Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design

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Abstract

As the world and its ecological features undergo transformative shifts, individuals are navigating diverse emotional responses. Central to these emotions is eco-anxiety, marked by a deep concern for the environment and the future of our planet. This complex eco-emotion is recognised for its dual impact, alternately motivating or impeding pro-environmental actions. Using an explanatory sequential mixed methods research design, this study aimed to explore eco-anxiety in Maltese adults. A quantitative survey (n = 243) measured eco-anxiety using the Hogg Eco-Anxiety Scale, alongside climate-related news exposure, anxiety about environmental events and personal impacts, pro-environmental intentions (PEIs), and pro-environmental behaviours (PEBs). Subsequently, four focus groups (n = 26) were conducted and analysed through abductive thematic analysis. The results were triangulated and synthesised to answer the research questions in light of the study's theoretical framework. Individuals working in a climate change-related job showed significantly higher eco-anxiety scores, and climate news exposure, anxiety about environmental events and personal impacts, PEIs and PEBs significantly and positively correlated with eco-anxiety. Focus group discussions unveiled predominantly negative emotional responses to the global and local ecological crises, explored in relation to values, attitudes, efficacy beliefs, and engagement, alongside the media's role. This study offers implications for environmental theory, therapeutic practice and media, emphasising the need for meaning-focused coping and opportunity-focused approaches that promote practical eco-anxiety and eco-hope as buffers against paralysing eco-anxiety to foster meaningful pro-environmental engagement on individual and collective levels.

Keywords: eco-anxiety, ecological crisis, pro-environmental engagement, environmental media

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Chapter 1: Introduction

Our world today is confronted with an array of urgent ecological challenges, including melting ice caps, endangered species, rising temperatures, and rampant deforestation (United Nations Environment Programme, 2023). These issues collectively give rise to what experts call the "triple planetary crisis" (United Nations, 2021). Such a crisis is rooted in three interconnected global predicaments, being: climate change, the loss of nature and biodiversity, and the pervasive issue of pollution and waste. These phenomena pose imminent threats to earth itself and its human and non-human inhabitants.

Ecological crises, such as the Ice Ages, have existed long before the evolution of humans. Past environmental crises often emerged from natural conditions and changes (Johnson et al., 2019). In contrast, the current crisis arises from the extensive influence of human activities on the planet's ecology, which sets it apart from previous crises and introduces greater complexities (Takács-Sánta, 2022).

Several consequences of the current environmental crisis have been identified, including, but not limited to, rising sea levels, extreme weather conditions, and food and water shortages, that pose further implications on various aspects of life (United Nations Environment Programme, 2023). The impacts on human health, particularly psychological health, have only recently entered academic literature and lay conversations. This signifies the growing recognition of the mental health implications of the environmental threat, and the mounting importance and scientific legitimacy of addressing these effects (Thoma et al., 2021). One emotional state caused by the ecological crisis, or ‘eco-emotion’ often spoken about is eco-anxiety, which, as its name suggests, is anxiety regarding the degrading ecological situation of the planet (Albrecht, 2011).

This research aims to explore eco-anxiety as experienced by Maltese individuals living within the Maltese context. This chapter will provide an introduction to the study by firstly discussing the background, context, motivation behind and significance of the research, followed by the research aims, objectives and questions.

Background Context and Literature

The current ecological crisis is a product of past and present human, or anthropogenic, actions. Therefore, it is important to understand its history in order to comprehend how anthropogenic activity led to the current situation, how it continues to threaten the Earth's ecology, and why the ecological crisis is such an emotionally charged phenomenon.

Origins of the Ecological Crisis

The Industrial Revolution in 18th-century Great Britain initiated human-induced environmental impacts, with the widespread use of non-renewable fossil fuels leading to increased greenhouse gas emissions (United States Environmental Protection Agency, 2021). This has caused a 1.1-degree Celsius rise in global temperatures compared to pre-industrial levels, signifying a growing planetary warming trend (NASA Earth Observatory, 2020). Greenhouse gas emissions are the primary driver of the environmental crisis, resulting in climate change, ocean acidification, air pollution, and cascading effects on the planet (Edenhofer, 2015)

The environmental crisis is characterised as a "global super-wicked problem," a term coined by Karl E. Peters (2018). Such a term points towards this crisis' complexity, interconnectedness, and absence of clear-cut solutions. Peters emphasised the moral

dimension of the crisis, linking societal values to individual behaviours. On this note, the Industrial Revolution brought about a shift in values favouring individualism and self-interest, contributing to social disparities and economic inequalities that persist today (Larrabee, 2018). The reliance on fossil fuels further exacerbates this inequality (Green & Healy, 2022).

Moreover, industrialisation altered humanity's perception of nature, fostering the belief in human superiority over the environment (Campbell, 1983). The human-nature dichotomy is embedded in current socioeconomic and political systems, leading to the exploitation of natural resources for human benefit. This anthropogenic degradation of the environment can be seen as an additional form of injustice, this time towards nature, but ultimately towards humanity.

Impacts of the Ecological Crisis on the Maltese Islands

The ecological crisis has impacts worldwide, and Malta, as a small densely populated island state, is no exception (European Commission, 2022). The country faces various environmental challenges, including poor air quality, traffic congestion, limited open space, heavy reliance on private vehicles, water scarcity, soil erosion, and high waste generation (Malta Resources Authority, 2022). These issues are exacerbated by unsustainable practices in multiple sectors, limited public awareness of biodiversity protection, and low national resilience to future impacts.

According to the Intergovernmental Panel for Climate Change (2022), Southern Europe, including Malta, is at risk of droughts, while coastal areas and small islands are prone to coastal flooding, posing threats to coastal communities. The combination of these

factors, along with Malta's socioeconomic constraints, makes it vulnerable to global climate and ecological changes.

Health Impacts of the Ecological Crisis

The ecological crisis faced by countries like Malta has profound impacts on human health, affecting both physical and psychological well-being. Deteriorating air, water, and food quality may contribute to respiratory conditions and cancer, leading to premature deaths (World Health Organisation, 2021). Indeed, 194 premature deaths in Malta were attributed to air pollutants in 2020 (European Environment Agency, 2022).

Moreover, the ecological crisis induces psychological effects, stemming from exposure to disasters or knowledge about environmental changes, resulting in a range of emotional responses collectively known as 'eco-emotions'. Eco-emotions encompass various feelings, including eco-anxiety, environmental guilt and shame, eco-anger and environmental hope (Albrecht, 2011; Fredericks, 2021; Gunasiri et al., 2022; Stanley et al., 2021).

Conceptualisation of Eco-Anxiety

The word eco-anxiety was introduced in 2011 by Glenn Albrecht, and is a relatively new and evolving term. He defined eco-anxiety as anxiety in response to changing environmental conditions and uncertain outcomes. Nonetheless, there is ongoing debate among researchers and mental health professionals about its standard definition. It is often used interchangeably with climate anxiety or climate change anxiety, but while these terms focus specifically on apprehension about anthropogenic climate change, eco-anxiety is a

broader concept encompassing anxiety about the entire ecological crisis, including climate change (Clayton, 2020; Kurth & Pihkala, 2022, Pihkala, 2020).

What most scholars agree on is the fact that eco-anxiety is a non-pathological, inherent response to environmental degradation and its implications, rather than a mental health disorder that requires treatment (Sackett, 2019). However, it can become significantly distressing and "potentially disabling" (Albrecht, 2019; Doherty & Clayton, 2011). Indeed, it shares similarities with generalised anxiety but is specific to environmental concerns, and the perceptions of impending environmental events and changes that will impact current and future generations (Kurth & Pihkala, 2022). Furthermore, scales used to measure eco-anxiety incorporate items from existing measures that assess functional impairment, a symptom that is commonly associated with anxiety disorders ((Clayton & Karazsia, 2020; Hogg et al., 2021; McKnight et al., 2016). Despite this, the current research endorses the non-pathological view of eco-anxiety.

Various existing frameworks within different paradigms have been used to conceptualise eco-anxiety, including philosophy, theology and psychiatry, together with psychology from a social, existentialist, psychodynamic, socioecological and positive lens (Ojala, 2007; Passmore et al., 2022; Kaiser et al., 2010; Le Feuvre, 2012; Pihkala, 2020; Wong, 2009). For example, Kurth and Pihkala (2022) take a philosophical psychology approach to eco-anxiety, which they understand as "referring to a family of distinct, but related, ecological emotions". This implies that eco-anxiety encompasses various emotional responses to environmental threats. Verplanken et al. (2020) summarise these ecological emotions making up eco-anxiety into fear, nervousness, scared, distress, upset, shame and guilt, which Kurth and Pihkala (2022) group into three eco-anxiety responses, being the grief-

oriented, anxiety-like and self-reflective responses, that are characterised by different emotions, targeted at different ecological phenomena, and different in their effects on action.

Nonetheless, the lack of a standardised definition for eco-anxiety, and the use of climate anxiety as an interchangeable term, emphasises the need for a consistent and widely accepted one to facilitate valid research, and identify related factors, coping strategies, risk factors, and ways to build resilience (Ojala et al., 2021).

This study adopts a psychosocial approach to eco-anxiety, explained further in relation to the theoretical framework in the upcoming chapter, but does not discount the incorporation of conceptualisations put forward by other modalities in order to provide a more holistic and multidisciplinary view of eco-anxiety.

Motivation and Rationale of Study

Studying eco-anxiety is crucial for several reasons. Firstly, it brings attention to the emotional toll of environmental degradation, and brings forth its cultural and social forces (Kałwak & Weihgold, 2022). Studying eco-anxiety fosters a broader comprehension of the interconnectedness between the environment and psychological health, encouraging more holistic approaches to well-being that consider the complex relationships between individuals, communities, and the natural world. On this note, the American Psychological Association’s Task Force on Climate Change issued a report that highlighted the psychological impacts of the ecological crisis and the need for research on eco-emotions, stating that "climate change-related stress, anxiety, and depression are on the rise, and psychologists need to develop strategies to help people cope with the resulting emotions"

(Clayton et al., 2017, p.4). The British Psychology Society also recognises the significance of psychology in addressing the environmental crisis (Clayton et al., 2021).

This study explores eco-anxiety in a sample of Maltese participants. Reference will be made to the Environment and Resources Authority's (2020) citizen survey and the Special Eurobarometer 538 survey by the European Commission (2023), which collected data on public attitudes, worries, and future visions related to the environment, economy, and lifestyle in Malta. These will be discussed in the literature review and will inform the research questions. Due to the complexity of the ecological crisis and eco-emotions, including eco-anxiety, further research is needed to understand how individuals in Malta emotionally experience environmental change. This study uses a mixed methods approach, combining quantitative and qualitative data, to analyse the phenomenon in the context of Malta's social, economic, political, geographic and environmental situations.

Examining the prevalence and correlates of eco-anxiety informs the creation of interventions and support systems that enhance resilience and proactive behaviour in those experiencing these emotions (Hogg et al., 2021). It also helps with developing strategies to prevent and alleviate eco-anxiety’s paralysing effects, while maximising on its motivating elements that can be used on an individual and communal level, or by mental health professionals working with affected clients (Clayton, 2020; Higginbotham et al., 2014). Studies on eco-anxiety and its correlates have produced conflicting findings, highlighting the importance of investigating such relationships (Tam & Milfont, 2020). This study aims to fill the research gap on studies on eco-anxiety in a Maltese context.

Failing to study eco-anxiety could lead to negative outcomes. Individuals with eco-anxiety may experience worsened stress and anxiety if their feelings are not recognized, validated and understood, potentially leading to worsening mental health issues and quality of

life, together with disengagement from pro-environmental behaviours. At a societal level, neglecting eco-anxiety could hinder collective efforts to address the ecological crisis, such as supporting pro-environmental policies and engaging in collective action.

Rationale and Reflexive Note

The decision to focus on eco-anxiety is driven by my personal experience with this emotion, which deeply influences various aspects of my life, including consumption habits and behaviours. This personal connection reflects the practicality of eco-anxiety in promoting pro-environmental actions, rooted in a pro-environmental self-identity. However, when unable to consistently engage in such behaviours or confronted with conflicting information, eco-anxiety, along with cognitive dissonance, leads to internal questioning of self-identity and the effectiveness of my actions. This internal struggle sometimes results in paralysis, but may also motivate me to seek more information to resolve the dissonance. Exploring literature on eco-anxiety and eco-emotions has provided a deeper understanding of this experience, revealing its complexity and interconnectedness in all aspects of life.

I am aware that research in the climate field is “fraught, charged, psychologically and socially complicated” (Lertzman, 2019, p. 28). Nonetheless, it serves as a reflexive journey for myself as I feel “curious” to explore, “passionate” about, and possibly “disturbed” by the breadth and depth of anxiety tied to the environment (Hoggett, 2019).

Aims, Objectives and Research Questions

This dissertation seeks to explore the phenomenon of eco-anxiety as it is experienced by a sample of Maltese participants using a mixed methods research design.

Through both quantitative and qualitative data, numerical and correlational data are supported by qualitative participant quotes aiming to achieve the following objectives:

- to quantitatively investigate the prevalence of eco-anxiety among a Maltese adult sample using the standardised 13-item Hogg Eco-Anxiety Scale (HEAS) (Hogg et al., 2021);
- to quantitatively investigate the relationship of demographic information (i.e., age, gender, highest level of education, and working or not working in a climate change-related field), exposure to media related to the ecological crisis and climate change, anxiety about specific environmental events and specific personal impacts, and pro-environmental intentions and behaviours with eco-anxiety prevalence as measured using the standardised 13-item HEAS;
- to qualitatively explore participants' subjective experiences of and perceptions towards the global and local ecological situation and changes, and their causes, together with the emotions these perceptions instil;
- to qualitatively explore what motivates and demotives participants to act pro-environmentally, the role of eco-anxiety in this, and how it makes them feel;
- to qualitatively explore how the media influences what participants think and feel regarding the ecological crisis and related issues; and
- to synthesis quantitative and qualitative findings to provide a deeper and wider exploration of eco-anxiety as is experienced by Maltese participants.

Given the use of a mixed methods research design, this study, including its ontology, epistemology, methodology and axiology, is guided by a pragmatic research philosophy, further discussed in the Methodology section.

To provide orientation to the study, a theoretical framework involving emotions and their antecedents as well as consequences is applied. Both quantitative and qualitative data are mapped onto the theoretical framework, providing a comprehensive and intensive view of eco-anxiety as it exists, is experienced, and lived by the Maltese participants.

This research answers the following broad research question: 'How is eco-anxiety experienced by Maltese people living in the Maltese context?' More specifically, the following research questions were put forward based on the objectives outlined above that were answered through the separate phases and their combination.

Quantitative Research Questions and Hypotheses

Previous literature highlighted demographic differences in eco-anxiety, a relationship between media exposure and eco-anxiety, and of eco-anxiety with pro-environmental intentions and behaviours (Casey & Scott, 2006; Clayton et al., 2017; Devine-Wright et al., 2015; Hickman et al., 2021; Hoggett & Randall, 2018; Mead et al., 2012; Ojala, 2012; Pollack, 2020; van der Linden, 2015). More so, the ecological crisis is said to involve various environmental events and to be caused by various impacts that can each stimulate an emotional response. Therefore, the quantitative phase of this study aimed to answer the following research questions:

- Research Question 1: Are there significant demographic differences in terms of age, gender, education level and occupation in eco-anxiety scores?
- Research Question 2: What is the relationship between exposure to climate change-related news and eco-anxiety?
- Research Question 3: What are the correlations of anxiety about seven environmental events and six personal impact behaviours with eco-anxiety scores?'
- Research Question 4: How do pro-environmental intentions and behaviours relate to levels of eco-anxiety?

