipulation, created by Lu, McComas and Besley (2017) were also translated.

All translated scales and messages went through a translation and back translation (retroversion) procedure, to achieve a final form that maintained the original meaning. Each step - translation to Portuguese, back translation to English and creation of the final Portuguese version - were each performed by a different person, each fluent in English, with the last step being performed also by an expert in the corresponding area of research where the scales are used. The final version of the Portuguese scales was pre-tested with a small sample of 5 individuals from the target population, to ensure clarity in terms of language and meaning. Finally, to preliminarily validate the translated scale, we tested the reliability of the translated scale through the analysis of its internal consistency (Cronbach's alpha).

5.3.1. State-Trait Anxiety

The trait anxiety was measured through the State-Trait-Anxiety-Inventory (STAI), created by Spielberger, Gorsuch, Luchene, Vagg and Jacobs, a 40-item self-report scale that assesses separate dimensions of “state” (20 items), and “trait” anxiety (20 items). Examples of what the STAI measures include feelings of anxiety, apprehension, tension, nervousness, and worry. In the study presented here, both trait and state anxiety were measured and used as a control variable.

The State items include: “I am tense; I am worried” and “I feel calm; I feel secure.” and are rated on a 4-point scale, labelled from “Not at all” (1) to “Very much So” (4). Trait anxiety items included: “I worry too much over something that really doesn’t matter” and “I am content; I am a steady person.” All items are rated on a 4-point scale, labelled from “Almost Never” (1) to “Almost Always” (4). Higher scores indicate greater anxiety. The Portuguese version was translated and validated by Silva and Santos (2007), who reported the STAI scale’s Cronbach Alpha of $\alpha = .95$. When dividing the scale into State Anxiety and Trait Anxiety, the Cronbach Alpha are $\alpha = .38$ and $\alpha = .46$ respectively.

5.3.2. Habitual Worry

Assessments of habitual worry were obtained concerning Climate Change. The worry measures were obtained using the paradigm established by Verplanken, Friborg, Wang, Trafimow, and Woolf (2007), which capitalises on the thinking process underlying worry. This paradigm decomposes habitual thinking into content and process. Content comprises the worrying cognitions which one may have (the ‘what’ of thinking, e.g., “mass animal extinction”). The process element of those thoughts is their repetitive and habitual nature, which signifies that they occur frequently and reflexively (Verplanken, Marks, & Dobromir, 2020).

Subsequently, the participants were requested to enumerate a maximum of ten concerns that occasionally plague them in relation to climate change. This was followed by the Habit Index of Negative Thinking (HINT; Verplanken et al., 2007). The HINT consists of 12 items following the stem “Having worrying thoughts about climate change is something...”. Sample items are “I do frequently”, “I do automatically”, “I do unintentionally”, and “I find hard not to do”. Five-point Likert response scales were provided, which were labelled from “Disagree strongly” (1) to “Agree strongly” (5). Higher ratings represent a stronger habit. Cronbach’s Alpha for climate change worries was $\alpha = .85$.

5.3.3. *Climate Change Anxiety*

To assess the psychological responses to Climate Change, the Climate Change Anxiety Scale, created by Clayton and Karazsia (2020) was utilized. The Questionnaire comprised 22 items, including climate change anxiety scale (items 1-13), like “Thinking about climate change makes it difficult for me to concentrate.” and “My concerns about climate change undermine my ability to work to my Potential.”; cognitive-emotional impairment (items 1-8), like “I find myself crying because of climate change.” and “I think, “why can't I handle climate change better?””; functional impairment (item 9-13) like “My concerns about climate change make it hard for me to have fun with my family or friends.” and “My concerns about climate change interfere with my ability to get work or school assignments done”; experience of climate change (items 14-16), like “I have been directly affected by climate change” and “I know someone who has been directly affected by climate change”; and lastly behavioural engagement items 17-22) like “I wish I behaved more sustainably” and “I try to reduce my behaviours that contribute to climate change”, which were used as a separate scale to assess people’s behavioural engagement as a dependent variable on this study. All items were labelled on a Likert scale from 1 (Never) to 5 (Almost Always), where higher ratings represent a higher level of negative emotions (anxiety) related to Climate Change. Cronbach’s Alpha for Climate Change Anxiety Scale was $\alpha = .93$, but Cronbach’s Alpha for Climate Change Anxiety (items 1-13) was $\alpha = .96$.

Even though we are conducting this study with the variable “eco-anxiety”, we use this “climate-anxiety” scale as it is the scale that most closely matches the description of our variable.

5.3.4. *Information Avoidance*

Information Avoidance Scale, created by Howell in 2016, is an 8-item scale that assess people's tendency to avoid learning information in one domain: climate change. We chose to investigate climate change as the focus, because of its potential to pose different threats to different people (e.g., climate change may threaten people’s psychological health (e.g., eco-anxiety, frustration, fear...) and somewhat activated psychological defence mechanisms to protect against the consequences from being exposed to certain types of information (Howell & Shepperd, 2016).

The versatile tool has the capability to serve as both a predictor and an outcome measure (Howell & Shepperd, 2016). It includes items like “I would rather not know about climate change.” and “I would avoid learning about climate change.”, and has 4 reversed coded items, for example “Even if it will upset me, I want to know about climate change.” and “It is important to know about climate change.”. Anchors were labelled on a Likert scale from 1 (strongly disagree) to 7 (strongly agree), and the opposite for the reversed coded items. Cronbach’s Alpha for Information Avoidance Scale was $\alpha = .80$.

5.3.5. Information Seeking

To assess Information seeking, participants indicated the likelihood that they would consult two different information sources to help them prepare for heatwaves (caused by climate change): the heat and food map of the city (caused by climate change) and general information about the impacts of climate change on the city.

The item is labelled 5-point Likert scale, ranging from 1 (not at all likely) to 5 (very likely). Since there are only two items on this scale, a Spearman correlation seemed to be more adequate to test the scale’s reliability, which had a value of $r = 0.43$, $p = <0.001$.

The p-value provides stronger evidence against the null hypothesis by proving that the correlation is statistically significant. These data indicate that there is a weak positive relationship between the variables, which means that both items tend to increase or decrease together.