The following hypotheses were put forward:

H1: Participants with higher eco-anxiety scores will watch or read news and media about the ecological crisis and climate change more frequently, with this difference being statistically significant.

H2: Anxiety about seven environmental events will significantly and positively correlate with eco-anxiety.

H3: Anxiety about six personal impacts will significantly and positively correlate with eco-anxiety.

H4: Pro-environmental intentions will significantly correlate with eco-anxiety scores.

H5: Pro-environmental behaviours will significantly correlate with eco-anxiety scores.

Qualitative Research Question

Qualitative focus groups sought to answer the following research question: ‘How is the ecological crisis emotionally experienced by Maltese adults?’. Other questions will be investigated, including how Maltese adults appraise the ecological crisis, what actions they perform in response to the ecological crisis, and how these appraisals and actions may be linked to feelings of eco-anxiety. More so, any noticeable similarities or differences in the way the ecological crisis is appraised between the younger and older focus group participants will be explored.

Brief Outline of Chapters

This chapter serves as an introduction to the study, providing background literature, contextual factors, rationale, significance, motivation for the topic, and research aims, objectives, and questions. The subsequent chapter will delve into existing literature on eco-anxiety and related studies, outlining the theoretical framework. Chapter 3 explains the methodology employed to explore eco-anxiety, detailing the study’s philosophical paradigm, and data collection and analysis methods. Chapter 4 presents the outcomes of quantitative and qualitative analyses, followed by a discussion of the results in relation to existing literature in Chapter 5. The study concludes with an account of its limitations, implications and recommendations for future research.

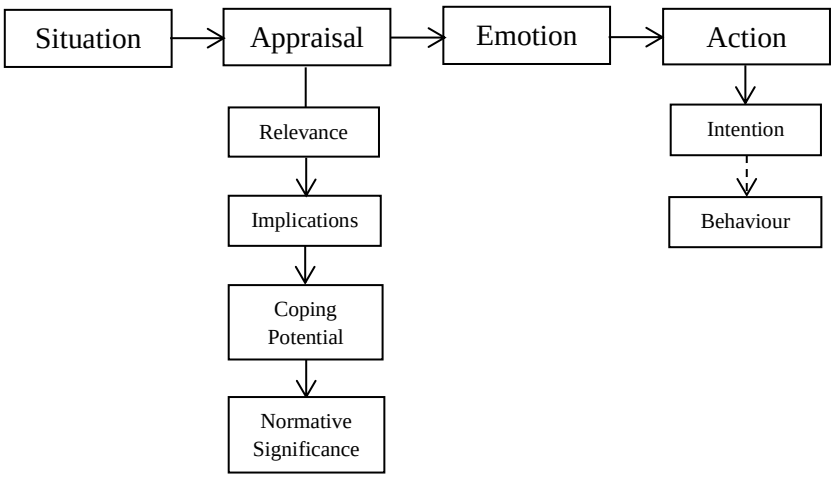
Chapter 2: Literature Review

The purpose of this literature review chapter is to provide an overview of existing research and scholarship on eco-anxiety, as well as to identify themes, perspectives, and gaps in the current knowledge. This chapter will also elucidate the study's theoretical framework by exploring the constituent theories that comprise it, while underscoring how they interconnect and complement each other within the context of the ecological crisis and eco-anxiety.

Theoretical Framework

A theoretical framework is the 'blueprint' of a research study that is based on an existing theory or theories in the study's field of inquiry (Grant & Osanloo, 2014). This study's framework employs Magda Arnold's four-step Appraisal Theory of Emotion (Arnold, 1960, 1970), with Scherer's Sequential Check Theory of Emotion (Scherer, 2001) and the Campbell Paradigm of Attitudes (Kaiser et al., 2010) being relevantly intertwined, as illustrated in Figure 1.

Figure 1
Theoretical Framework (based on Arnold, 1970, Scherer, 2001 and Kaiser et al., 2010)



Appraisal Theories

Appraisal theorists define appraisal as the process of evaluating and interpreting events, situations, or stimuli in one's environment. Rather than the situation itself producing the resulting emotions and behaviours, it is the appraisal of the situation that does so (Scherer, 2001). More so, Appraisal Theory recognises the occurrence of reappraisal, where the same situation is reevaluated based on new information or experiences, and produces different emotions and behaviours than those produced in former appraisals.

Appraisal Theory has been chosen as this study's theoretical framework as it gives explicit importance to emotions felt towards a situation resulting from the evaluation of the situation's characteristics. This evaluation is done in relation to one's goals, attitudes, suppositions, morals and resources. Furthermore, it underscores the connection between emotion and action, emphasising the significant impact that emotions have on individuals' behaviours.

Indeed, appraisal theorists have studied the impact of social, cultural, demographic and individual factors on the appraisal process (Mesquita & Karasawa, 2002). For example, cultural variations in the significance of events was noted when comparing individualistic and collectivistic cultures. Individualistic cultures tend to place greater importance and emphasis to the appraisal of personal control over a situation, as opposed to collectivistic cultures (Markus & Kitayama, 1991; Mesquita & Karasawa, 2002; Tiedens et al., 2000).

Arnold's Appraisal Theory of Emotion. In her 1970 work, Magda Arnold proposed the Appraisal Theory of Emotion (hereafter referred to as Arnold's Appraisal Theory), which is a sequential process of responses triggered by exposure to a situation. This unfolds in the following sequence: 1) Situation, 2) Appraisal, 3) Emotion, and 4) Action, as illustrated in Figure 1.

According to Arnold (1970), a situation can only be appraisal as being either 'good' or 'bad', leading to the emotions of 'liking' or 'disliking' respectively. This part of her theory has been criticised for limiting appraisal to a 'good-for-me' versus 'bad-for-me' dimension. Modern appraisal theories consider a multitude of dimensions that explain and predict the subsequent affective state and action performed, as is done by Scherer (2001).

Scherer's Sequential Check Theory of Emotion. Scherer's Sequential Check Theory of Emotion (hereafter referred to as Scherer's Appraisal Theory) provides a more detailed account of what happens in Arnold's (1970) 'appraisal' step. Scherer put forward four dimensions, or what he called Stimulus Evaluation Checks (SECs), that are considered when appraising a situation. These include relevance, implications, coping potential and normative significance.

Relevance entails assessing a situation with regards to its novelty, suddenness, predictability, familiarity, intrinsic pleasantness, and alignment with immediate goals and needs. Once a situation is acknowledged as relevant, it undergoes appraisal of its implications, considering factors such as its causes, the motives of the agent responsible, the likelihood of anticipated outcomes, the deviation from expectations, and whether it helps goal attainment or need satisfaction, as well as its urgency.

Subsequently, individuals evaluate their ability to control or alter the situation based on the assessment of their current resources and whether these resources are adequate for

achieving desired circumstances (Scherer, 2001). If a situation is perceived as uncontrollable, the evaluation shifts to the individual's appraisal of their capacity to adapt and adjust to the consequences. The final step in Scherer's (2001) appraisal process involves assessing a situation's normative significance. This encompasses aligning the situation, its implications, and potential responses with internal standards, such as values and identity, as well as external standards, such as social and cultural norms.

Campbell Paradigm of Attitudes

Within the theoretical framework of this study, the 'action' step in Arnold's (1970) sequence is divided into two distinct concepts: pro-environmental intentions and pro-environmental behaviours, as illustrated in Figure 1. This derives from the Campbell Paradigm of Attitudes, that distinguishes the intention to perform a behaviour from the actual manifested behaviour (Kaiser et al., 2010). What determines the progression from intention to action are one’s attitudes towards the behaviour-relevant stimulus, the strength of the attitudes, together with the perceived costs of performing the behaviour. Costs may include personal effort, time, money, and transgressing social norms, among others. Accordingly, an individual who implements behaviours with high costs is assumed to have high esteem for the attitudinal object. Additionally, an individual with a stronger attitude towards something will exhibit a wider range of attitude-relevant responses (Kaiser et al., 2010).

The Campbell Paradigm assumes that an individual can have positive attitudes towards something and can intend on performing attitude-relevant responses without actually performing the behaviour that is in line with their attitudes and intentions (Kaiser et al., 2010). This would occur when the costs of performing the behaviour supersede the strength of one’s attitude towards the attitudinal object. The dotted line between ‘Pro-environmental

Intention' and Pro-environmental Behaviour' in Figure 1 signals the tentative move from one to the other.

In summary, Arnold's Appraisal Theory (1970) is used to describe the process from situation to action (Figure 1). Scherer's Appraisal Theory (2001) complements Arnold's theory by providing a deeper understanding of the appraisal step. The Campbell Paradigm of Attitudes further divides the action step into intentions and behaviours, indicating that behaviour occurs when attitudes are in favour of the object and stronger than the appraised costs, with the dotted arrow representing the tentative transition from intention to behaviour (Campbell, 1963; Kaiser et al., 2010).

The following section applies this theoretical framework to the ecological crisis and eco-anxiety.

Application of Theoretical Framework to the Ecological Crisis and Eco-Anxiety

This section aims to link exposure to environment-related events and information, the process of appraising the ecological crisis, appraisal-influencing factors, such as demographics and pre-existing knowledge, and efferent eco-emotions, such as eco-anxiety, with subsequent pro-environmental intentions and behaviours. Additionally, the relationship between pro-environmental intentions and pro-environmental behaviours will be explored, together with eco-anxiety's influence on this relationship.

In the present research, the situation is the ecological crisis, and the emotion under study is eco-anxiety. Existing literature on eco-anxiety frequently explores its impact on individuals' responses to the ecological crisis, making distinctions between eco-anxiety that may drive environmental engagement (termed 'practical eco-anxiety) or inhibit it (termed

‘paralysing’ or ‘debilitating eco-anxiety’) (Kurth & Pihkala, 2022). Practical eco-anxiety is said to encourage ecologically adaptive responses, while paralysing or debilitating eco-anxiety discourages pro-environmental behaviour, leading to ecologically maladaptive responses (Stanley et al., 2021; Verplanken & Roy, 2013). The latter may occur even in the presence of intentions to engage in ecologically adaptive responses. Several factors, such as social norms, attitudes and perceived control have an impact on the jump from pro-environmental intentions to behaviours (Klöckner, 2013; Sugiarto et al., 2022; Tian & Liu, 2022).

Given that Appraisal Theory positions the appraisal of the situation as the instigator of subsequent emotions and behaviours, the need to identify and study the antecedents of eco-anxiety, being the appraisal processes and perceptions towards the ecological crisis, is emphasised to better understand the resulting eco-anxiety and environment-related behaviours.

Lastly, reappraisal, where the same situation is reevaluated based on new information or experiences, has been touched upon by eco-anxiety scholars. More specifically, eco-anxiety scholars call for conscious and active appraisal of the ecological crisis to ensue high coping potential despite possible adverse implications, which Arnold called ‘adaptive reappraisal’ (Arnold, 1970; Ojala et al., 2021).

Situation: The Ecological Crisis

Situation exposure is the first step in Arnold’s (1970) Appraisal Theory of Emotions. The situation that is being discussed in this study is the ecological crisis and the anxiety it can create. The causes, current events and implications of the ecological crisis were covered in the Introduction chapter, but further complexities will be discussed in this review.

Eco-anxiety may emerge from direct exposure to rapidly evolving and recurring environmental or social stressors that are linked to the ecological crisis, such as a heatwave or flood. Cianconi et al. (2020) labelled this “acute exposure”, which leads to acute impacts similar to those triggered by a traumatic event. The second type of exposure, termed "subacute exposure," involves “indirectly witness[ing] the effects of climate change, anxiety related to uncertainty about the survival of humans and other species” and a “sense of being blocked, disorientation, and passivity” (Cianconi et al., 2020). Media sources, and social media in particular, contribute to this type of exposure, informing people of environmental changes happening around the globe and placing them as indirect witnesses of ecological degradation.

Thirdly, exposure to the ecological crisis may result from witnessing long-term, gradual and persistent outcomes of environmental changes, such as rising sea levels, and large-scale communal and societal effects in the forms of violence, struggle over limited resources, displacement and forced migration (Abel et al., 2019; Cianconi et al., 2020; Hsiang et al., 2013; Taylor, 2020). For example, both wildfires and heatwaves, although experienced acutely or subacutely, have been linked to increased interpersonal violence, including intimate partner violence (Sanz-Barbero et al., 2018; Zhang et al., 2017).

The distinctions made between acute exposure, subacute exposure and long-term outcomes by Cianconi et al. (2020) prove that direct exposure to environmental threats is not a necessary precondition to arising negative mental health outcomes, such as eco-anxiety (Clayton et al., 2017; Swim et al., 2011). Nonetheless, an increasing number of people have and will start to experience direct environmental problems. This will, therefore, increase acute exposure and resulting trauma-related effects.

Subacute exposure may happen through the media. Media on the ecological crisis can either be consumed coincidentally among other content (e.g., on the news) or intently through information-seeking behaviours. Factors such as prior appraisal processes, age, occupation, attitudes and ideology have been found to influence whether and what kind of information is intentionally sought and consumed. Mead et al. (2012) discovered that adolescents who previously appraised climate change as high risk sought more information about it compared to those who perceived it as low risk. This demonstrates how prior appraisal of climate change or information on it influences one's subsequent exposure to similar content through intentional information-seeking.

It is important to note that being exposed to media does not imply media attention. While the former refers to the quantity of media heard or viewed, the latter involves "the inclination to focus cognitive resources on some particular types of messages" (Lee & Cho, 2020; Slater et al., 2009, p. 119). Therefore, exposure does not imply attention, but attention requires an element of exposure. Appraisal Theory can be used to predict whether media exposure leads to further attention, with attention only being given to media that is deemed relevant (i.e., the first Stimulus Evaluation Check in Scherer's Appraisal Theory).

Apart from intentional and unintentional environment-related media consumption, the types of media available and consumed are various, ranging from entertaining and opinion pieces to scientific facts. The wide choice of media content about the ecological crisis, together with the political polarisation of environmental issues, make some individuals susceptible to selective perception (Feldman et al., 2014; Kim, 2010; Stroud, 2011). This involves consciously or unconsciously filtering stimuli based on certain characteristics. One such characteristic may be one's pre-existing beliefs and values regarding the ecological crisis. Aligned with this phenomenon, individuals may actively search for, interpret, favour or

recall information in a way that confirms these beliefs and values, an occurrence termed confirmation bias (Nisbet, 2009). This phenomenon was found to be the case for climate change deniers (Whitmarsh, 2011). Therefore, beliefs and values not only affect appraisal and the resulting emotional and behavioural responses, but also which information or situation an individual is exposed to and is appraising in the first place.

Individuals working in environmental professions, like conservation, environmental science and research, possess extensive knowledge of ecological challenges, witness environmental degradation first-hand, and face the urgency to find solutions (Clayton et al., 2017). Hence, their job requires exposure to environment-related information and experiences that necessitate their evaluation and imply resulting emotions. Because of this, professionals who experience this high exposure may experience higher levels of eco-anxiety due to the nature of their job (Clayton et al., 2017).

Appraisal

The previous section explored the first step of Arnold's Appraisal Theory, the situation, as it applies to the current study's topic of the ecological crisis. It also discussed some factors that may influence the type and intensity of exposure to environment-related situations that influence resulting emotions and behaviours.

The second step is the appraisal of the situation, that occurs after situation exposure and furthermore influences the resulting emotions and behaviours (Arnold, 1970). Scherer (2001) proposed four dimensions, which he called Stimulus Evaluation Checks (SECs), that form part of Arnold's 'appraisal' step (see Figure 1). These include relevance, implications, coping potential and normative significance. They now will be discussed in relation to the ecological crisis and eco-anxiety.

Relevance. Relevance is the first Stimulus Evaluation Check (SEC) put forward by Scherer (2001). This involves checking the situation for its novelty, suddenness, familiarity and predictability, alongside its intrinsic pleasantness and relevance to one's current goals and needs.

The ecological crisis is causing both sudden and enduring environmental changes that are damaging once-familiar landscapes, flora and fauna, and the spaces we inhabit. Indeed, the familiar becoming unfamiliar is a theme discussed by eco-existential scholars. For example, Albrecht et al. (2007) termed the feelings of uneasiness and ontological insecurity that may emerge from perceived environmental degratation 'solastalgia'. More so, one way in which Kurth and Pihkala (2022) conceptualised eco-anxiety was as a grief-oriented response to feelings of loss of what one views as ecologically important.

An event's relevance is also evaluated based on the number of goals and needs it can affect. Passmore et al. (2022) illustrate our need for connection to nature as essential for our existence, and everyday emotional and physical wellbeing. Feeling the "urge to affiliate with other forms of life" is said to be innately present in everyone, with this urge being labelled biophilia by Edward Wilson (1986). However, this biophilic urge has dwindled due to a broken human-nature relationship and anthropocentricism, being the view of nature as a means towards personal, social, economic and political end (Passmore et al., 2022; Thompson & Barton, 1994).

Meanwhile, Appraisal Theory argues that a situation perceived as irrelevant, or that is trumped by the higher relevance of other issues, would not be further appraised, and therefore would not imply resulting emotional and behavioural responses. For example, an individual who is not environmentally conscious, meaning that they are not aware of, interested in, knowledgeable about or motivated to prevent environmental damage, would view

information about an endemic species becoming endangered as irrelevant to them and as not warranting the need for further appraisal (Lin & Chang, 2012; Sharma & Kesherwani, 2015). On the other hand, a person who is eco-conscious would view the endangerment of this species as relevant, instigating further appraisal, and subsequent emotions and actions. In fact, Albrecht (2011) describes eco-anxiety as stemming from a deep interest in protecting the environment, signalling high relevance of the ecological crisis. Additionally, pro-environmental, or biospheric, values have been linked positively and strongly to pro-environmental behaviours and a general goal to protect the environment, even when the behaviour is costly (Albrecht, 2011; Balundė et al., 2019; Nordlund & Garvill, 2002; Steg et al., 2014). This implies a link between high relevance, environmental consciousness, practical eco-anxiety and pro-environmental behaviour.

With regards to the media, continuous exposure to information about the ecological situation may lead to the habituation of "news about various overwhelming environmental and social problems", resulting in environmental numbness and apathy (Gifford, 2011; Moser, 2007, p. 68). Scherer (2001) would argue that this habituation occurs as the information would not longer be appraised as relevant, thus being less worthy of further appraisal.

Implications. The second Stimulus Evaluation Check proposed by Scherer (2001) is the situation's implications. He sub-divided this SEC into appraisal about the situation's causes, the motives behind its causes, the probability of expected outcomes, discrepancy from expectations, goal or need conduciveness, and its urgency.

Scherer (2001) differentiated between the appraisal of a situation as being caused by oneself, others or natural phenomena. Views towards the causes of the ecological crisis are varied, but the consensus is that the current environmental changes occurring are being

perpetuated by human activity, including the burning of fossil fuels, deforestation and urbanisation (United Nations, 2021). This differentiates the current ecological crisis from other existential societal and ecological threats, as as everyone is said to be part of the problem and solution (Ojala, 2012). Indeed, Hickman (2020) postulates that eco-anxiety derives from awareness of the fact that humanity is "powerfully causative and powerlessly helpless". This is one characteristic of a global super-wicked problem, as proposed by Peters (2018). Therefore, humans have a dual role, that of trying to end the problem while also causing it.

However, not all individuals believe that the ecological crisis is entirely or at all human caused, instead attributing cause to natural processes (Leiserowitz et al., 2009, 2023; Steentjes et al., 2017).

Apart from the evaluation of a situation's causes and motives, it is also appraised based on its expected outcomes and their probability. When not sure about the situation's outcomes, an individual forms a subjective judgement of the probability and severity of harm associated with the event, which has been termed risk perception (Grothmann & Patt, 2005; Kurth & Pihkala, 2022; Slovic, 2016; Wachinger et al., 2012). In fact, high risk perception, implying uncertain outcomes, may trigger the anxiety-like response of eco-anxiety (Kurth & Pihkala, 2022).

van der Linden (2015) proposed the Climate Change Risk Perception Model that puts forward predictors of higher risk perception regarding climate change, including: sociodemographic factors, such as being younger, female, politically liberal, having a higher education and being part of a racial minority; and experiential predictors, including perceived residential exposure and direct personal experience. Perceived residential exposure accounts for people's perceptions regarding future threats of exposure to environmental changes within

one's geophysical location. Furthermore, direct personal experience considers people's previous encounters with such impacts, which influence their present and future risk evaluation.

In the Special Eurobarometer 538 survey, nearly two-thirds of Maltese participants stated that they were currently personally exposed to environmental and climate change related risks and threats, such as fires, floods, pollution and extreme weather conditions (European Commission, 2023). Therefore, Maltese people perceive climate change as a risk that is already affecting them personally, displaying high direct personal experience and risk perception.

The uncertainty about the ecological crisis and its implications, together with alarming narratives regarding the future fate of the planet, may lead to psychological distancing as a defence mechanism to reduce eco-anxiety (Spence et al., 2012). Spence et al. (2012) state that the overall purpose of psychological distancing is to dismiss the moral questions surrounding humanity's collective responsibility in causing the ecological crisis and failure to take mitigation actions. Psychological distancing can be exhibited as spatial distancing, in which environmental issues and their impacts are perceived as less urgent because they are only occurring in distant locations (Lorenzoni & Pidgeon, 2006; Pidgeon, 2012). Individuals may also think that immediate or distant environmental impacts only happen to people unlike themselves, which has been termed social distancing. It can also manifest as temporal distancing in which immediate concerns are prioritised over long-term and distant outcomes, possibly to be experienced by future generations. Gifford (2011), in his thesis regarding the "dragons of inaction", explains this phenomenon by referring to our "ancient brain" that has evolved to deal with immediate issues rather than distant ones.

Therefore, temporal distancing is one ‘dragon of inaction’ that, although is rooted in our evolution, hinders one to behave pro-environmentally.

Other forms of defence mechanisms may be employed apart from psychological distancing. Psychodynamic theorists, such as Weintrobe (2013), have applied the concepts of defence mechanisms to the ecological crisis. For example, Freud's (1923) notion of disavowal, which describes both knowing and not knowing at the same time, can be framed as knowing and not knowing about the ecological crisis and its urgency. Anxiety stemming from the appraisal of the ecological crisis as an uncertain and uncontrollable threat can lead to this disavowal, which Weintrobe (2013) noted only fuels further anxiety.

The results from the Eurobarometer survey regarding Maltese participants, specifically those related to their perception of climate change as a presently-experienced risk they are currently facing, can be used to infer that spatial, temporal and social psychological distancing is at a minimum.

Hickman (2020) proposed a conceptual framework for understanding eco-anxiety that splits this emotion into four ‘levels’: mild, medium, significant and severe. In relation to outcome predictability, individuals displaying significant and severe eco-anxiety tend to fear and predict social collapse as a certain outcome of the ecological crisis. More so, those with severe eco-anxiety strongly believe in the inevitable extinction of the human species. Such beliefs may amplify one’s eco-anxiety further given their gravity and widespread impact. However, significant and severe eco-anxiety are characterised by an inverse pattern of change between personal concern and concern for all citizens of the world, termed global empathy, with the former reducing and the latter increasing as eco-anxiety becomes more severe (Bachen et al., 2012). This global empathy may encourage wellbeing, but no research has

delved into the relationship between these four ‘levels’ of eco-anxiety and wellbeing as of yet.

Uncertainty in terms of outcomes and impacts of the ecological crisis makes it difficult to establish solutions, which Peters (2018) proposed as another characteristic of a global super-wicked problem. Individuals also appraise the risks of current solutions offered, such as the use of electric vehicles, with Gifford (2011) listing the uncertainty of risks evoked by new ‘green’ technology as a ‘dragon of inaction’. Such uncertainty may emerge from conflicting information on electric vehicle use and its impacts, becoming a psychological barrier that hinders individuals from acting on environmental issues, such as through the purchase and use of electric vehicles.

After appraising a situation’s outcome probability, it is appraised based on one’s expectations and how discrepant the situation is from them. This appraisal may be mapped onto Leon Festinger’s notion of cognitive dissonance (1957). In fact, he explicitly postulates that experiencing psychological uncomfortableness from dissonant elements is a source of anxiety. When applied to the ecological crisis, this implies that incongruence between an environmental event and one’s expectations, or between new information related to the ecological crisis and existing knowledge, behaviours and lifestyles, gives rise to eco-anxiety.

One possible discrepancy is that of changing natural environments that have now become unfamiliar, unexpected, unstable, uncertain, less frequent and less meaningful than before or when compared to one’s expectations (Albrecht, 2011; Heine et al., 2006; Passmore et al., 2022; Pihkala, 2020). In line with this, Maltese participants were the most to profess that they find it difficult to access nature and green spaces compared to the other 26 EU Member States (European Commission, 2023). Such appraisals may give rise to several eco-emotions, including eco-anxiety, solastalgia, grief and econostalgia, alongside the

contemplation of nonbeing, disconnection from the past and the weakening of the already-fraught human-nature relationship (Albrecht, 2005, 2011; Albrecht et al., 2007; Head, 2016); Passmore et al., 2022). Regrettably, the Eurobarometer survey did not provide information on participants' emotional responses to climate change or their thoughts on accessing nature and green spaces. Consequently, it is not possible to draw a conclusive connection between the challenges in accessing nature and green spaces, the deviation from one's expectations, and the resulting emotional reactions based on the available data.

Linking with the appraisal of the relevance of a situation in terms of one's goals and needs, the situation is also evaluated based on whether and how it helps or hinders need satisfaction and goal achievement, called conduciveness. Using the framework of Maslow's Hierarchy of Needs (1943), the ecological crisis is said to pose a threat to all needs, as it threatens food and water supplies, personal security, social connections, freedom and personal growth respectively. Indeed, Norgaard (2006) portrays the environmental crisis as an existential threat that is inconducive to our most basic needs, such as our need for connection with and ontological security attained from nature. This resonates with the difficulty the Maltese participants face in accessing green spaces (European Commission, 2023). Apart from being unable to satisfy this nature connectedness need, it would also trump the ability to attain higher-order goals, resulting in anxiety (Head, 2016; Maslow, 1943; Norgaard, 2006; Reser & Bradley, 2017; Stokes, 2015; Wullenkord et al., 2021).

Nonetheless, the appraisal of the ecological crisis' conduciveness to achieving one's goals is person-dependent, given that individuals have different values and goals for their future. For an individual who is ecocentric, meaning that they appreciate nature for its intrinsic value, would appraise the ecological crisis as being conducive to their need to connect with nature (Norgaard, 2006; Reser & Bradley, 2017). However, the needs that

nature can satisfy may also be satisfied (and conversely dissatisfied) through technology and other human-invented activities (Ryan & Deci, 2000). Therefore, ecological degradation would be less conducive for one who values anthropocentic ventures, such as technology, compared to someone who possesses ecocentric values, with the latter being more likely to experience eco-anxiety.

Besides narratives foretelling the future of the planet, those highlighting the urgency to respond to the ecological crisis are also prevalent. The appraisal of the ecological crisis' urgency is based on the priority of goals and needs at risk, and the potential consequences of delaying. The more important the threatened goals and needs, and the worse the results of waiting, the more urgent it is to take action. This moderates the amount of attention and priority given to the situation and efferent actions, while also influencing the type and intensity of the emotional response.

The Eurobarometer survey asked participants which four problems they perceived as being the most serious. From the Maltese participants, a bit more than half chose poverty, hunger and lack of drinking water, with a little less than half choosing climate change (European Commission, 2023). The deterioration of nature, spread of infectious diseases and health problems due to pollution were other three problems that Maltese participants were asked regarding their seriousness, which have direct links with the overall ecological crisis alongside climate change, hunger and lack of drinking water. Additionally, nearly four-fifths of Maltese participants perceived climate change as a very serious problem, and almost all stated that tackling climate change and environmental issues should be a priority to improve public health. These results point towards Maltese people's perceived urgency of the ecological crisis and the need to mitigate it.

Studies have found that younger individuals, females, climate first responders and those with a global attachment perceive the ecological crisis and climate change as more serious (Devine-Wright et al., 2015; McCright et al., 2016; Pollack, 2020; Scannell & Gifford, 2013). This also applied to European participants with a higher education level in the Eurobarometer survey (European Commission, 2023).

Being more likely to view the ecological crisis as serious may increase experiences of eco-anxiety, while also instigating defence mechanisms. For example, individuals working within climate science reported anxiety as one negative emotion resulting from their work, knowledge and the burden of responsibility (Cunsolo et al., 2020; Hoggett & Randall, 2018). However, they also reported distancing themselves from this anxiety, downplaying their negative emotions while playing up positive emotions, such as their love and passion for science, and engaging in institutional defences (Head, 2016; Hoggett & Randall, 2018; Wright & Nyberg, 2012). Therefore, environment-related occupations that require exposure to the urgency of the ecological crisis seem to influence the level of eco-anxiety one feels, while also resulting in defence mechanisms against eco-anxiety.

Even if the ecological crisis is appraised as urgent and in need of prioritisation, the opinion intensity of other issues and the perception of the ecological crisis as a future threat (i.e., temporal distancing) may trump this urgency (Kemkes & Akerman, 2019; Nisbet, 2009). Also, the global nature of the ecological crisis may propel individuals towards diffusion of responsibility and the perception that personal action is not urgent, necessary or effective in the grander scheme of things (Norgaard, 2011).

Coping Potential. After assessing the implications of a situation, one then judges their ability to control, exert power over and/or adjust to it (Scherer, 2001). This process can be likened to Bandura's (1977) concept of self-efficacy. Bandura defined self-efficacy as "people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performance" (1977, p. 391). Bandura (2007) also notes that believing that one cannot manage threatening events results in experiences of high anxiety arousal.

This concept has been applied to environmental issues, with Huang (2016) labelling self-efficacy for pro-environmental behaviour engagement as 'environmental self-efficacy'. When considering Bandura's notion of inefficacy leading to anxiety, it could be assumed that lack of environmental self-efficacy may lead to eco-anxiety, which has indeed been determined in previous studies (Pihkala, 2020; The Lancet Child and Adolescent Health, 2021). Eckersley (2008) called this defeatist approach "apocalyptic nihilism" that results from the perception of personal actions as futile, while lacking reassurance by the actions taken by oneself and by others to reduce the threat (Hickman, 2020; Lorenzoni et al., 2007).