5.3.6. Intentions to consume GM crops

Intentions to consume genetic modification foods was assessed with three statements regarding their intentions to consume GM foods with items like “I have no problems with eating food produced from genetically modified crops.” and “When eating, I intend to make sure that my food does not contain genetically modified ingredients.”.

Participants indicated the extent to which they agreed or disagreed those statements on a 7-point Likert scale from 1 (Strongly disagree) to 7 (Strongly agree), where 2 out of 3 statements were reversed coded. Cronbach’s Alpha for Intentions to consume GM crops was $\alpha = .84$.

5.3.7. Attitude towards GM crops

Attitudes towards genetic modification foods was assessed with the Attitude towards GM crops Scale, created by Fransen and colleagues (2010), with eight semantic differential scales on a 7-point Likert scale.

Participants indicated attitudes as: unsafe-safe, useless-useful, positive-negative (reverse-coded item), unpleasant-pleasant, environmentally unfriendly-environmentally friendly, unhealthy-healthy, disgusting-appealing, and frightening-reassuring. Cronbach's Alpha for Attitude towards GM crops was $\alpha = .82$.

5.3.8. Communication messages

The communication messages, used in this study, were developed by Lu, McComas and Besley (2017) based on scientific papers published in related fields. The messages, approximately 120-words long, each stated that the global demand for food will increase rapidly in the next few decades and mentioned "rising temperatures and more severe droughts" as one of the reasons. Then the messages described GM as one potential tool to ensure food security. They found that messages that promoted GM as a useful tool in combating global food insecurity led to more favourable attitudes toward GM. The findings indicated that, irrespective of whether the cause was explicitly assigned to climate change or described as increasing temperature and droughts, two out of the three messages elicited a more favourable attitude towards genetically modified (GM) crops in comparison to the absence of any message. Consequently, we made the decision to evaluate these communications in the context of this study.

The messages presented four different conditions, differing only whether participants attributed the context explicitly to "climate change" (n=57), "climate emergency" (n=49), or "climate crisis" (n=48). The fourth condition was a control group with no message condition (n=48).

5.4. Analysis

The statistical analysis and hypothesis-testing were carried out in IBM SPSS Statistics 28. This included computing descriptive statistics and correlations related to all study variables, as well as reliability-testing of all scales via Cronbach's Alpha.

The study utilized Regression PROCESS v4.2 by Andrew F. Hayes (Introduction to Mediation, Moderation, and Conditional Process Analysis by Andrew F. Hayes), model number 3, to examine the main effect of climate change message framing on information avoidance and intentions towards more sustainable behaviours with the moderation of eco-anxiety, habitual worry, and state trait anxiety (H3 and H4).

Later, the study performed a simple Regression PROCESS v4.2, model number 1, to examine the main effect of climate change message framing on behavioural engagement (H2). Finally, the current study conducted a MANOVA to compare the effects of different messages on the changes in behavioural engagement. These tests enabled this study to investigate whether one message has significantly better persuasion power than other messages.

6. Results

In the table below, the descriptive statistics can be seen for the various variables measured in the study. On average, participants presented high state, trait and climate change anxiety, high habitual worry, low information avoidance, high information seeking, average intentions and attitude towards genetically modified crops.

Table 1 - Descriptive Statistics and Reliabilities of Variables

Variable	<i>M</i>	<i>SD</i>	Cronbach's α
State Anxiety	2.46	.82	.38
Trait Anxiety	2.44	.90	.46
Habitual Worry	3.71	1.09	.85
Climate Change Anxiety	2.77	.79	.93
Information Avoidance	2.32	1.35	.80
Information Seeking	2.97	1.02	.62
Intentions towards GM crops	4.71	1.37	.84
Attitude towards GM crops	4.22	1.18	.82

Note: $N = 202$. Measures of State and Trait Anxiety ranged from 1 to 4; higher numbers indicate higher anxiety. Habitual Worry varied between 1 and 5; higher numbers indicate more worrying thoughts about climate change. Measure of Climate Change Anxiety ranged from 1 to 5; higher numbers indicate higher climate change anxiety. Information Avoidance varied between 1 and 7; higher numbers indicate higher information avoidance. Information seeking varied between 1 and 5; higher numbers indicate higher information seeking. Intentions and Attitudes towards GM crops varied between 1 and 7; higher numbers indicate higher intentions to consume GM crops and a more positive attitude towards GM crops.

The results of the regression model number 1 between communication framing and information avoidance, with the moderation on eco-anxiety, show that the model is not statically significant ($p= 0,8929$). Nothing on this model is statically significant, therefore, hypotheses 1 and 2 are not corroborated. Consequently, a simple linear regression was conducted to teste whether the climate change communication framing alone predicts information avoidance Results showed that the regression model was not statistically significant (See Table 2), $F(1, 200) = 2,538$, $p = .113$. Proportionally, the climate change message framing explains approximately $-.137$ ($R^2 = .013$) of the information avoidance score variance. When the message framing urgency increases by 1 SD unit (1.098), the information avoidance increases 1,806 ($\beta = 2,665$, $p < ,001$).

Table 2 - Moderation of Eco-anxiety on the relationship between communication framing and information avoidance

Variable	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
Type of Message Framing (a)	-.1555	.3368	-.8198	.5087	-.4618	.6447
Eco-anxiety (b)	-.2771	.3580	-.9831	.4289	-.7741	.4398
a x b	.0169	.1256	-.2308	.2647	.1348	.8929

In order to test the opposite effect for curiosity reasons, we conducted a regression model number 1 between communication framing and information seeking, with the moderation on eco-anxiety. Results showed that this regression model is not statically significant ($p = .7592$), therefore there is no moderation effect of eco-anxiety.

Contrary to the previous ones, hypotheses 3 and 4 were corroborated. The results of the regression model number 1 between communication framing and behavioural engagement, with the moderation on eco-anxiety, show that the model is statically significant ($p=.028$), with a moderation effect of eco-anxiety (See Table 3). There is a main effect, and the type of climate change message framing is significant ($p=.012$), which means that depending on the type of message, people can have a higher or lower behavioural engagement. However, this effect is only significant when there is low eco-anxiety. Proportionally, the lower the eco-anxiety, the higher are the intention towards more sustainable behaviours (See table 4).