Younger people have been found to display lower perceptions of self-efficacy regarding the environmental crisis (Ojala, 2012). This contrasts with the depiction of youth as agents for change and most likely to succeed in improving planetary health by Wu et al. (2020). Interestingly, Ojala (2012) states that the gap between concern and engagement is particularly wide among young age groups and ascribes this to their lack of empowerment and agency, and higher levels of eco-anxiety.

Conversely, appraising the ecological crisis as a threat while having high environmental self-efficacy has been found to produce pro-environmental action (Higginbotham et al., 2014).

Apart from self-efficacy, Bandura (1977, 2000) also defined the concept of 'collective efficacy', which is "a group's shared belief in its conjoint capabilities to organise and executive… courses of action" (1997, p. 477). This is influenced by people's views of what has been, is being and will be done to mitigate the effects of the environmental crisis by communities, local authorities, national governments and international organisations through environmental policies, initiatives and laws. Homburg and Stolberg (2006) found that collective efficacy determined coping attempts and pro-environmental behaviour more than self-efficacy, highlighting the importance of building collective efficacy, its potential to instigate more practical eco-anxiety, and to act as a buffer against paralysing eco-anxiety and ecologically maladaptive responses.

In terms of collective efficacy, a cross-country survey conducted with 10,000 young people (16-25-year-olds) found that the majority of participants showed distrust in their government (Hickman et al., 2021). More so, feeling betrayed by one's government and their responses to climate change positively and significantly correlated with the number of negative thoughts they experienced. The level of betrayal was also higher than that of reassurance, which influenced young people's feelings of collective efficacy with regards to government-level responses.

Similar views were also captured by the Eurobarometer survey, this time showing that three-fourths of Maltese participants believed that the national government was not doing enough to tackle climate change (European Commission, 2023). This assumes low levels of collective efficacy among Maltese participants. Nonetheless, Maltese participants placed greater emphasis on individual action and responsibility in tackling climate change compared to the EU average, although perceived responsibility was also placed on governments, the European Union, businesses, local authorities and environmental groups given that multiple

answer options were accepted. From these results, it can be assumed that Maltese participants had low collective efficacy beliefs, and relied more on self-efficacy when it came to climate change mitigation.

However, the Eurobarometer survey only identified Maltese participants' views towards the high responsibility of individuals and did not capture participants' levels of self-efficacy (European Commission, 2023). Therefore, the relationship between feeling responsible for and self-efficacious to tackle climate change cannot be deduced. Such a relationship is important as, although individuals may feel responsible, they may perceive their actions aimed to reduce their ecological impacts as negligible or ineffective, resulting in low self-efficacy beliefs and paralysing eco-anxiety (Poore & Nemecek, 2018; Wynes & Nicholas, 2017). Nonetheless, these authors posit that personal actions have a role to play in reducing carbon emissions, but contend that they are not enough and should be backed up by systemic changes.

Normative Significance. The last step in Scherer's (2001) appraisal process is evaluating a situation's normative significance in terms of internal and externals standards.

Types of internal standards that a person can withhold are pro-environmental values, which have been found to correlate with pro-environmental behaviour, even when the behaviours are psychologically or socially costly (Balundė et al., 2019; Nordlund & Garvill, 2002; Passmore et al., 2022; Stern, 2000; Heath & Gifford, 2006; Steg et al., 2014). Interestingly, pro-environmental values have also been associated with higher levels of climate anxiety (Clayton & Karazsia, 2020; Searle & Gow, 2010). This may point towards the practicality of eco-anxiety in terms of instigating pro-environmental behaviour, and the role of possessing pro-environmental values on this relationship. If linked to the Campbell Paradigm of Attitudes, this acts as an example of how pro-environmental attitudes that

outweigh the costs of performing pro-environmental actions result in the performance of such actions (Kaiser et al., 2010).

van der Werff et al. (2013) posited that the relationship between pro-environmental values and pro-environmental behaviour is fully mediated by environmental self-identity. Similarly, Der-Karabetian et al. (2014) found that global belonging, which involves thinking of oneself as a citizen of the world and as being related to everyone in the world, is related to pro-environmental behaviours. Therefore, possessing an environmental self-identity and pro-environmental values, which imply pro-environmental attitudes, may act as buffers against paralysing eco-anxiety, and outweigh the costs of behaving pro-environmentally, and, in turn, instigate practical eco-anxiety, eco-consciousness and pro-environmental behaviours (Kaiser et al., 2010).

Contrarily, having conflicting values, goals and aspirations is one "dragon of inaction" that hinders pro-environmental behaviour engagement (Gifford, 2011). This means that, although an individual may hold pro-environmental values, other values, goals and expectations, both derived from oneself and one's surroundings, may take precedence or make pro-environmental behaviours more costly (Kaiser et al., 2010). Ojala (2012) provides this rationale for the relatively low pro-environmental engagement in younger people, as they would be taking responsibility for their lives, while also realising the difficulty of living up to their own and society's ideals in everyday life.

One such ideal withheld, especially in Western societies, is 'optimism bias', which describes the cultural pressure to be optimistic about current and future situations without engaging in 'doom and gloom' thinking (Head, 2016). This pressure to be optimistic is also felt by people working in the climate change field, which may be employed as a defence mechanism against eco-anxiety. However, Hollis (1996) warns that this emphasis on

happiness gives rise to avoidance behaviours and paralysis. For example, Ojala (2012) reports that silence regarding climate change and its potential negative repercussions may lead to young people believing that no one cares about it, giving rise to reluctance to speak about it and the emotions they feel, together with lack of action. Norgaard (2006) attributes this to socially organised climate change denial that influences conversational norms. This highlights the importance of open conversations about the emotional experiences of individuals regarding the ecological crisis.

Social norms have the power to influence an individual's actions in relation to the environment (Gifford, 2011). If pro-environmental behaviours are viewed as unconventional, then an individual would be more reluctant to engage in them, given that performing such behaviours has high social costs (Kaiser et al., 2010). This is especially the case for events perceived as threats, such as the ecological crisis, given their psychosocial nature, with responses to such threats being maintained by social norms and structures, and culturally sanctioned if non-normative (Fehr & Schurtenberger, 2018). Nonetheless, Lee et al. (2015) pointed out that pro-environmental behaviours have increased, making them more in line with social norms and less socially costly if performed.

Emotion

The outcomes of the appraisal process result in an emotional response, eventually leading to some sort of action. To understand this connection, it's crucial to recognise and study emotions, as Moser et al. (2010) emphasise and as us being done through this study. This also applies to the ecological crisis, as emotions felt towards it have been found to be influenced by particular appraisals of the ecological crisis and one's role within it, and to

furthermore influence pro-environmental attitudes and behaviours (Harth et al., 2013; Smith & Leiserowitz, 2012, 2014).

The ecological crisis entails various environmental phenomena and changes that may warrant their own individual appraisal and emotional response. The Environmental Attitudes Survey asked Maltese participants how concerned they were about a list of environmental phenomena, with concern being highest for air pollution, traffic and open space, land use for buildings, loss of nature, species, habitats and trees, noise, depletion of natural resources, marine water pollution, soil degradation, waste management issues and freshwater pollution, respectively (Environment and Resources Authority, 2020).

The Eurobarometer survey found that EU participants considered climate change as the single most serious problem, while being slightly preceded by armed conflicts, and poverty, hunger and lack of drinking water (European Commission, 2023). A news article published by the European Climate Pact in 2023 linked these data to its implied effects on mental health, specifically climate anxiety or eco-anxiety. This was attributed to a fear of the future, which involves the appraisal of the ecological situation as a potential yet uncertain threat in terms of its outcomes. The concepts of anticipation of future outcomes and uncertainty were outlined in previous sections.

Appraisal theory also maintains the notion of multiple emotions being simultaneously present. In Hickman et al.'s (2021) study, respondents were asked whether climate change made them feel a given list of emotions, including anxiety, anger and optimism. The emotion that young people felt the most was fear, followed by sadness and anxiety. Nearly two-third's stated that they felt anxious, while nearly one-third professed feeling optimistic. This further supports the idea that an individual can feel multiple emotions at once regarding a single situation, including both 'positive' and 'negative' emotions.

On this note, Pfister and Böhm (2008) advocate for concrete emotions, such as eco-anxiety and eco-grief, to be distinguished when applied to the ecological crisis, rather than simply using the labels ‘positive’ and ‘negative’ emotions. This is to differentiate specific ecological emotions based on the preceding evaluations of the emotion-eliciting situation, which in turn vary in their influence on subsequent behaviour. This distinction, together with the notion of experiencing multiple emotions at the same time, allows for the examination of how emotions interact to elucidate their impact on climate-related actions (Sangervo et al., 2022).

Verplanken et al. (2020) found that individuals who scored high on eco-anxiety also showed high scores on feeling afraid, nervous, scared, upset, guilty, ashamed and distressed, which Kurth and Pihkala (2022) summarised into three categories making up ‘eco-anxiety’ responses. Feeling nervous, afraid and scared constitute an anxiety-like response “to uncertain ecological threats and dangers that engages a broadly defensive response”. The emotions of ‘shame’ and ‘guilt’ form part of a self-reflective response, in which an individual is “concerned with having harmed something of ecological significance that brings tendencies to make amends for the damage done”. Lastly, a grief-oriented response includes being upset and distressed due to “the loss of what one sees as ecologically important and that can bring social withdrawal, mourning, etc.”. Therefore, while the anxiety-like and grief-oriented responses can be said to be types of ecologically maladaptive responses constituting paralysing eco-anxiety, the self-reflective response is more engaging as it involves practical eco-anxiety that stimulates ecologically adaptive behaviours (Kurth & Pihkala, 2022).

Although these three eco-anxiety responses comprise of ‘negative’ emotions, eco-anxiety was found to not be correlated with pathological worry and conversely associated with pro-environmental attitudes and behaviours (Verplanken & Roy, 2013). This is in line

with evolutionary views of anxiety as being an instigator of action in response to threats. However, the jump from eco-anxiety to pro-environmental behaviour is contingent on several factors that facilitate or hinder this progression. More so, eco-anxiety can be practical or paralysing in nature, with the latter resulting in withdrawal behaviour and inaction, or the so-called 'flight' or 'freeze' responses of anxiety (Kurth & Pihkala, 2022; Price, 2003). This may arise from overwhelming eco-anxiety, or perceptions of low self- or collective efficacy, as has been mentioned earlier (Homburg & Stolberg, 2006; Innocenti et al., 2023; Sackett, 2019). Therefore, research on the conceptualisation of eco-anxiety based on its effects on individuals' behaviours is conflicting, necessitating additional research on eco-anxiety and the identification of potential variables that influence its effects.

In support of the notion of paralysing eco-anxiety, Hickman et al. (2021) found that nearly half of young individuals thought that their emotions regarding the ecological situation was having and would have an impact on their level of functioning, implying a paralysing effect of eco-emotions. Therefore, Albrecht (2011) and Weintrobe (2013) contend the importance of recognising and engaging with eco-emotions, together with the need for further studies on variables influencing whether and how eco-anxiety may lead to ecologically adaptive or maladaptive responses, to foster meaningful responses to the ecological crisis and counteract their potentially paralysing effects.

Action

The end result of an appraisal process is some form of responsive action. Which or whether an action is performed is influenced by the preceding appraisal of the situation and the emotional experience stemming from this appraisal (Harth et al., 2013). Arnold (1970) distinguished between approach and avoidance behaviours, which entail either actively

performing an action in response to the appraised situation or withdrawing from it respectively. Applied to the ecological crisis, Andrews and Hoggett (2019) make use of the terms ‘ecologically adaptive responses’ to refer to approach behaviours targeting environmental issues, and ‘ecologically maladaptive responses’ to refer to avoidant environment-related behaviours.

Examples of ecologically adaptive responses include information-seeking, regulating emotions, and connecting with nature, while ecologically maladaptive responses include denial, avoidance of difficult emotions and non-action (Andrews & Hoggett, 2019).

These two behavioural responses can be mapped onto the conceptualisation of eco-anxiety as being either practical or paralysing. While practical eco-anxiety instigates approach or ecologically adaptive responses, its paralysing counterpart leads to avoidance and ecologically maladaptive responses. Variables influencing and mediating approach and avoidance behaviours stemming from practical and paralysing eco-anxiety have been mentioned, and will be discussed later on in this section.

Apart from the dinstinction between approach and avoidance responses, this study also draws a line between intention and behaviour. The Campbell Paradigm of Attitudes explains this gap, which will be explained shortly (Kaiser et al., 2010).

Approach versus Avoidance. Eco-anxiety can have two different and contrasting effects on an individual, their intentions and behaviours (Kurth & Pihkala, 2022). The distinction lies in this emotion’s antecedents, both in terms of situation-based appraisal (e.g., self-efficacy), and enduring factors, such as values, habits, political ideology, culture, gender, age, personality and identity (Innocenti et al., 2023, Klöckner, 2013; Nordlund & Garvill,

2002; Pavalache-Ilie & Cazan, 2018; Pickering & Dale, 2023; Steg et al., 2014; van der Werff et al., 2013).

The evaluation of the ecological crisis as both uncertain and high-risk, coupled with a perceived lack of efficacy in coping, results in the debilitating form of eco-anxiety, being paralysing eco-anxiety (Kurth & Pihkala, 2022). This emotion hinders proactive measures and induces avoidance or behaviors deemed ecologically maladaptive (Innocenti et al., 2023; Mead et al., 2012). In fact, paralysing eco-anxiety has been found to give rise to passivity, the continuation of actions that are harming the environment, discounting of the environmental crisis' urgency and the justification of this discounting by referring to its uncertain outcomes, all being types of ecologically maladaptive responses (Andrews & Hoggett, 2019; Koh, 2016; Nisbet, 2009; Taylor, 2020; Ursano et al., 2017). Such avoidance behaviours further instigate paralysing eco-anxiety, leading to an iterative cycle (Hulme, 2009). Inversely, high efficacy perception has been linked to more practical forms of eco-anxiety that encourage 'approach' behaviours, even in the presence of high risk perception (Mead et al., 2012). This highlights the importance of self-efficacy in response to the ecological crisis to encourage pro-environmental behaviour and its potential to act as a buffer for paralysing eco-anxiety.

Scholars attribute the rise of eco-anxiety and avoidance behaviours to various factors. Hickman (2020) highlighted the new psychological challenges brought about by an increased awareness of the reality of the ecological threat that people are facing. This, she states, is experienced alongside the lack of knowledge on how and feelings of efficacy to cope and navigate them. Increased awareness and knowledge regarding the anthropogenic causes of the ecological crisis places responsibility on individuals to make amends, which threatens their current lifestyles and habits and implies their duty to compromise them (Passmore et al., 2022). This may result in paralysing eco-anxiety and ecologically maladaptive responses,

such as defence mechanisms in the form of justification of the status quo, which is one of Gifford's (2011) 'dragons of inaction'.

Demographic differences in ecologically adaptive behaviour engagement have also been found. Compared to males, females have been found to be more engaged in response to the ecological crisis, which Casey and Scott (2006) attribute to the role of females as caregivers and protectors (Dunlap & Brulle, 2020; Ojala et al., 2021; Pickering & Dale, 2023; Wullenkord & Reese, 2021).

Findings regarding the influence of age on pro-environmental concern and behaviour are mixed. Older individuals indicate higher levels of raw material and natural resource conservation, and overall higher levels of ecological behaviour (Casey & Scott, 2006; Wiernik et al., 2013; Wullenkord & Reese, 2021). However, Hamilton et al. (2019) found that younger adults more often prioritised renewable energy development, and being younger was found to increase the chances of participating in pro-environmental behaviour (Chen & Gong, 2021). This brings forth the need for further research on the matter.

Innocenti et al. (2023) underscored the media's impact on efficacy beliefs, highlighting its potential to induce either practical or paralysing eco-anxiety and subsequent environment-related behaviours in response to ecological crisis-related messages. Consequently, they propose enhancing the accessibility and clarity of information for everyone as a way to encourage practical eco-anxiety, eco-consciousness and ecologically adaptive responses. Additionally, they advocate for exploring how diverse media messages influence efficacy beliefs, the types and intensity of eco-anxiety, and their subsequent effects on intentions and behaviors.

Intention versus Behaviour. The Campbell Paradigm of Attitudes suggests that the transformation of pro-environmental intentions into tangible behaviour is contingent upon the costs associated with performing the behaviour and one's attitudes towards it (Kaiser et al., 2010). Such costs may include discomfort, inconvenience, and the belief that behaving pro-environmentally would be ineffective, linking with efficacy beliefs (Wyss et al., 2022). If attitude strength and eco-consciousness is outweighed by the costs of attitude-relevant behaviours, then the behaviour is not performed and one would not act on their intentions and motivation to act (Sharma & Kesherwani, 2015). Meanwhile, strong attitude strength that outweighs the perceived costs gives rise to action.

Two premises this paradigm puts forward are that some behaviours are more costly than others and individuals are more likely to engage in less-demanding behaviours. Gifford (2011) calls this tokenism, which is a 'dragon of inaction' that entails individuals choosing easier actions, such as recycling, over those that are more costly, such as not using one's car. The Campbell Paradigm of Attitudes posits that this is due to attitudes towards the environment, the ecological crisis and pro-environmental behaviour, together with feelings of eco-anxiety, being outweighed by the high costs of perceived difficult actions (Kaiser & Wilson, 2019).

Linking the Campbell Paradigm of Attitudes with eco-anxiety, practical eco-anxiety may emerge from pro-environmental attitudes, such as the view of the ecological crisis as being relevant and urgent, outweighing the costs of behaving pro-environmentally, eventually leading to some sort of ecologically adaptive response in line with one's pro-environmental intentions (Wyss et al., 2022). On the other hand, pro-environmental attitudes being outweighed by the costs of acting on one's pro-environmental intentions leads to paralysing eco-anxiety and lack of pro-environmental behaviour, together with possible defence

mechanisms employed to dampen the paralysing eco-anxiety emotion (Andrews & Hoggett, 2016).

The assumptions put forward by the Campbell Paradigm of Attitudes can also be used to interpret the results of the Environmental Attitudes Behaviour Survey (Environment and Resources Authority, 2020). When asked about their environmental contributions, participants stated that they focused on the following in order of popularity: waste separation, use of energy-saving lightbulbs, investing in PV and solar water heaters, giving donations for environmental causes, planting a tree, and volunteering with an environmental non-governmental organisation. Additionally, more than half of participants in this survey professed being ready to make lifestyle changes for a better environment. The high rating of waste separation as participants' focus and their high willingness to make lifestyle changes for a better environment implies the relative perceived easiness of performing these pro-environmental behaviours. On the other hand, the low rating given to volunteering with an environmental NGO may signal this behaviour's perceived high costs.

The Eurobarometer survey also asked participants to indicate which actions they perform to tackle climate change (European Commission, 2023). It found that the vast majority of Maltese participants engaged in waste reduction and recycling, with the EU average being lower. Nonetheless, this behaviour was the most reported both in Malta and in the EU as a whole, which implies its relative easiness and people's relatively positive attitudes towards it, including efficacy beliefs. On the other hand, considering the carbon footprint of one's transport when planning a holiday and adjusting accordingly was one of the least chosen action among the Maltese and the general European Union, portraying this behaviour as costly.

Apart from perceived attitudes and costs, structural barriers can also halt an individual from performing ecologically adaptive behaviours, or make them less likely to do so. These may range from low socioeconomic status, such as limited money to purchase solar panels, to physical barriers, such as lack of recycling bins in one's area. These barriers in turn increase the costs of these pro-environmental behaviours for such individuals compared to individuals who can afford solar panels with money to spare, or who have easy access to recycling bins around their area. In turn, this may increase inefficacy beliefs and eco-anxiety, especially if the individual possesses pro-environmental attitudes. Lack of knowledge was also found to be a barrier to acting on one's intentions to behave pro-environmentally (Leiserowitz et al., 2009).

Another type of cost that may be considered when deciding whether to act on one's intentions is social norm transgression, which has been found to be positively associated with anxiety (Vaswani et al., 2022). Accordingly, an individual is more likely to perform a behaviour if it is in line with social norms. However, environmentally friendly behaviours seem to be becoming more widespread, and therefore less unconventional (Lee et al., 2015).

Making pro-environmental choices may be an overwhelming endeavour as one debates whether it is worth the behavioural change (Head, 2016; Norgaard, 2011). Becker and Sparks (2018) found that doubt about one's personal accountability to the issue, diffusion of responsibility, lack of self-efficacy, the psychological costs to pro-environmental actions and the major changes they imply bring about paralysing eco-anxiety and halt mitigation engagement. Therefore, a reasonable amount of personal accountability and responsibility, and the removal of costs and barriers to making lifestyle changes and acting pro-environmentally would instil practical eco-anxiety and ecological engagement. This

reframing of what hinders to what encourages pro-environmental behaviour, together with the way eco-anxiety is viewed, is discussed in the next and last subsection of this chapter.

Adaptive Reappraisal

An individual may reappraise a familiar event or situation through conscious effort and in light of new or changed priorities, values, ideology or information. Arnold (1970) called this adaptive reappraisal, which is similar to Andrews and Hoggett's (2019) notion of cognitive reinterpretation. Terpstra (2011) posits that a risk, such as the ecological crisis, can actively be reappraised according to a desired outcome, even when the situation remains unchanged. Such reappraisal of the ecological crisis may entail acknowledging the seriousness of the problem, while also being able to switch perspective between information and events that display the further degradation of our environment, and that which celebrates the victories in humanity's fight against the ecological crisis (Bury et al., 2019; Doppelt, 2016; Li & Monroe, 2018). Doppelt (2016) calls this transformational resilience.

Ojala (2012) applies Lazarus and Folkman's (1984) notion of meaning-focused coping to the ecological crisis and its adaptive reappraisal. This strategy is centred around hope that helps an individual to confront a problem and bear the burden of taking responsibility without being overwhelmed, while facing difficulties and uncertainties in a non-extremist way, and engaging with environmental issues both personally and collectively. Thus, meaning-focused coping allows for the transformation of debilitating or paralysing eco-anxiety to its practical counterpart, and explains the interplay between practical anxiety and hope (Ojala, 2007; Pihkala, 2018). Indeed, Lear (2006) proposes the term 'radical' hope', which positions hope as a way of directing oneself to "future goodness of the world that transcends the current ability to understand what it is" (p. 103).

Eco-anxiety may serve as a ‘call for healing’ as one becomes aware of what is important to them, being the planet and their connection to it, while directing their attention to what is happening to the planet and what they can do to minimise further threats and improve conditions, therefore instilling feels of self-efficacy. This way of thinking coincides with the concept of eco-consciousness (Lin & Chang, 2012; Sharma & Kesherwani, 2015). Hickman (2020) referred to this as a way of reframing eco-anxiety into eco-empathy. This may be done through deliberate reappraisal of eco-anxiety and the ecological crisis, and may enable the transformation of debilitating eco-anxiety into practical eco-anxiety.

Conclusion

This chapter provided an explanation of the theories included in the study’s theoretical framework, including Arnold’s Appraisal Theory, Scherer’s Appraisal Theory, and the Campbell Paradigm of Attitudes, both separately and combined. The theoretical framework was then applied to the ecological crisis by applying existing literature on this threat in terms of the situation itself, being the ecological crisis, its appraisal and the resulting eco-emotions and actions.

The following chapter will present the methodology employed in this study to answer the research questions presented in the Introduction chapter.

Chapter 3: Methodology

The previous chapter reviewed relevant literature on eco-anxiety. This chapter outlines the research process undergone to answer the research questions, including methodology, sampling, data collection, and analysis methods, aligning with the aims of the study.

Research Design

The aim of this study was to explore eco-anxiety as experienced by Maltese individuals through the employment of a mixed methods design (Plano Clark & Creswell, 2007). The word ‘explore’ in the research title was utilised given that research on eco-anxiety, especially in the Maltese context, is in its infancy, hence the need to first become familiar with this concept to pave the way for further research (Singh, 2007).

Mixed methods research represents the convergence of qualitative and quantitative paradigms, reconciling their differences to capitalise on their strengths and compensate for their weaknesses (Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2008). Quantitative data offers quantification, while qualitative methods facilitate in-depth exploration (Creswell, 2002). Thus, mixed methods research allows the use of both exploratory and confirmatory aspects within a single study, providing breadth and depth respectively (Poth & Munce, 2020; Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009). Given the intricate and nuanced nature of eco-anxiety, a mixed methods approach proved invaluable (Clarke & Yaros, 1988; Enosh et al., 2015).

The study followed an explanatory and sequential mixed methods design, starting with a quantitative questionnaire and followed by qualitative focus groups. The quantitative

and qualitative phases were given equal importance (Clark & Ivankova, 2016). While some design elements were predetermined, such as the methodology and sequence, the focus group script evolved between phases to accommodate emergent quantitative insights (Creswell & Clark, 2010). During analysis and interpretation, quantitative statistics were synthesised with qualitative themes and supporting quotes, facilitating the development of "more effective and refined conclusions" (Plano Clark & Ivankova, 2016, p. 86), while identifying unanticipated insights to inform future research hypotheses.

Indeed, the thematic analytical approach embraced both deductive and inductive reasoning, termed abduction, to leverage the strengths of each (Dudovskiy, 2018; Hartshorne & Weiss, 1934). Deductive reasoning guided the analysis of quantitative and qualitative data within the theoretical framework presented earlier. Meanwhile, inductive reasoning allowed the discovery of unexpected findings, enriching the study's depth and breadth.

Philosophical Underpinnings

The philosophical paradigm adhered to in this research was pragmatism. This paradigm merges elements of realism from quantitative research and relativism from qualitative research, acknowledging the coexistence of both singular and multiple realities (Creswell & Clark, 2010; Fetters, 2016). Pragmatism prioritises practicality and defines 'truth' as context-dependent and situationally relevant (Howe, 1992). Its focus on 'what best works' in a given context underscores the value of mixed methods as a flexible and adaptive research approach. In fact, pragmatism endorses mixed methods research, provided a clear rationale is given, and the research question and context support it (Modell, 2009).

Quantitative Phase

The quantitative phase included an anonymous online questionnaire. The questionnaire construction was informed by existing literature and instruments, together with the study's theoretical framework discussed in the previous chapter. The questionnaire was available in both English (see Appendix A) and Maltese (see Appendix B).

The English and Maltese questionnaires were piloted on nine individuals to assess the survey's overall comprehensiveness. After completing the questionnaire, pilot study participants were asked to fill in a feedback form that asked for their understanding of and suggestions for the survey, while being informed that their responses to both the questionnaire and the feedback form could not be linked back to them.

Two pilot study participants, proficient in Maltese language skills, assisted in translating the questionnaire into Maltese and verified its alignment with the original English version.

The following subsection briefly outlines the measures collected.

Measures

Demographic Information. The first section of the questionnaire included the collection of demographic information, including gender, age and highest level of education attained. Participants were also asked whether their line of work involved dealing with issues related to climate change and the environment. Examples of such job types were given, being environmental science, environmental law, environmental engineering, conservation and sustainability (Peach, 2021).

Eco-Anxiety. Eco-anxiety was measured using the standardised 13-item Hogg Eco-Anxiety Scale (HEAS) (2021). This scale was chosen as it is a brief and easily administered tool that has been validated on various populations, including Turkey, Australia and New Zealand (Hogg et al., 2021; Uzun et al., 2022). When other scales, such as the Climate Change Anxiety Scale, only capture the extent to which individuals experience anxiety when thinking about climate change, the HEAS perceives the construct of 'eco-anxiety' as being multidimensional, also including cognitive, physical and behavioural impairments as a result of general environmental changes and crises (Hickman, 2020; Clayton & Karazsia, 2020).

Permission to use and translate the test into Maltese was granted from the primary author of the HEAS via email correspondence (Appendix C).

The HEAS asked participants how often they had 'been bothered by… symptoms when thinking about climate change and other global environmental conditions (e.g., global warming, ecological degradation, resource depletion)' within the past 2 weeks on a 4-point scale (0 = 'rarely/ not at all', 1 = 'several of the days', 2 = 'over half of the days', 3 = 'nearly everyday'). Symptoms included affective symptoms, rumination, behavioural symptoms and anxiety about one's personal impact on the planet (Hogg et al., 2021).

The items, order of items and response options were kept the same as the original HEAS (2021), except for the first response option. This was changed from 'Rarely' to 'Rarely/ Not at all'. The 'not at all' was added for those who had not experienced the given symptom.

Anxiety about Environmental Events and Personal Impacts. Given the vast number and complexities of environmental issues, participants were asked about the extent to which they felt distressed or anxious when thinking about seven specific environmental

issues, being climate change, species extinction, ecological degradation, resource depletion, ocean pollution, deforestation and the ozone hole, and six personal behavioural impacts that are said to contribute to these environmental threats, being waste production, energy consumption, water consumption, meat eating and air travel. The items were taken from Hogg et al. (2021), who adapted them from Homburg et al. (2007). The frequency of participants' anxiety was rated using a 4-point scale (0 = 'never/rarely', 1 = 'sometimes', 2 = 'often', 3 = 'almost always').

Exposure to Climate Change-Related News. This was quantified through a self-constructed question inquiring about the frequency of watching or reading news about climate change on a 5-point scale (1 = 'less than once a week', 2 = 'once a week', 3 = 'several times a week', 4 = 'once a day', 5 = 'several times a day').

Pro-environmental Intentions. Four items allowed the measurement of participants' intentions to behave pro-environmentally. Participants were asked how willing they were to "carpool, walk, cycle, or use public transportation" for general "short journeys… less than five kilometres". For this item, four local examples of distances that were less than 5 kilometres were provided to enable better spatial reasoning of such distances in the North, South, East and West of Malta, and to therefore provide more reliable and valid results. Each item required a response on a 4-point scale (1 = 'never', 2 = 'occasionally', 3 = 'often' and 4 = 'always').

Pro-environmental Behaviours. The last section aimed to collect data on how frequently participants currently performed nine behaviours that were considered 'ecological', such as how often they "re-use shopping bags for future shopping and/or other purposes", on a 4-point scale (1 = 'never', 2 = 'occasionally', 3 = 'often' and 4 = 'always'). One item asked participants how often they "walk as opposed to driving or taking the bus…

when travelling short distances (approx. 1-2 kilometres)", with this item also being supported by local examples of distances between 1-2 kilometres.

Overall, items were kept relevant and to a minimum to ensure high response rates, while confirming that they were in line with the research question (Edwards et al., 2009). Questions were placed in a logical order, and double-barrelled questions were avoided to guarantee high response rates and honest answering.

Procedure and Participants

Following the pilot study completion, the updated 6-minute questionnaire was distributed online using the software 'SurveyMonkey' to allow quick responses and data compilation (Jones et al., 2013). The information letter and consent form were combined and included in the first page of the questionnaire.