Furthermore, eco-anxiety has an effect on behavioural engagement ($p=.0007$), which

mean that the eco-anxiety alone is a predictor, and there is a moderating effect of eco-anxiety on the relationship between the message framing and the behavioural engagement - this effect occurs when anxiety is lower. It seems like the eco-anxiety can be an activating variable.

Table 3 - Moderation of Eco-anxiety on the relationship between communication framing and behavioural engagement

Variable	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
Type of Message	2.4281	.9522	.5502	4.3060	2.5499	.0115
Framing (a)						
Eco-anxiety (b)	3.4880	1.0126	1.4911	5.4850	3.4446	.0007
a x b	-.7891	.3553	-1.4898	-.0885	-2.2210	.0275

Table 4 - Moderation of Eco-anxiety on the relationship between communication framing and behavioural engagement- Conditional effects of the focal predictor at values of the moderator

Eco-anxiety	Effect	SE	Lower	Upper	Z	p
1.9807	.8651	.3275	.2193	1.5109	2.6417	.0089
2.7734	.2395	.2545	-.2624	.7415	.9410	.3478
3.5661	-.3860	.4254	-1.2250	.4530	-.9074	.3652

The results of the MANOVA examining the main effects of experimental conditions of climate change message framing on information avoidance show that, as compared to the control (no message) condition, the “climate change”, “climate emergency” and “climate crisis” conditions showed no condition effects, as the information avoidance seem to be higher in the control group (M=2,61). There’s equality of variance.

The results of the MANOVA examining the main effects of experimental conditions of climate change message framing on behavioural engagement show that there’s more engagement with the emergency message (M = 24.12) and crisis message (M = 22.31) (See Table 5). In general, all climate change cue message presented a higher media that the control group. Furthermore, there’s a condition effect, rejecting the null hypothesis.

Table 5 - MANOVA of the impact of communication framing on information avoidance and behavioural engagement

Measure	Control Group		Climate Change		Climate Emergency		Climate Crisis		F (3,197)	η^2
	M	SD	M	SD	M	SD	M	SD		
Information Avoidance	2.61	1.61	2.31	1.45	2.22	.95	2.17	1.27	1.02	.015
Behavioural Engagement	21.28	4.15	21.93	4.33	24.12	3.11	22.3	3.77	4.85	.069

The hypothesis 5a, 5b, and 6b were not corroborated. The results of the regression model number 3, with the moderation of eco-anxiety and habitual worry on the relationship between communication framing and behavioural engagement show that the relationship is not statistically significant ($p=.94$) (See Table 2). Furthermore, there is no interaction between eco-anxiety and habitual worry ($p = .71$). The results of the regression model number 3, with the moderation of eco-anxiety and habitual worry on the relationship between communication framing and information avoidance were also not statistically significant ($p=.32$), and there is no interaction between eco-anxiety and habitual worry ($p = .23$). The moderation of eco-anxiety and state-trait anxiety on the relationship between communication framing and information avoidance was not statistically significant ($p=.73$). Furthermore, results show that there is no interaction between eco-anxiety and state-trait anxiety ($p= .6862$).

One of the primary issues raised by the participants was on a range of significant concerns, including fear, anxiety, the impact of global warming, water scarcity, pollution, a perceived lack of agency in managing environmental circumstances, and the escalating levels of sea water. Furthermore, the participants expressed concerns regarding health-related matters, the scarcity of food, death rates, the potential submergence of towns, the precarious future of wildlife, the destruction of natural ecosystems, and the disappearance of glaciers, among other heartbreaking reflections.

It is important to highlight that a significant majority of participants either chose not to provide a response or clearly expressed that they did not consider these concerns. The variation in reactions highlights the range of attitudes and beliefs that people hold towards the intricate and diverse difficulties presented by environmental concerns.

Table 6 - Moderation of Eco-anxiety and Habitual Worry on the relationship between communication framing and behavioural engagement

Variable	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
Type of Message Framing (a)	3,0875	3,1789	-3,1825	9,3574	,9712	,3327
Climate Change Anxiety (b)	4,7450	3,2739	-1,7122	11,2022	1,4493	,1489
a x b	-,8934	1,1688	-3,1986	1,4118	-,7644	,4456
Habitual Worry (c)	,4089	,6200	-,8140	1,6319	,6595	,5103
a x c	-,0404	,2249	-,4840	,4032	-,1796	,8576
b x c	-,0878	,2351	-,5514	,3758	-,3735	,7092
a x b x c	,0066	,0832	-,1575	,1708	,0798	,9365

Hypothesis 6a, with the moderation of eco-anxiety and state-trait anxiety on the relationship between communication framing and behavioural engagement, is not statistically significant ($p=.73$), however, there is an interaction between eco-anxiety and state-trait anxiety ($p=.0298$). This means that when eco-anxiety and State-Trait Anxiety are lower, there's more behavioural engagement.

7. Discussion

The current study aimed to investigate the moderating effects of eco-anxiety, as well as habitual worry and state-trait anxiety, on the relationship between climate change communication framing and information avoidance and behavioural engagement.

Contrary to our expectations, the results of the moderation analyses did not reveal significant interactions between eco-anxiety and habitual worry in relation to communication framing and either information avoidance or behavioural engagement. These results suggest that the presence of habitual worry does not alter the impact of various climate change communication framings on individuals' information avoidance or their behavioural engagement.

These results suggest that individuals experiencing greater habitual worry, exposed to climate change messages framed in an urgent manner, can have a higher probability of exhibiting behavioural engagement and cause lower information avoidance. According to Watkins (2008), thinking about something over and over again can have positive effects, such

as making adaptive decisions when there is a chance of danger. Verplanken (2020) investigated the distinctions between worry types and came to the conclusion that the thesis—that worry about global warming can be constructive—was strongly supported by the significant associations between worry about the phenomenon and both positive ('determined') and angry emotions, as well as pro-ecological worldview, values, and behaviour.

On the other hand, it can also mean that individuals who experience lower habitual worry, exposed to climate change messages framed in an urgent manner, can have a lower probability of exhibiting behavioural engagement and cause higher information avoidance. This can be caused by an individual's lack of willingness to disturb their “peace” or not wanting to be put in situations that can cause them any type of emotional change, like worry, stress or anxiety. Another possible reason is the Bystander effect, which is known by leading people to avoid certain situations or engaging in certain issues because they think someone else will do it - diffusion of responsibility (Darley & Latane, 1968).