The quantitative phase sampled Maltese individuals aged 18 and older using non-probability methods, including volunteer, snowball, and convenience sampling. Recruitment utilised social media platforms, like Facebook, Instagram, and LinkedIn, as well as word-of-mouth and the University of Malta's Registrar (Appendix D). These methods were chosen for accessibility and voluntary participation (Farrokhi & Mahmoudi, 2012). However, the study's results lack generalisability due to the non-probability sampling approach taken and limited access to the target population (Allen, 2017; Farrokhi & Mahmoudi, 2012; Jager et al., 2017; Sharma, 2017).

Data Analysis

Statistical computations were carried out using the Statistical Package for the Social Sciences (SPSS), version 27. The questionnaire responses were coded numerically and

cleaned on Microsoft Excel. The cut-off point between case inclusion and exclusion was of 80%, meaning that cases that had less than 80% of the survey complete were excluded from analysis. Missing values of those cases who responded 80% or more of the survey were kept as they were, and analyses were conducted with missing values being excluded listwise.

The demographic data were computed by means of descriptive test statistics, allowing the characteristics of the sample, including gender, age, level of education and line of work, to be outlined. The other data, including Likert scale statements, were entered as ordinal statistics.

New recoded continuous variables for the different factors measured were generated. These factors included eco-anxiety scores (emerging from the HEAS), pro-environmental intentions, pro-environmental behaviours, anxiety about environmental events, and anxiety about personal impacts for each participant.

Cronbach's alpha was used to identify the internal consistency of the HEAS in relation to the extent to which the items forming part of the factor measured the same construct and were fit for purpose (Taber, 2018).

Inferential statistical tests were conducted to answer the research questions and test the hypotheses outlined in the Introduction chapter. To measure differences between groups, Kruskal-Wallis H tests, chi-square tests, and Mann-Whitney U tests were conducted given that data did not satisfy parametric assumptions. Spearman's rank correlation coefficient was used to identify the possibility and extent of correlation between variables and factors, again given that data was not normally distributed.

After conducting descriptive and inferential analysis, the quantitative data informed the development of the focus group guide for the subsequent qualitative phase, marking the first part in which both research phases converged.

Reliability and Validity

Reliability and validity are crucial aspects of ensuring the quality of quantitative research.

Reliability, being the consistency and stability of results, was addressed through the careful selection of research designs and the use of standardised scales, such as the HEAS (2021) (Streiner et al., 2015). Additionally, internal consistency was assessed using Cronbach's alpha, a widely adopted measure to identify the interrelatedness of test items, (Tavakol & Dennick, 2011).

The philosophical paradigm of pragmatism recognized the potential for participant and researcher errors and biases, which cannot be entirely avoided. However, the study aimed to mitigate these threats through triangulation of findings, supervisor feedback, and researcher reflexivity. The latter involved acknowledging and introspecting potential biases' impact on the research process (Polit & Beck, 2017; Tashakkori & Teddlie, 2010).

Validity, which is the extent to which a study measures what it intends to, was attended to through pilot testing of the questionnaire to identify and rectify any issues in the items and data collection procedures (Flick, 2018). Questionnaire items were constructed based on research objectives and questions to ensure content validity (Lynn, 1986; Rattray & Jones, 2007). Additionally, appropriate statistical analysis techniques were employed to accurately analyse the collected data (Streiner et al., 2015).

The HEAS had undergone confirmatory factor analysis to establish construct validity in Hogg et al.'s (2021) study. This was also done by Hogg et al. (2021) to differentiate items measuring eco-anxiety from those measuring Generalised Anxiety Disorder, which was found to be so, therefore increasing its construct validity (Spitzer et al., 2006). Other survey items were selected or self-constructed based on the research questions, enhancing content validity, although being limited in terms of standardisation (Lynn, 1986; Rattray & Jones, 2007).

Qualitative Phase

The second phase of this study's research design involved the use of four semi-structured focus groups with Maltese adults. Focus groups were chosen as the preferred qualitative data collecting tool due to their ability to explore complex phenomenon while providing a contextual understanding of participants' experiences and perspectives (Kitzinger, 1994; Krueger & Casey, 2014; Morgan, 1997). They also allow participants to collectively make sense of shared experiences and emotions, while empowering participants by providing a platform for their voices to be heard (Kitzinger, 1995; Morgan, 1997).

Participants and Procedure

The selection criteria for focus group participants included being Maltese and 18 years or over. The sampling techniques used in this study were convenience, volunteer and snowball sampling, as were used for the quantitative phase. More so, the samples were purposefully selected so that two focus groups included 18-40-year-old participants (7 and 9 participants respectively), and the other two including participants over 40 years (5

participants each). The homogeneous composition in terms of age was done to be able to compare findings. In total, 26 participants took part in this phase.

The four focus group discussions were held face-to-face and at times and places that were convenient for participants, with the location ensuring privacy for confidentiality and clear recordings, such as the University of Malta and the researcher's private residence. The discussions lasted approximately 60-90 minutes and were recorded using voice recorder software on a laptop. The discussions were moderated by myself, with the same focus group guide being used for all groups to ensure consistency across the groups.

Pseudonyms were assigned to each participant that were used when transcribing and analysing the data, and when writing up the results and discussion. Table 1 summarises the participants' demographic information.

Table 1
Qualitative Focus Group Participant Demographics

Focus Group Number	Participant Pseudonym	Gender	Age
1	Simon*	Male	24
1	Isabelle	Female	22
1	Jasper*	Male	24
1	Amy	Female	26
1	Fiona	Female	21
1	Tania	Female	34
1	Darren	Male	21
2	Louis	Male	24
2	Aaron	Male	23
2	Skyler	Female	23
2	Lydon	Male	25
2	George	Male	24
2	Axel	Male	23
2	Mario	Male	27
2	Una	Female	25
2	Rita*	Female	25
3	Kate	Female	57
3	Peter	Male	60
3	Ezra	Female	59
3	Zach	Male	65
3	Xavier	Male	60
4	Max	Male	56
4	Helen	Female	41
4	Igor*	Male	41
4	Vicky	Female	59
4	Wilma	Female	54

**Note: Participants work in a field that requires them to deal with issues related to climate change*

Prior to starting the focus group discussion, the participants were directed to the information letter and consent form and were provided an overview of the contents by the facilitator, including the research aim and ethical considerations. These were provided in both English (Appendix E) and Maltese (Appendix F). Participants were also informed about what what happen with the data collected, including the transcription, coding and analysis of qualitative data in conjunction with the quantitative data already gathered, together with the use of pseudonymised quotes in the write-up. A QR code was printed and placed on the table for participants to access online copies of the information letter and consent form if they wished to do so. Additionally, they were instructed to fill in a short form that asked them for their age, highest level of education and occupation.

Name cards were placed in front of each respective participant for them to be able to refer to each other by name during the discussion. These names were pseudonymised during the transcription.

Focus Group Guide

The focus group guide was created based on the quantitative findings in light of the research aims, objectives and questions highlighted in the Introduction chapter, and the review of relevant literature. This guide can be found in Appendix G.

Each main question included a set of probes and prompts to encourage participants to elaborate on their responses. For example, after hearing the participants' comments on a question, they were prompted to share how they felt about what they and others had shared. More so, participants were proved to give specific examples in some instances in order to provide more context to their comments.

Overall, the focus group script was designed to be structured yet flexible, open-ended and adaptable. This allowed the researcher to tailor the discussion to the specific needs and interests of the group, and for rich data about the experience of eco-anxiety for participants and the broader factors contributing to this phenomenon to emerge (Barbour, 2007).

Data Analysis

The recorded data from the focus group discussions were transcribed verbatim and analysed using thematic analysis following Braun and Clarke's (2006) six-step model. Braun and Clarke (2006) defined themes as representations of crucial elements about the data in relation to the research question. Hence, thematic analysis was chosen given its usefulness in extracting salient points from the data that help answer the research question and give light to the participants' perspectives and experiences.

Braun and Clarke's (2006) six steps involve becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and lastly, doing the write-up, all employed in this study. Throughout these stages, I kept a reflexive journal to record the iterative nature of this process and decisions made, while encouraging transparency and researcher reflexivity regarding their own influences on the process. This contributed to increased research trustworthiness (Braun & Clarke, 2006; Finlay, 2002; Lincoln & Guba, 1985; Nowell et al., 2017; Tracy, 2010).

The researcher used an abductive thematic approach to data analysis to allow themes to be deductively inspired by the study's theoretical framework, while allowing other themes to emerge from the data inductively (Thompson, 2022). The themes were then reviewed and refined through a process of constant comparison, with the aim of ensuring that the themes accurately reflected the data while not overlapping.

Trustworthiness

Lincoln and Guba (1985) introduced the concept of trustworthiness to assess the quality and value of qualitative research. To achieve trustworthiness, qualitative research should demonstrate credibility, transferability, dependability, and confirmability of findings.

Credibility ensures that research findings accurately reflect participants' experiences and perspectives. This study maintained credibility by facilitating focused and inclusive focus group discussions, allowing all participants to share their views, and paraphrasing responses for clarity. Institutional checks, peer debriefing with the supervisor, audit trails, and a reflexive journal further supported credibility (Morrow, 2005).

Transferability assesses the applicability of findings to other contexts or settings. To enhance transferability, this chapter provided rich and detailed descriptions of the research methodology, facilitating the adaptation of the methodology to different contexts (Geertz, 1973).

Dependability refers to the stability and consistency of findings over time and across researchers. Consistency was ensured by using the same or similar focus group guide across all sessions, promoting dependability of results.

Confirmability evaluates the degree to which findings are grounded in data and not influenced by researcher biases. Data triangulation, combining qualitative and quantitative data and involving multiple focus groups and participants, bolstered the confirmability of findings.

Researcher reflexivity played a pivotal role in increasing the study's trustworthiness. This was engaged in throughout data collection and analysis by identifying personal biases, assumptions, and values that might impact the research process and findings (Finlay, 2002).

As an example, care was taken to ensure that my own pro-environmental values did not shape the focus group guide, moderation and data analysis. Negative case analysis was employed during data analysis, which involved actively seeking data that contradicted or challenged findings to ensure robust and reliable conclusions. For example, the positive emotions expressed by participants, in contrast to the negative emotions most focus group participants professed, were also considered given that they challenged the emerging trend. This approach not only increased confirmability but also unearthed new insights, challenged assumptions, and deepened the understanding of the studied phenomena.

Lincoln and Guba (1985) suggest demonstrating the practical utility of a research study as another way of enhancing research trustworthiness. This study has practical implications for therapy, education, media communication, environmental organisations and policymaking, as will be discussed in the last chapter. It contributes to a broader comprehension of individuals' responses to ecological crises and climate change, particularly in relation to eco-anxiety. To maximize the study's usefulness, the researcher intends to widely disseminate findings in accessible formats to reach diverse audiences and increase the research's impact.

Verification of Mixed Methods Research

Apart from the employment of research rigour for each individual phase, rigour when integrating the findings from the two phases was also sought. This was done through methodological and theory triangulation strategies (Creswell & Creswell, 2017; Denzin, 1978; Patton, 1999; Zohrabi, 2013). Methodological triangulation involved using diverse data collection methods, combining questionnaire and focus group techniques within a mixed

methods research design. This approach minimised potential biases or limitations associated with a single method. Theory triangulation incorporated multiple theoretical perspectives into the analysis, offering a comprehensive understanding of the phenomenon (Flick, 2018). By aligning two appraisal theories and one attitude paradigm, the study achieved a more nuanced and robust interpretation of the quantitative, qualitative and mixed methods findings on eco-anxiety.

Ethical Considerations

Ethical considerations were of paramount importance throughout this study, adhering to established guidelines and principles. The research proposal underwent approval from the Department of Psychology, followed by acceptance from the Faculty Research Ethics Committee (Appendix H). A data management plan (Appendix I) was meticulously followed.

Informed consent was diligently sought from all participants. For survey respondents, a combined information letter and consent form were presented at the survey's outset (see Appendix A). Focus group participants were given these documents in English and Maltese before starting the discussion and were asked to sign the consent forms, therefore agreeing to voice recording and pseudonymised transcription (Appendices G and H). A QR code provided easy access to online versions of these documents, should they wished to keep copies. Participants were reminded of their rights, including the right to withdraw and the importance of confidentiality during and after the focus group discussions (Pope & Mays, 1995).

Stringent anonymity measures were implemented. Survey data, collected through 'SurveyMonkey,' ensured that participants' IP addresses were inaccessible to the

administrator. Each focus group participant was assigned a pseudonym, with the link between names and pseudonyms being securely stored in a password-protected OneDrive file. Audio recordings were kept on a password-protected laptop, stored in a password-protected OneDrive folder, and transcribed with pseudonyms.

During data analysis, efforts were made to reduce confirmation bias by not interpreting results according to pre-existing beliefs. The research questions and hypotheses guided the analysis, with both significant and insignificant findings being reported to mitigate publication bias.

The next chapter presents the quantitative and qualitative findings respectively, generated through the data analysis techniques outlined in this chapter.

Chapter 4: Results

In this chapter, the findings from the quantitative and qualitative phases of this mixed methods research study will be presented in response to the research questions posed in the Introduction chapter. The questionnaire data will first be presented, followed by the qualitative data, reflecting the order in which such data was collected and analysed given the explanatory sequential nature of this mixed methods research study (Creswell & Clark, 2010). More so, the layout serves to highlight the use of quantitative findings in informing the subsequent qualitative phase in terms of focus group construction and transcript analysis.

Quantitative Results

The online survey was filled in by 243 Maltese individuals aged 18 or over, following the exclusion of those participants who did not fill in more than 20% of the survey.

Participants' eco-anxiety scores were measured using the standardised 13-item Hogg Eco-Anxiety Scale (2021), with each question requiring a response between 1 ('rarely/not at all') and 4 ('almost always'). Cronbach's alpha for the HEAS was of .916, indicating a high level of internal consistency for this scale in this sample. The overall eco-anxiety score was computed as a new recoded variable to give a score for participants' eco-anxiety between 1 and 4. This score showed an overall mean of 1.56 (SD = 0.52).

To identify whether there were any statistically significant differences in terms of age, gender, highest education level and occupation in eco-anxiety scores, Kruskal Wallis H and Mann Whitney U tests were conducted, given that the data did not meet parametric assumptions. Table 2 contains the number and percentage of participants in each demographic category, the mean and standard deviation of the eco-anxiety score for each

demographic category, together with the relevant statistics according to the test performed and whether these tests identified statistically significant differences between the groups of each demographic.

Table 2
Demographic Information of Sample Participants and Cross-Tabulation of Eco-Anxiety Scores with Demographics

Demographics			Eco-Anxiety Score			
	n	*%*	*M*	*SD*	*H*	*U*
Gender						4378.50
Female	185	76.1	1.56	0.50		
Male	54	22.2	1.52	0.59		
Age					0.96	
18-30 years	123	50.6	1.55	0.52		
31-45 years	52	21.4	1.54	0.54		
46-60 years	54	22.2	1.59	0.50		
61+ years	14	5.8	1.62	0.61		
Highest educational level						3223.50
Secondary education	34	14	1.53	0.56		
Tertiary education	209	86	1.57	0.52		
Work in Environment						3214.50*
Field						
Yes	44	18.1	1.76	0.69		
No	184	75.7	1.51	0.47		
Unsure	15	6.2	1.54	0.38		
Total	243		1.56	0.52		

*$p < .05$
Note. The participants who were not sure whether they worked in an environment-related field were excluded from the Mann-Whitney U test.

As shown in Table 2, the differences between age, gender and highest education level groups in their eco-anxiety scores were not statistically significant. On the other hand, the differences between those who work (*Mdn* = 1.65) and do not work (*Mdn* = 1.38) in an environment-related field was statistically significant, $U = 3214.500$, $z = -1.988$, $p = .047$.

Therefore, participants working in an environment-related field had statistically and significantly higher eco-anxiety scores than those who did not. The effect size '*r*' was of $r = 0.13$, and Cohen's *d* was '0.48. These results indicate a small but statistically significant difference in eco-anxiety scores between those who work and do not work in an environment-related field.

Hypothesis 1: Eco-Anxiety and Climate Change News Exposure

The first hypothesis stated the following: 'Participants with higher eco-anxiety scores will watch or read news about climate change more frequently, with this difference being statistically significant'. Participants' frequency of watching or reading news related to climate change was measured through a self-constructed item that required participants to answer between 1 ('less than once a week') to 5 ('several times a day'). More than half of the participants in the sample (56.6%) watch or read climate change-related news once a week or less, while 11.1% do so at least once a day ($M = 2.25$, $SD = 1.15$). The percentages of participants within each demographic category who watch or read news related to climate change between less than once a week and several times a day are displayed in Table 3.

Table 3
Percentages of Demographic Categories and Climate Change News Exposure

Demographics	*Climate Change News Exposure*				
	Less than once a week	Once a week	Several times a week	Once a day	Several times a day
	%	*%*	*%*	*%*	*%*
Gender					
Male	18.9	30.2	30.2	11.3	9.4
Female	39.0	21.4	31.3	4.4	3.8
Age					
18-30 years	33.6	28.7	24.6	7.4	5.7
31-45 years	43.1	19.6	27.5	2.0	7.8
46-60 years	23.1	23.1	44.2	5.8	3.8
61+ years	42.9	0.0	50.0	7.1	0.0
Highest Education					
Secondary	50.0	23.5	23.5	2.9	0.0
Tertiary	31.2	23.9	32.2	6.3	6.3
Work in Environment					
Yes	31.8	11.4	25.0	13.6	18.2
No	34.4	27.8	31.1	4.4	2.2
Unsure	33.3	13.3	46.7	0.0	6.7
Total %	33.9	23.8	31.0	5.9	5.4
n	81	57	74	14	13

The first hypothesis was tested through a Kruskal-Wallis *H*, which produced significant results, $H(4) = 43.466$, $p<.001$. This indicates that there were significant differences in the mean rank eco-anxiety scores among participants who watch or read climate change or environment-related news less than once a week ($n = 81$; *Mean rank* = 87.43), once a week ($n = 56$; *Mean rank* = 107.04), several times a week ($n = 73$; *Mean rank* = 146.72), once a day ($n = 14$; *Mean rank* = 151.11) and several times a day ($n = 13$; *Mean rank* = 177.04). More so, by comparing mean ranks, it can be estimated that the scores for eco-anxiety significantly increased the more often one watched or read news related to climate change.

The eta squared of the *H* statistic was calculated to represent the effect size for this test, which yielded the value of .17, therefore fitting in the large effect size interpretation value bracket. From this effect size, it can be said that 17% of variance in participants' eco-anxiety scores was due to climate change news exposure.

Hypothesis 2: Eco-Anxiety and Anxiety about Environmental Events

The second hypothesis posited that anxiety about seven environmental events will significantly and positively correlate with eco-anxiety. These seven environment events included:

- Climate change
- Species extinction
- Ecological degradation
- Resource depletion
- Ozone hole
- Ocean pollution
- Deforestation

Participants had to state how anxious or distressed they felt about these seven environmental events on a 4-point scale (1 = never/rarely, 2 = sometimes, 3 = often, and 4 = almost always).

The environmental event that participants were most anxious or distressed about was deforestation, having a mean of 2.76. This was followed by ocean pollution (*M* = 2.71), resource depletion (*M* = 2.64), ecological degradation (*M* = 2.47), species extinction (*M* = 2.45), climate change (*M* = 2.31) and the ozone hole (*M* = 2.14). Table 4 shows the distribution of anxiety about the seven environmental event for each demographic group.

Table 4
Distributions of Demographics on Anxiety about Seven Environmental Events

Demographics	Anxiety about Environmental Events													
	Climate Change		Species Extinction		Ecological Degradation		Resource Depletion		Ozone Hole		Ocean Pollution		Deforestation	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender														
Male	2.19	0.82	2.28	0.99	2.43	0.96	2.59	0.92	1.91	0.90	2.50	1.02	2.66	0.96
Female	2.32	0.80	2.47	0.83	2.45	0.91	2.64	0.78	2.21	0.86	2.77	0.81	2.77	0.86
Age														
18-30 years	2.37	0.83	2.49	0.95	2.51	1.00	2.69	0.80	2.03	0.90	2.78	0.92	2.71	0.94
31-45 years	2.20	0.87	2.46	0.85	2.38	0.91	2.56	0.87	2.37	0.89	2.69	0.78	2.94	0.87
46-60 years	2.28	0.73	2.36	0.79	2.43	0.82	2.64	0.79	2.15	0.76	2.59	0.86	2.65	0.73
61+ years	2.23	0.83	2.36	0.75	2.50	0.94	2.57	1.01	2.29	0.83	2.71	0.83	2.86	0.87
Highest Education														
Secondary	1.97	0.80	2.29	0.76	2.18	0.97	2.45	0.79	1.97	0.90	2.47	0.83	2.41	0.86
Tertiary	2.36	0.80	2.47	0.90	2.51	0.92	2.67	0.83	2.17	0.87	2.75	0.88	2.81	0.88
Environment Field Work														
No	2.22	0.76	2.42	0.85	2.38	0.93	2.54	0.79	2.11	0.85	2.63	0.85	2.65	0.88
Yes	2.65	0.95	2.50	1.05	2.73	0.95	3.02	0.88	2.23	0.96	2.98	0.95	3.07	0.87
Unsure	2.43	0.76	2.60	0.74	2.80	0.78	2.80	0.78	2.33	0.90	2.93	0.80	3.07	0.70
Total	2.31	0.81	2.45	0.88	2.47	0.93	2.64	0.82	2.14	0.87	2.71	0.87	2.76	0.88
n	221		242		243		242		243		242		241	

A Spearman rho correlation test was done to test the second hypothesis, given that the parametric assumptions were not met. The results showed a positive and moderate-to-strong two-tailed correlation between anxiety about the total score of anxiety about seven environmental events and eco-anxiety score, $rs(213) = .656$, $p < .001$ (see Table 5).

Table 5
Descriptive Statistics and Spearman's Rank-Order Correlation Results for Eco-Anxiety and Anxiety about Environmental Events

Variable	*n*	*M*	*SD*	1.	2.
1. Eco-Anxiety	240	1.56	.52	1	.656*
2. Anxiety about Environmental Events	216	2.50	.72	.656*	1

*p<.001 (2-tailed)

To compare eco-anxiety scores of participants who ‘rarely/not at all’, ‘sometimes’, ‘often’ or ‘almost always’ felt anxious about each of the seven environmental events, Kruskal-Wallis *H* tests were conducted. All seven tests produced statistically significant results (see Table 6). The eta squared of the *H* statistics showed large effect sizes equal to or greater than .14 for all seven environmental events on eco-anxiety scores, except for anxiety about the ozone hole ($\eta 2$ = .12). Nonetheless, this fit within the moderate effect bracket, showing that anxiety about the ozone hole had a moderate effect on eco-anxiety scores. From the effect sizes, it could be said that anxiety about climate change contributed to the largest variance in eco-anxiety scores, being 34%, while anxiety about the ozone hole contributed to 12%, being the least variance in eco-anxiety scores.

Table 6
Kruskal Wallis H Test Statistics and Effect Sizes for Eco-Anxiety and Anxiety Seven Environment Events

Eco-Anxiety and Environmental Event	*n*	Mean Ranks	*Mdn*	*H*	*η2*
Climate Change					
Never/rarely	27	40.26	1.00	77.94*	.34
Sometimes	117	99.49	1.46		
Often	54	136.06	1.77		
Almost always	20	189.80	2.24		
Species Extinction					
Never/rarely	32	79.72	1.20	50.40*	.19
Sometimes	99	100.08	1.38		
Often	78	136.88	1.62		
Almost always	30	184.80	2.08		
Ecological Degradation					
Never/rarely	36	64.93	1.15	57.78*	.22
Sometimes	94	105.47	1.38		
Often	73	138.23	1.70		
Almost always	37	177.78	1.92		
Resource Depletion					
Never/rarely	13	73.19	1.24	41.19*	.15
Sometimes	98	98.22	1.38		
Often	90	127.13	1.54		
Almost always	38	175.29	2.20		
Ozone Hole					
Never/rarely	60	89.96	1.24	32.52*	.12
Sometimes	102	116.39	1.46		
Often	63	139.33	1.62		
Almost always	15	191.57	2.00		
Ocean Pollution					
Never/rarely	18	62.17	1.15	48.19*	.18
Sometimes	81	96.87	1.38		
Often	92	125.29	1.54		
Almost always	48	170.58	1.89		
Deforestation					
Never/rarely	14	64.79	1.15	50.90*	.20
Sometimes	85	93.40	1.38		
Often	84	122.07	1.54		
Almost always	55	169.85	1.85		

*$p < .001$
Note. $df = 3$

Hypothesis 3: Eco-Anxiety and Anxiety about Personal Impacts.

The third hypothesis stated that that anxiety about six personal impacts will significantly and positively correlate with eco-anxiety. Participants had to state how anxious or distressed they felt about the following six personal impacts on a 4-point Likert scale (1 = 'never/rarely', 2 = 'sometimes', 3 = 'often', and 4 = 'almost always'):

- Carbon footprint
- Waste production
- Meat consumption
- Air travel
- Energy consumption
- Water consumption

Maltese participants were most anxious about their personal waste production (M = 2.51, SD = 0.87), followed by their carbon footprint (M = 2.41, SD = 0.89), their energy consumption (M = 2.33, SD = 0.86), water consumption (M = 2.15, SD = 0.90), meat consumption (M = 1.78, SD = 0.88) and air travel (M = 1.75, SD = 0.82).

The means and standard deviations of each of the six personal behaviours for the demographic categories is summarised in Table 7.

Table 7
Distribution of Demographics on Anxiety about Personal Impacts

Anxiety about Impacts	Carbon Footprint		Waste		Air Travel		Meat Consumption		Water Consumption		Energy Consumption	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender												
Male	2.26	1.03	2.20	1.02	1.65	0.90	1.69	0.91	1.81	0.87	2.07	0.84
Female	2.4	0.83	2.57	0.81	1.77	0.78	1.79	0.88	2.24	0.89	2.39	0.85
Age												
18-30 years	2.43	0.92	2.46	0.92	1.72	0.80	1.76	0.90	2.03	0.89	2.20	0.89
31-45 years	2.33	0.99	2.52	0.87	1.81	0.95	1.83	0.86	2.19	0.91	2.46	0.80
46-60 years	2.44	0.74	2.61	0.76	1.81	0.75	1.89	0.93	2.38	0.93	2.48	0.86
61+ years	2.36	0.75	2.50	0.94	1.50	0.65	1.31	0.48	2.14	0.86	2.36	0.75
Highest education												
Secondary	2.21	0.88	2.32	0.95	1.47	0.66	1.42	0.61	2.15	0.91	2.12	0.81
Tertiary	2.44	0.89	2.54	0.86	1.79	0.83	1.83	0.91	2.15	0.91	2.36	0.81
Environment Field Work												
No	2.30	0.88	2.42	0.88	1.66	0.75	1.68	0.84	2.09	0.94	2.26	0.87
Yes	2.80	0.82	2.77	0.77	2.11	0.99	2.05	0.94	2.30	0.88	2.57	0.85
Unsure	2.60	0.83	2.73	0.88	1.80	0.78	2.13	1.06	2.40	0.83	2.53	0.74
Total	2.41	0.89	2.51	0.87	1.75	0.82	1.78	0.88	2.15	0.90	2.33	0.86
n	243		243		243		242		242		243	

To test the third hypothesis, the scores for the six personal behaviours were combined to form a recoded score ranging between 1 and 4. A Spearman rho correlation test was done, given that the parametric assumptions were not met. The results showed a positive correlation between anxiety about the six personal impacts and eco-anxiety, $rs(240) = .491$, $p < .001$. The Spearman's rho coefficient of 0.491 and its significance indicate a moderate association (Dancey & Reidy, 2014).

To compare eco-anxiety scores of participants who 'rarely/not at all', 'sometimes', 'often' or 'almost always' felt anxious about the six personal impacts, Kruskal-Wallis *H* tests were conducted. All six tests produced statistically significant results (see Table 8). Table 8 also shows large effect sizes on eco-anxiety scores for anxiety about one's carbon footprint ($\eta 2$ = 19) and one's waste production ($\eta 2$ = 16), with moderate effect sizes for anxiety about one's air travel ($\eta 2$ = 12), meat consumption ($\eta 2$ = 8), water consumption ($\eta 2$ = 6) and energy

consumption ($\eta 2$ = 7) on eco-anxiety. This means that anxiety about one's carbon footprint (19%) and one's waste production (16%) contributed to the largest variance in eco-anxiety scores, while anxiety about one's waste production contributed to the least variance.

Table 8
Kruskal Wallis H Test Statistics and Effect Sizes for Eco-Anxiety and Anxiety Six Personal Impacts

Eco-Anxiety and Environmental Event	*n*	Mean Ranks	*Mdn*	*H*	$\eta 2$
Carbon Footprint					
Never/rarely	38	57.59	1.00	48.86*	.19
Sometimes	94	117.78	1.46		
Often	81	137.53	1.62		
Almost always	27	167.43	1.85		
Waste Production					
Never/rarely	33	57.77	1.00	41.83*	.16
Sometimes	81	116..07	1.46		
Often	98	132.70	1.54		
Almost always	28	164.55	1.77		
Air Travel					
Never/rarely	109	95.60	1.38	33.81*	.12
Sometimes	92	131.59	1.54		
Often	30	155.38	1.77		
Almost always	9	192.44	2.00		
Meat Consumption					
Never/rarely	114	99.85	1.38	24.75*	.08
Sometimes	77	127.92	1.54		
Often	36	148.11	1.73		
Almost always	12	176.29	2.08		
Water Consumption					
Never/rarely	63	88.81	1.24	18.27*	.06
Sometimes	96	127.72	1.54		
Often	62	133.35	1.62		
Almost always	18	141.97	1.65		
Energy Consumption					
Never/rarely	40	83.51	1.15	20.77*	.07
Sometimes	104	115.66	1.46		
Often	74	139.10	1.69		
Almost always	22	148.07	1.65		

*$p < .001$
Note. $df = 3$

Hypothesis 4: Eco-Anxiety and Pro-Environmental Intentions

The fourth hypothesis postulated that the pro-environmental intentions will significantly correlate with eco-anxiety scores. Pro-environmental intentions were measured through four items on a 4-point Likert scale (1 = ‘never’, 2 = ‘occasionally’, 3 = ‘often’, 4 = ‘always’), in which participants were asked how often they think they would be performing these behaviours in the future.