In this context, the association between worry about global warming and a "green" self-identity is particularly noteworthy, since adopting concern about climate change as a part of one's self-concept is a crucial indicator of the positive aspects of global warming anxiety. A person's perception of themselves as "green" may serve as a cognitive/affective "hub" for pro-environmental goals and actions, and it may also contribute to their sense of who they truly are (e.g., Strohinger, Knobe, & Newman, 2017; Verplanken & Holland, 2002; Verplanken & Sui, 2019).

Furthermore, the results of the moderation analyses did not reveal significant interactions between eco-anxiety and state-trait anxiety in relation to communication framing and information avoidance. Brosch (2021) underscores the significance of individuals' affective responses to climate change in shaping their attitudes toward risk, adoption of mitigation and adaptation strategies, endorsement of policies, and acceptance of new technologies.

These results suggest that the presence of state-trait anxiety does not alter the impact of different climate change communication framings on individuals' information avoidance. It is possible that other factors or individual differences, not considered in this study, have a greater impact on determining how individuals respond to communication messages about climate change.

Saari et al. (2021) suggests that environmental knowledge plays a significant role in predicting sustainable consumption behaviour, supported by previous research highlighting its

importance in individuals' intention to adopt environmental behaviour.

Another factor that may impact how individuals respond to communication messages about climate change is risk perception as it triggers emotional responses and commitment to environmental causes. Furthermore, environmental concern plays a strong role in shaping attitudes and intentions towards sustainability. Individual psychological differences, beyond just demographic factors, and political ideology, are also significant predictors of climate change engagement (Saari et al, 2021).

According to Verplanken, Marks, and Dobromir (2020), concern over global warming is linked to the belief that it is a personally important issue that affects both far-off areas and one's own location or region. That being said, concerns about global warming may now be extremely personal for individuals who are directly impacted by natural catastrophes like hurricanes, flooding, and wildfires.

The results of our investigation into the direct effects of climate change communication framing on information avoidance did not support our hypothesis. The regression model revealed that there was no statistically significant relationship between communication framing and information avoidance. This suggests that variations in the urgency of climate change messaging may have little effect on individuals' propensity to avoid climate-related information. This can mean that individuals understand the severity of climate change and ecological issues regardless of the message framing and their decision to ignore it will not depend on framing.

Our study revealed a significant main effect of communication framing on behavioural engagement. Specifically, the type of message formulation regarding climate change had a significant impact on individuals' behavioural engagement. People who were exposed to messages framed in an urgent manner had greater behavioural engagement than those who were exposed to messages framed in a less urgent manner. This effect was especially pronounced when eco-anxiety was low, suggesting that individuals with lower eco-anxiety are more receptive to urgent climate change messaging. This is in line with the literature review which shows that messages that induce a sense of urgency moves people to action. d'Adda, Galliera, and Tavoni (2020) believe that "Imposing a sense of urgency is a strong motivator of engagement".

Results of the moderation analyses revealed significant interactions between eco-anxiety and state-trait anxiety in relation to communication framing and behavioural

engagement. These results suggest that the level of state-trait anxiety does alter the impact of various climate change communication framings on individuals' behavioural engagement.

Pavani, Nicolas and Bonetto study (2023) suggest that anxiety can motivate problem-solving behaviours, even in the context of environmental threats.

Eco-anxiety emerged as a significant predictor of behavioural engagement when considered independently. This suggests that eco-anxiety alone may have a direct effect on people's behavioural engagement as it can either amplify or diminish the effect of message framing.

Albrecht (2011) suggested that anxiety has the potential to function as a catalyst for eco-paralysis when high. Therefore, lower levels of eco-anxiety can increase individuals' behaviour engagement as individuals with lower eco-anxiety are more receptive to urgent climate change messaging.

The MANOVA evaluating the main effects of various climate change message framings revealed that the "climate emergency" and "climate crisis" message conditions led to greater engagement than the control group. This indicates that urgent climate change messaging is more effective at motivating behavioural engagement than non-urgent framing or no message at all. This goes against the study of Neben (2015) that believes a more negative/urgent frame can induce a psychological defence mechanism in which the person avoids information and behavioural engagement. In this case, we can see that urgent messages lead to greater engagement, in accordance with the study of d'Addaa, Gallierab, and Tavoni (2020), who support that messages that induce a sense of urgency are twice as effective than generic messages.

It is important to acknowledge the limitations related to the sample used in this study. The data was collected via the Qualtrics platform, and it was found that about 150 respondents did not finish the questionnaire. As a result, it was not practical to include these respondents in the study. The primary factors commonly mentioned as causes for questionnaire abandonment were primarily linked to the extensive length of the questionnaire. Furthermore, the presence of participant weariness became apparent, presumably leading to rushed responses, especially when respondents aimed to finish quickly in order to be eligible for the smartwatch raffle. After careful consideration, it was determined that the number of scales used in this study may have been excessive for the specific objectives of the investigation.

It is recommended that future research endeavours focus on optimizing the scales by incorporating only necessary metrics. This approach would serve to reduce the length of questionnaires and maximize the utilization of all scale outcomes.

Furthermore, with regards to the implemented actions, it is argued that the Climate Change Communication messaging deployed should have been more strategically chosen. It is widely agreed upon that the messaging utilized may not have demonstrated enough diversity to have a substantial effect on individual levels of ecological distress.

Altering a single word in the messages might not generate sufficiently strong cognitive reactions to produce a significant impact, even when considering a sample size of 202 people. Further study efforts are necessary to explore additional factors that could potentially impact individual reactions to messages related to climate change communication.

It is imperative to conduct a thorough examination of the distinct effects that positive and negative signals have on individuals' levels of eco-anxiety, as well as their potential influence on the occurrence of information avoidance. Furthermore, increasing the sample size could potentially reveal a more substantial magnitude of the observed effect.

8. Conclusion

In summary, the results of this study offer significant contributions to our understanding of the subtle dynamics of climate change communication framing, specifically in relation to the moderating influence of eco-anxiety. While the study did not reveal any substantial moderating effects between the framing of climate change communications and the occurrence of information avoidance, it did shed light on the crucial role that the sense of urgency expressed in messaging plays in influencing behavioural involvement.

Moreover, a significant finding has emerged concerning the moderating impact of eco-anxiety on the complex relationship between message framing and behavioural engagement, specifically among persons who exhibit lower levels of worry. This finding implies that the influence of climate change communication varies among individuals, highlighting the significance of taking into account an individual's anxiety disposition when developing targeted messaging tactics.

The consequences of these findings are significant for the improvement and adjustment of tactics related to the communication of climate change. In particular, a comprehensive

understanding of the intricate connection between eco-anxiety and message framing can assist communicators in developing messages that effectively resonate with various anxiety profiles. Recognizing the impact of urgency in messaging on behavioural engagement is a valuable tool for communicators aiming to optimize the efficacy of their efforts.

Furthermore, the recognition of eco-anxiety as a possible obstacle to the intention of engaging in sustainable behaviour highlights the necessity for specific solutions. The possibility exists to overcome hurdles associated with eco-anxiety by adjusting communication tactics to match the anxiety levels of individuals, so facilitating greater acceptance and implementation of sustainable habits. This research proposes the adoption of a personalized and nuanced strategy in climate change communication, which acknowledges and tackles the psychological intricacies that shape individual reactions. By doing so, it aims to promote a more sustainable future.

These findings have implications for climate change communication strategies, emphasizing the importance of tailoring messaging to the anxiety levels of the target audience to promote sustainable behaviours effectively.

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Appendices

Appendix 1 – Thesis Questionnaire

Eco-anxiety's Role in Information Avoidance Induced by Climate Change Communication

Start of Block: Informed Consent

The survey we invite you to participate in, is part of an investigation within the scope of a Master's thesis in Psychology Applied to Business and Economics taught at Católica Lisbon School of Business & Economics.

With this study, we aim to analyse the role of emotions and particularly of eco-anxiety, in the way people use information about climate change, on their motivations, and on how they think and feel about it.

The results obtained will be used for academic purposes only and the questionnaire is anonymous. There are no right or wrong answers, and as such we ask that you answer all questions spontaneously and truthfully.

Study participation risks: There is no expectance that the study participation will pose risks for the participants.

Study participation benefits: If you participate in the study, you will have the opportunity to enter a draw to receive a TicWatch S2 smartwatch from Mobvoi (market value €167,18). The winner will be randomly selected from our valid and completed participations. To this end, we ask that you provide your email address at the end of the questionnaire when asked. If you are selected, you will be contacted for delivery of the equipment to that email address. Your email information will be only used for this purpose and all contacts will be deleted from the database, after the draw is finished.

Thank you for your collaboration.

O inquérito em que o convidamos a participar, faz parte de uma investigação no âmbito de uma tese de mestrado em Psicologia Aplicada à Economia e à Gestão leccionada na Católica Lisbon School of Business & Economics.

Com este estudo, pretendemos analisar o papel das emoções, e particularmente da eco-ansiedade, na forma como as pessoas utilizam a informação sobre as alterações climáticas, sobre as suas motivações, e sobre o modo como pensam e sentem sobre o assunto.

Os resultados obtidos serão utilizados apenas para fins académicos e o questionário é anónimo. Não há respostas certas ou erradas, e como tal pedimos que responda a todas as perguntas de forma espontânea e verdadeira.

Riscos de participação no estudo: Não há qualquer expectativa de que a participação no estudo represente riscos para os participantes.

Benefícios da participação no estudo: Se participar no estudo, terá a oportunidade de entrar num sorteio para receber um TicWatch S2 smartwatch de Mobvoi (valor de mercado: €167,18). O vencedor será seleccionado aleatoriamente a partir de uma lista das participações válidas e completas. Para tal, solicitamos que nos indique o seu endereço de correio electrónico no final do questionário, quando solicitado. Se for seleccionado, será contactado através desse endereço electrónico para a entrega do equipamento. As suas informações de correio electrónico só serão utilizadas para este fim e todos os contactos serão apagados da base de dados após o sorteio estar concluído.

Obrigado pela sua colaboração.

Given the information provided above, do you wish to participate in the study? If yes, please select the appropriate answer below:

- I AGREE to participate in the study. (1)
- I DO NOT AGREE to participate in the study. (2)

Tendo em conta as informações fornecidas anteriormente, deseja participar no estudo? Se sim, queira seleccionar a resposta apropriada abaixo:

- Eu CONCORDO em participar no estudo. (1)
- Eu NÃO CONCORDO em participar no estudo. (2)

Skip To: End of Survey If Given the information provided above, do you wish to participate in the study? If yes, please sel... = I DO NOT AGREE to participate in the study.

Page Break

End of Block: Informed Consent

Start of Block: Sociodemographic Questions

Gender

- Male (1)
- Female (2)
- Other (3)
- I rather not answer (4)

Género

- Masculino (1)
 - Feminino (2)
 - Outro (3)
 - Prefiro não responder (4)
-

Age

Idade

Q3 Country of residence

▼ Afghanistan (1) ... Zimbabwe (195)

País de residência

▼ Afghanistan (1) ... Zimbabwe (195)

Level of education

- Elementary (1)
- High school (2)
- Bachelor degree (3)
- Masters degree (4)
- PhD or other (5)
- I prefer not to say (6)

Nível de educação

- Escola elementar (1)
 - Ensino secundário (2)
 - Licenciatura (3)
 - Mestrado (4)
 - Doutoramento ou outro (5)
 - Prefiro não dizer (6)
-

Do you live alone?

- Yes (1)
- No (2)

Vive sozinho?

Sim (1)

Não (2)

Skip To: Q21 If Do you live alone? = Yes

Page Break

Display This Question:

If Do you live alone? = No

How many people do you live with?

Com quantas pessoas vive?

Display This Question:

If Do you live alone? = No

How many people do you live with that have less than 6 years old? If none, please write 0 (zero).

Com quantas pessoas vive com menos de 6 anos de idade? Se nenhuma, por favor escreva 0 (zero).

Page Break

End of Block: Sociodemographic Questions

Start of Block: Mental Health

Have you ever been diagnosed with chronic anxiety or diagnosed with an anxiety disorder in the last 12 months?

- Yes (1)
- No (2)
- I rather not say (3)

Alguma vez lhe foi diagnosticada uma ansiedade crónica ou outra perturbação de ansiedade nos últimos 12 meses?

- Sim (1)
 - Não (2)
 - Prefiro não dizer (3)
-

Are you currently using psychological counseling services?

- Yes (1)
- No (2)
- I rather not say (3)

Está actualmente a utilizar serviços de aconselhamento psicológico?

- Sim (1)
 - Não (2)
 - Prefiro não dizer (3)
-

Page Break

End of Block: Mental Health

Start of Block: State-Trait Anxiety Inventory

Form Y-1 A number of statements that people have used to describe themselves are given below. Read each statement and then select the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or

wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feeling best.

	Not at all (1)	Somewhat (2)	Moderately So (3)	Very much So (4)
I feel calm (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel secure (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am tense (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel strained (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel at ease (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel upset (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am presently worrying over possible misfortunes (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel satisfied (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel frightened (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel comfortable (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel self-confident (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel nervous (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am jittery (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel indecisive (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am relaxed (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel content (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am worried (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel confused (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel steady (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel pleasant (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Form Y-1 Em baixo encontra uma série de frases que as pessoas costumam usar para se descreverem a si próprias. Leia cada uma delas e selecione o número da direita que indique como se sente agora, isto é, neste momento. Não há respostas certas nem erradas. Não leve

muito tempo com qualquer frase, mas dê a resposta que lhe parece descrever os seus sentimentos neste momento.

	Nada (1)	Um pouco (2)	Moderadamente (3)	Muito (4)
Sinto-me calmo (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me seguro (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me tenso (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me esgotado (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me à vontade (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me perturbado (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou actualmente preocupado com desgraças que podem vir a acontecer (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me satisfeito (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me assustado (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou descansado (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me confiante (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me nervoso (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou inquieto (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me indeciso (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou descontraído (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sinto-me contente (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou preocupado (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me confuso (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me uma pessoa estável (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me bem (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Form Y-2 A number of statements that people have used to describe themselves are given below. Read each statement and then select the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not

spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	Almost Never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I feel pleasant (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel nervous and restless (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel satisfied with myself (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wish I could be as happy as others seem to be (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like a failure (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel rested (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am "calm, cool, and collected" (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that difficulties are piling up so that I cannot overcome them (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry too much over something that really doesn't matter (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm happy (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have disturbing thoughts (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lack self- confidence (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel secure (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make decisions easily (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel inadequate (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am content (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some unimportant thoughts runs through my mind and bothers me (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take disappointments so keenly that I can't put them out of my mind (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a steady person (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get in a state of tension or turmoil as I think over my recent concerns and interests (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Form Y-2 Em baixo encontra uma série de frases que as pessoas costumam usar para se descreverem a si próprias. Leia cada uma delas e seleccione o número da direita que indique

como se sente em geral. Não há respostas certas nem erradas. Não leve muito tempo com qualquer frase, mas dê a resposta que lhe parece descrever como se sente geralmente.

	Quase nunca (1)	Frequentemente (2)	Algumas vezes (3)	Quase sempre (4)
Sinto-me bem (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me nervoso e inquieto (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me satisfeito comigo próprio (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quem me dera ser tão feliz como os outros parecem sê-lo (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me um falhado (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me tranquilo (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sou calmo, ponderado e senhor de mim mesmo. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto que as dificuldades se estão a acumular de tal forma que não as consigo resolver (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preocupo-me demais com coisas que na realidade não têm importância (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sou feliz (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenho pensamentos que me perturbam (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Não tenho muita confiança em mim (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me seguro (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tomo decisões com facilidade (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muitas vezes sinto que não sou capaz (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou contente (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Às vezes, passam-me pela cabeça pensamentos sem importância que me aborrecem (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tomo os desapontamentos tão a sério que não consigo afastá-los do pensamento (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sou uma pessoa estável (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fico tenso e desorientado quando penso nas minhas preocupações e interesses mais recentes (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

End of Block: State-Trait Anxiety Inventory

Start of Block: Habitual Worry

List up the top worrying thoughts you sometimes might have about climate change. (Please write down a maximum of 10 thoughts)

Escreva os pensamentos mais preocupantes que por vezes possa ter, sobre as alterações climáticas. (Por favor, escreva um máximo de 10 pensamentos)

Having worrying thoughts about climate change is something...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I do frequently (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do automatically (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do unintentionally (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find hard not to do (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pensamentos preocupantes sobre as alterações climáticas é algo que...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Tenho frequentemente (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenho automaticamente (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenho sem intenção (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acho difícil não ter (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Occasionally we think about the state of the world. Such thoughts may be positive, but may also be negative. In this study we are interested in negative thoughts you may have about climate change. Please indicate how much you agree or disagree with the following statements.

Thinking negatively about climate change is something ...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I do frequently. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do automatically. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do unintentionally. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
that feels sort of natural to me. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do without further thinking. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
that would require mental effort to leave. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do every day. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I start doing before I realize I'm doing it. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would find hard not to do. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't do on purpose. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
that's typically "me." (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been doing for a long time. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ocasionalmente pensamos sobre o estado do mundo. Tais pensamentos podem ser positivos, mas também podem ser negativos. Neste estudo, estamos interessados em pensamentos negativos que possa ter sobre as alterações climáticas. Por favor, indique o quanto concorda ou discorda com as seguintes afirmações.

Pensar de forma negativa sobre as alterações climáticas é algo que ...

	Discordo fortemente (1)	Discordo em parte (2)	Não concordo, nem discordo (3)	Concordo em parte (4)	Concordo fortemente (5)
Faço frequentemente. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faço automaticamente. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faço sem intenção. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me parece natural. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faço sem ter de pensar muito. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exigiria esforço mental deixar de fazer. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faço todos os dias. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Começo a fazer antes de perceber que o estou a fazer. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teria dificuldade em não fazer. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Não faço de propósito. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
É tipicamente "eu". (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Já faço há muito tempo. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Please read the text below and, when you finish, proceed to the next page:

Genetically Modified Crops can Help Ensure Global Food Security Threatened by the Climate Crisis

Demand for food will rise rapidly over the next few decades as the world population surpasses 9 billion people. Growing competition for land, water, and energy will affect our ability to produce food in the years ahead. Rising temperatures and more severe droughts due to climate change will worsen the situation by devastating crops. Scientists are therefore exploring ways to ensure food security. Genetic modification (GM) enables the development of new crop varieties. GM of crops can potentially help increase crop yield and enhance crop resistance to disease and drought. This is especially important as extreme weather events due to the climate crisis have already begun to pose an increased threat.

Por favor, leia o texto abaixo e, quando terminar, prossiga para a página seguinte: **As culturas geneticamente modificadas podem ajudar a garantir a segurança alimentar global, ameaçada pela crise climática** A procura de alimentos irá aumentar rapidamente nas próximas décadas à medida que a população mundial ultrapassa os 9 mil milhões de pessoas. A crescente competição por recursos como a terra, água e energia irá afetar a nossa capacidade de produzir alimentos nos próximos anos. O aumento das temperaturas e secas mais severas devido às alterações climáticas agravarão a situação, ao arruinar as culturas. Os cientistas estão, por isso, a explorar formas de garantir a segurança alimentar. A modificação genética (MG) permite o desenvolvimento de novas variedades de culturas. As modificações genéticas das culturas podem potencialmente ajudar a aumentar o rendimento das culturas e aumentar a resistência das culturas às doenças e à seca. Isto é especialmente importante, uma vez que os eventos meteorológicos extremos resultantes da crise climática, já começaram a ser uma ameaça cada vez maior.

End of Block: “Climate crisis” cue message

Start of Block: “Climate emergency” cue message

Please read the text below and, when you finish, proceed to the next page:

Genetically Modified Crops can Help Ensure Global Food Security Threatened by the Climate Emergency

Demand for food will rise rapidly over the next few decades as the world population surpasses 9 billion people. Growing competition for land, water, and energy will affect our ability to produce food in the years ahead. Rising temperatures and more severe droughts due to climate change will worsen the situation by devastating crops. Scientists are therefore exploring ways to ensure food security. Genetic modification (GM) enables the development of new crop varieties. GM of crops can potentially help increase crop yield and enhance crop resistance to disease and drought. This is especially important as extreme weather events due to the climate emergency have already begun to pose an increased threat.

Por favor, leia o texto abaixo e, quando terminar, prossiga para a página seguinte:

As Culturas Geneticamente Modificadas Podem Ajudar A Garantir A Segurança Alimentar Global, Ameaçada Pela Emergência Climática

A procura de alimentos irá aumentar rapidamente nas próximas décadas à medida que a população mundial ultrapassa os 9 mil milhões de pessoas. A crescente competição por recursos como a terra, água e energia irá afetar a nossa capacidade de produzir alimentos nos próximos anos. O aumento das temperaturas e secas mais severas devido às alterações climáticas agravarão a situação, ao arruinar as culturas. Os cientistas estão, por isso, a explorar formas de garantir a segurança alimentar. A modificação genética (MG) permite o desenvolvimento de novas variedades de culturas. As modificações genéticas das culturas podem potencialmente ajudar a aumentar o rendimento das culturas e aumentar a resistência das culturas às doenças e à seca. Isto é especialmente importante, uma vez que os eventos meteorológicos extremos resultantes da crise climática, já começaram a ser uma ameaça cada vez maior.

Page Break

End of Block: “Climate emergency” cue message

Start of Block: Implicit cue message

Please read the text below and, when you finish, proceed to the next page:

Genetically Modified Crops can Help Ensure Global Food Security Threatened by Climate Change

Demand for food will rise rapidly over the next few decades as the world population surpasses 9 billion people. Growing competition for land, water, and energy will affect our ability to produce food in the years ahead. Rising temperatures and more severe droughts due to climate change will worsen the situation by devastating crops. Scientists are therefore exploring ways to ensure food security. Genetic modification (GM) enables the development of new crop varieties. GM of crops can potentially help increase crop yield and enhance crop resistance to disease and drought. This is especially important as extreme weather events due to climate change have already begun to pose an increased threat.

Por favor, leia o texto abaixo e, quando terminar, prossiga para a página seguinte:

As Culturas Geneticamente Modificadas Podem Ajudar A Garantir A Segurança Alimentar Global, Ameaçada Pelas Alterações Climáticas

A procura de alimentos irá aumentar rapidamente nas próximas décadas à medida que a população mundial ultrapassa os 9 mil milhões de pessoas. A crescente competição por recursos como a terra, água e energia irá afetar a nossa capacidade de produzir alimentos nos próximos anos. O aumento das temperaturas e secas mais severas devido às alterações climáticas agravarão a situação, ao arruinar as culturas. Os cientistas estão, por isso, a explorar formas de garantir a segurança alimentar. A modificação genética (MG) permite o desenvolvimento de novas variedades de culturas. As modificações genéticas das culturas podem potencialmente ajudar a aumentar o rendimento das culturas e aumentar a resistência das culturas às doenças e à seca. Isto é especialmente importante, uma vez que os eventos meteorológicos extremos resultantes da crise climática, já começaram a ser uma ameaça cada vez maior.

Page Break

End of Block: Implicit cue message

Start of Block: Control

Please proceed to the next page.

Por favor, prossiga para a página seguinte.

Page Break

End of Block: Control

Start of Block: Dependent measures

For each affirmation, please select your response in the scale presented.

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Almost always (5)
Thinking about climate change makes it difficult for me to concentrate (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking about climate change makes it difficult for me to sleep (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have nightmares about climate change (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find myself crying because of climate change (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think, "why can't I handle climate change better?" (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go away by myself and think about why I feel this way about climate change (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I write down my thoughts about climate change and analyze them (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I think, “why do I react to climate change this way?” (8)

My concerns about climate change make it hard for me to have fun with my family or friends (9)

I have problems balancing my concerns about sustainability with the needs of my family (10)

My concerns about climate change interfere with my ability to get work or school assignments done (11)

My concerns about climate change undermine my ability to work to my potential (12)

My friends say I think about climate change too much (13)

I have been directly affected by climate change (14)

I know someone who has been directly affected by climate change (15)

I have noticed a change in a place that is important to me due to climate change (16)

I wish I behaved more sustainably (17)

I recycle (18)

I turn off lights (19)

I try to reduce my behaviours that contribute to climate change (20)

I feel guilty if I waste energy (21)

I believe I can do something to help address the problem of climate change (22)

Para cada afirmação, por favor selecione a sua resposta na escala apresentada.

	Nunca (1)	Raramente (2)	Às vezes (3)	Frequentemente (4)	Quase sempre (5)
Pensar nas alterações climáticas faz com que seja difícil concentrar-me (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pensar nas alterações climáticas faz com que seja difícil para mim dormir (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As alterações climáticas dão-me pesadelos (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dou por mim a chorar por causa das alterações climáticas (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu penso, "porque não posso lidar melhor com as alterações climáticas"? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dou por mim a pensar porque é que me sinto assim em relação às alterações climáticas (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Revejo os meus pensamentos sobre as alterações climáticas e analiso-os (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Eu penso,
"porque reajo às
alterações
climáticas desta
forma"? (8)

As minhas
preocupações
com as
alterações
climáticas
tornam difícil
divertir-me com
a minha família
ou amigos (9)

Tenho
problemas em
encontrar um
equilíbrio entre
as minhas
preocupações
com a
sustentabilidade
e as
necessidades da
minha família
(10)

As minhas
preocupações
com as
alterações
climáticas
interferem com
a minha
capacidade de
fazer trabalhos
ou tarefas
escolares (11)

As minhas
preocupações
com as
alterações
climáticas
prejudicam a
minha
capacidade de
alcançar o meu
potencial (12)

Os meus amigos dizem que penso demasiado nas alterações climáticas (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tenho sido diretamente afetado pelas alterações climáticas (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conheço alguém que tem sido diretamente afetado pelas alterações climáticas (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notei uma mudança num lugar que é importante para mim, devido às alterações climáticas (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gostaria de me comportar de forma mais sustentável (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu reciclo (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu apago as luzes (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tento reduzir os meus comportamentos que contribuam para as alterações climáticas (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto culpa, se desperdiço energia (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Eu creio que posso fazer algo para ajudar a lidar com o problema das alterações climáticas (22)

Page Break

On a scale from 1-7, what is your attitude towards genetically modified food?

Please select your response in the scale presented, depending on how much your question approaches one pole/side of the scale or the other.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Safe
Useless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Useful
Positive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Negative
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Environmentally unfriendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Environmentally friendly
Unhealthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Healthy
Disgusting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appealing
Frightening	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Reassuring

Numa escala de 1 a 7, qual é a sua atitude em relação aos alimentos geneticamente modificados?

Selecione por favor a sua resposta na escala apresentada, dependendo de quanto a sua pergunta se aproxima de um pólo/lado da escala ou do outro.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Inseguro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Seguro
Inútil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Útil
Positivo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Negativo
Desagradável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agradável
Não é amigo do ambiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Amigo do ambiente
Não saudável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Saudável
Nojento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Atrativo
Assustador	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Reconfortante

Page Break

To which extent do you agree or disagree with the following statements regarding your intentions to consume genetically modified food?

For each affirmation, please select your response in the scale presented.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I have no problems with eating food produced from genetically modified crops (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I know a food product contains genetically modified ingredients, I do not eat it (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When eating, I intend to make sure that my food does not contain genetically modified ingredients (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Até que ponto concorda ou discorda com as seguintes afirmações relativamente às suas intenções de consumir alimentos geneticamente modificados?

Para cada afirmação, por favor selecione a sua resposta na escala apresentada.

	Discordo fortemente (1)	Discordo (2)	Discordo em parte (3)	Não concordo, nem discordo (4)	Concordo em parte (5)	Concordo (6)	Concordo fortemente (7)
Não tenho problemas em consumir alimentos produzidos a partir de culturas geneticamente modificadas (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quando eu sei que um produto alimentar contém ingredientes geneticamente modificados, eu não o como (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ao comer, tenho intenção de assegurar que os meus alimentos não contêm ingredientes geneticamente modificados (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

For each affirmation, please select your response in the scale presented.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would rather not know about climate change. (Q12_1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would avoid learning about climate change. (Q12_2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even if it will upset me, I want to know about climate change. (Q12_3R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When it comes to climate change, [sometimes] ignorance is bliss. (Q12_4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to know about climate change. (Q12_5R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I can think of situations in which I would rather not know about climate change.
(Q12_6)

It is important to know about climate change.
(Q12_7R)

I want to know about climate change immediately.
(Q12_8R)

Para cada afirmação, por favor selecione a sua resposta na escala apresentada.

	Discordo fortemen te (1)	Discord o (2)	Discord o em parte (3)	Não concord o nem discord o (4)	Concord o em parte (5)	Concord o (6)	Concord o fortemen te (7)
Eu preferia não saber sobre as alterações climáticas. (Q12_1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu evitaria aprender sobre as alterações climáticas. (Q12_2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mesmo que me aborreça, eu quero saber sobre as alterações climáticas. (Q12_3R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quando se trata de alterações climáticas, [por vezes] a ignorância é uma benção. (Q12_4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu quero saber sobre as alterações climáticas. (Q12_5R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu consigo pensar em situações em que preferia não saber sobre as alterações climáticas. (Q12_6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

É importante saber sobre as alterações climáticas. (Q12_7R)

Eu quero saber sobre as alterações climáticas imediatamente. (Q12_8R)

Page Break

Do you access the next information sources?

For each affirmation, please select your response in the scale presented.

	I have no intention of accessing this information (1)	I intend to access this information (2)	I have already accessed this information (3)	Don't know/no answer (4)	Definitely yes (5)
The map of the hottest areas in the city (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General information about the impacts of climate change on the city (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tem acesso às seguintes fontes de informação?

Para cada afirmação, por favor selecione a sua resposta na escala apresentada.

	Não tenho intenção de aceder a esta informação (1)	Tenho intenção de aceder a esta informação (2)	Eu já acedi a esta informação (3)	Não sei/não respondo (4)	Definitivamente sim (5)
O mapa das zonas de maior calor na cidade (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Informação geral sobre os impactos das alterações climáticas na cidade (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Dependent measures

Start of Block: Smartwatch email



Please provide your email address here if you would like to be contacted when you are selected for the smartwatch. Your email will be used only to be contacted and will be deleted from the database immediately after the draw.

Por favor escreva aqui o seu endereço de e-mail se desejar ser contactado se for seleccionado para ganhar o smartwatch. O seu e-mail será utilizado apenas para ser contactado e será apagado da base de dados imediatamente após o sorteio.

End of Block: Smartwatch email