It was found that participants reported being most likely to proactively choose green electricity products and services (M = 2.62, SD = 0.81), followed by carpooling, walking, cycling or using public trasportation for commutes less than 5 kilometres long (M = 2.57, SD = 0.93), and avoiding eating meat (M = 2.17, SD = 0.98). The behaviour participants stated that they intended to perform the least is cutting down on the amount they fly (M = 1.84, SD = 0.89). Table 9 shows the mean and standard deviations of the four items measuring pro-environmental intentions for the demographic categories.

Table 9
Demographics for Four Pro-Environmental Intention Items

PEI	Cutting Flying		Avoiding Meat Consumption		Carpooling/ Walking/ Cycling/Public Transportation		Green electricity products	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender								
Male	1.80	0.92	1.81	0.91	2.69	1.03	2.61	0.83
Female	1.85	0.89	2.27	0.98	2.54	0.89	2.62	0.81
Age								
18-30 years	1.78	0.83	2.08	0.96	2.75	0.94	2.62	0.78
31-45 years	1.81	1.03	2.23	1.04	2.60	0.89	2.60	0.82
46-60 years	2.00	0.88	2.34	1.00	2.37	0.81	2.70	0.86
61+ years	1.86	0.95	2.00	0.88	1.71	0.83	2.31	0.86
Highest Education								
Secondary	1.68	0.64	2.06	0.91	2.79	0.95	2.33	0.74
Tertiary	1.87	0.92	2.18	1.00	2.54	0.92	2.66	0.82
Work in Environment								
Yes	2.00	1.01	2.45	0.95	3.07	0.93	2.93	0.87
No	1.76	0.82	2.09	0.99	2.48	0.90	2.56	0.78
Unsure	2.43	1.01	2.29	0.83	2.27	0.80	2.40	0.83
Total	1.84	0.89	2.17	0.98	2.57	0.93	2.62	0.81
n	242		242		243		242	

To test the fourth hypothesis, the four pro-environmental intentions items were computed to create a recoded score (M = 2.30, SD = 0.60). A two-tailed Spearman's rank-order correlation analysis was run to determine the relationship between eco-anxiety and pro-environmental intentions for each participant. There was a moderate positive correlation between these two scores, which was statistically significant, $rs(238) = .413$, $p < .001$).

Hypothesis 5: Eco-Anxiety and Pro-Environmental Behaviours

The fifth hypothesis stated that pro-environmental behaviours will significantly correlate with eco-anxiety scores. Pro-environmental behaviours were measured through nine items, in which participants were asked how often they currently performed the given

behaviours on a 4-point Likert scale (1 = ‘never’, 2 = ‘occasionally’, 3 = ‘often’, 4 = ‘always’).

The pro-environmental behaviour that participants reported performing the most was reusing plastic bags (*M* = 3.72, *SD* = 0.57). The behaviour performed the least was buying products with minimal packaging (*M* = 2.81, *SD* = 0.86). The distribution of the nine pro-environmental behaviours for the different demographic groups is summarized in Table 10.

Table 10
Distribution of Demographics on Pro-Environmental Behaviours

PEB	Plastic Bags		TV Off		Short Showers		Minimal Packaging		Full Washing Machine	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender										
Male	3.54	0.69	3.54	0.82	3.04	0.95	2.56	0.93	3.02	1.02
Female	3.78	0.50	3.76	0.58	3.31	0.81	2.88	0.84	3.43	0.73
Age										
18-30 years	3.70	0.56	3.66	0.70	2.97	0.89	2.63	0.94	3.22	0.91
31-45 years	3.75	0.56	3.81	0.45	3.38	0.82	2.88	0.73	3.46	0.61
46-60 years	3.72	0.63	3.69	0.75	3.63	0.59	3.04	0.75	3.43	0.79
61+ years	3.69	0.48	3.69	0.48	3.62	0.65	3.23	0.73	3.62	0.65
Highest Education										
Secondary	3.67	0.60	3.67	0.65	3.21	0.96	2.76	0.83	3.30	0.81
Tertiary	3.73	0.56	3.71	0.66	3.25	0.84	2.82	0.87	3.35	0.82
Work										
Yes	3.82	0.50	3.86	0.46	3.36	0.87	3.09	0.83	3.57	0.70
No	3.70	0.58	3.67	0.68	3.23	0.84	2.75	0.86	3.29	0.83
Unsure	3.60	0.63	3.60	0.74	3.07	0.96	2.67	0.90	3.27	0.96
Total	3.72	0.57	3.70	0.65	3.24	0.85	2.81	0.86	3.34	0.82
n	241		241		241		241		241	

Table 10 (cont.)

PEB	Both Paper Sides		Walking 1-2 kms		Turning Tap Off		Half Flushing	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender								
Male	3.39	0.86	3.17	0.98	3.52	0.91	3.19	0.99
Female	3.58	0.60	2.90	0.87	3.72	0.68	3.17	0.99
Age								
18-30 years	3.57	0.67	3.09	0.88	3.67	0.78	3.01	1.04
31-45 years	3.52	0.64	2.85	0.94	3.56	0.83	3.19	0.99
46-60 years	3.47	0.72	2.85	0.90	3.74	0.68	3.50	0.77
61+ years	3.54	0.66	2.62	0.87	3.69	0.63	3.31	0.86
Highest Education								
Secondary	3.21	0.82	3.09	0.84	3.55	0.91	3.18	0.92
Tertiary	3.58	0.63	2.94	0.91	3.68	0.73	3.17	0.99
Work in Environment								
Yes	3.70	0.51	3.32	0.74	3.68	0.77	3.36	0.90
No	3.49	0.70	2.90	0.90	3.69	0.72	3.14	0.99
Unsure	3.53	0.64	2.67	1.05	3.27	1.10	3.07	1.16
Total	3.53	0.67	2.96	0.90	3.66	0.76	3.17	0.98
n	240		240		241		241	

To test the fifth hypothesis, a score combining the nine pro-environmental behaviours between 1 and 4 was created (M = 3.35, SD = 0.45). A two-tailed Spearman's rank-order correlation test was run to determine the relationship between eco-anxiety and pro-environmental behaviour, resulting in a positive correlation between these two scores, which was statistically significant, $rs(236) = .190$, $p = .003$. The effect size of .190 indicates a very weak positive correlation (Dancey & Reidy, 2014).

Qualitative Themes

Four focus groups were conducted with Maltese participants, two with individuals aged 18-40 years, and two with individuals aged over 40 years. The participant demographics are displayed in Table 1 in Chapter 3. The transcripts were analysed thematically to answer the following qualitative research question and sub-questions, being: ‘How is the ecological crisis experienced by Maltese adults?’

This section outlines the themes and sub-themes that emerged from the four focus groups through abductive thematic analysis (Thompson, 2022). This involved both inductive and deductive analysis of focus group transcripts, with insights emerging from the data and the study’s theoretical framework guiding the analysis respectively.

The following themes emerged following abductive thematic analysis of the four focus group transcripts: Ecology, Coping Potential, Action and Engagement, and Perceived Solutions, together with their sub-themes. The themes, sub-themes and example quotes are presented in Table 11, with each theme and sub-theme being explained further below.

Table 11
Themes, Sub-Themes and Quotes

Theme	Sub-theme	Quotes
Ecology	Maltese ecology	"…there is a lot of potential… our ecosystem is huge with a huge biodiversity" (Axel, 23) "We now understand a farmhouse as being a villa not a farm… Look how much the culture has changed" (Vicky, 59)
	Malta compared to other countries	"I believe that Malta can be fixed, but the feelings of wanting to leave go beyond it… The problems of Malta push you away further" (Jasper, 24)
	How space is used	"…the mentality that everything has to have a function. Why can't a piece of land be left wild?" (Ezra, 59) "I am not against building but not at the expense of losing all the natural beauty we have" (Max, 56)
	Relationship with nature	"Nature is there to provide a service to humans, but not to be abused" (Vicky, 59) "There is a disconnect between who we are as human beings and nature. We don't have an awareness of how dependent we are on nature for our living and wellbeing." (Welma, 54)
Coping Potential	Causes of environmental degradation	"most of the pollution … is from big corporations and government-run corporations" (Mario, 27) "I believe that it is a natural process that happens every so often" (Peter, 60)
	Motives of environmental degradation	"capitalism does not give importance to nature" (Aaron, 23) "greed … too much of everything because of personal gain" (Helen, 41)
	Outcome predictability	"Fear because I don't know what is going to happen in the future" (Kate, 57) "at the end, nature will win, but at the expense of maybe us and the world as we know it" (Vicky, 59)
	Urgency	"My fear is that we are converting people slowly and the damage will still be done" (Max, 56) "The situation is very precarious" (Welma, 54)
	Efficacy VS lack of efficacy	"There is hope, through the skin in our teeth, but we can get through" (Louis, 24) "the level of apathy doesn't lead me to feel any kind of hope" (Una, 25) "what I can do I will do" (Ezra, 59)

Coping Potential (cont.)	Negativity of the media	"someone does something, the media continues as it was before, and it reinforces the idea that we're getting worse, so they lose hope" (Jasper, 24) "raised awareness … more emphasis on the media. … But many times there are many smokes and mirrors" (Louis, 24)
	Politicisation	"politicise agenda of making things more environmentally-friendly" (Rita, 25) "we're using buildings to move our economy. Since we don't have economic differentiation, we are going to have economic problems." (Igor, 41)
Action and Engagement	Pro-environmental intentions	"beach clean-ups or walk more, ride my bicycle" (Isabelle, 22) "To read more and be more aware"" (Ezra, 59) "I burn less fuel if I could … I'd like to use more natural fuels for cooking" (Xavier, 60)
	Pro-environmental behaviours	"instead of staying inside, I go for an hour in open space… for a walk" (Simon, 24) "I use a lot of my time to running a greenhouse" (Axel, 23)
	Costs of and barriers to pro-environmental behaviours	"I'm a car enthusiast, I love my car, so you're going to tell me to buy an electric car? … despite all the incentives there are" (Amy, 26) "Money… and time. I constrain my time cecause there is no money" (Axel, 23)
Perceived Solutions	Need for change	"we need to take care of what greenery is left, arrange what we have, and not reduce the amount we have" (Tania, 34) "We still need to become more aware as to how nature is related to us. That awareness is lacking" (Welma, 54)
	Instigators of change	"I feel that any change that I make won't… be useful as the big corporations are not making changes" (Fiona, 21) "Iit has to come from a political level" (Lydon, 25)
	What is the solution?	"In practicality, what is the plan? Maybe someone forming a new political party?" (Lydon, 25) "We don't know the solution to the problem, and when we don't know the solution, it creates anxiety" (Axel, 23)
	Education and Research	"The media needs to inform the public more about recycling, because… people tell you different things." (Kate, 57) "I wish that it could be more part of children's curriculum" (Max, 56) "Research and availability of this research to people who are not educators in this sector to understand" (Louis, 24)

Ecology

Several participants mentioned ecological features and changes as the first thing that came to mind when thinking about the ecological crisis. This ranged from those that are physical, such as “fields” and “open space” (Simon, 24), “buildings” (Darren, 21; Axel, 23; Kate, 57), “construction” (Skyler, 23; Ezra, 59) and “deforestation” (Igor, 41), to the social, including “over-population” (Simon, 24; Aaron, 23; George, 24; Axel, 23; Vicky, 59), “politics” (Una, 25), “policies” (Simon, 24), and “technological development” (Xavier, 60).

The ‘Ecology’ theme features four sub-themes, being Maltese Ecology, Malta Compared to Other Countries, How Space is Used, and Relationship with Nature.

Maltese Ecology. Participants expressed what they thought to be some of the most pressing issues concerning the Maltese environment. Isabelle (22), Louis (24), Tania (34), Axel (23), Kate (57) and Ezra (59) all mentioned “lack of greenery” and “no trees”. However, Simon (24) stated that local green spaces are available but “people don’t go” and they are “unknown or underappreciated”, despite them being “so beautiful [that] they should be the number one thing we talk about in this country”. Max (56) also professed that there is a “lack of appreciation for the little we have, of ecosystems, biodiversity, habitats”.

The “lack of greenery” is counteracted by “a bunch of buildings” (Isabelle, 22) and the “tendency to build… at the expense of losing all the natural beauty we have” (Max, 56), that is leading to “a lot of green areas… [being] fragmented” (Jasper, 24). This links with the sub-theme ‘How Space is Used’.

Another ecological feature referred to in reference to Malta is its “population density” and “over-population” (Simon, 24). The sub-theme ‘Causes of Environmental Degradation’ tackles this and other perceived causes further.

Malta Compared to Other Countries. As the participants talked about the Maltese ecology, they also compared Malta to other countries. Fiona (21) stated the following, while taping upon how this makes her feel:

> I can't imagine myself in my 40's, looking outside of my window, grey, not being able to breath. When I go abroad, I feel so much better. I can breathe… and it's really disappointing that most probably, my life here is not going to be sustainable. (Fiona, 21)

Some participants in the two 18-40-year-old focus groups mentioned their desire to leave Malta altogether for a "better life with better money" abroad (Simon, 24). Jasper (24) specifically stated their intention to leave as "the problems of Malta push you away further". In fact, the "hope of leaving Malta is the biggest thing that is keeping [him] sane".

Another way in which Malta is compared to other countries is the way through which policy is formulated. Axel (23) stated that Malta tries to imitate foreign policy but "we cannot compare Malta to Dubai". Una (25) and Rita (25) mentioned the lack of Maltese investment in environmental projects and sustainability when compared to other countries.

On the other hand, two participants in the 41+ groups looked at the comparisons between Malta and other countries as a way of being "inspired" by their policies and actions, such as "rewilding" (Max, 56).

How Space is Used. Apart from the problem of "lack of space" (Igor, 41), participants also noted the ways in which Malta's limited space is used. Simon (24) stated that "the biggest projects in this country, in public spending … go to infrastructure… that is totally car-centric", with Amy (26) expressing her disdain to "always [being] surrounded by cars and you cannot catch a break".

The ”tendency to build” (Max, 56) also fits into this sub-theme, as participants professed feelings of “claustrophobia” (Simon, 24), “anger” (Ezra, 59) and being “stifled” by such buildings that makes Ezra (59) “feel the buildings coming on [her] … like there’s a monster on [her]”. Ezra (59) stated this as she noted changes in the environmental landscapes of a particular Maltese locality along the years, which made her feel sad at the loss.

Participants brought up the value of property and its use for speculation. Simon (24) stated that “those around me are building a 5-story block with penthouses”, also adding that this is a “rational economic decision to provide for their families”. More so, some participants professed that they themselves would make such a decision, with Fiona (21) stating that “if [she] were to buy a property and develop it with the salaries there are now, [she] won’t be thinking about the environment. … In the way our society is constructed, you have to fend for yourself”.

Nonetheless, such development was seen as a way in which people “focus on what we are going to gain short-term” (Una, 25) and “just building for the sake of it” (Mario, 27). Igor (41) stated that “we’re using buildings to move our economy”, with Vicky (59) professing that “the biggest issue is the best use of land, not for speculation”.

Relationship with Nature. Some participants explicitly referred to our connection with nature, or rather the:

> disconnect between who we are as human beings and nature. We don’t have an awareness of how dependent we are on nature for our living and wellbeing. There is lack of knowledge of how nature works, and what we need to do to live in symbiosis with nature (Welma, 54).

Tania (34) mentioned us “separating ourselves from nature” as one of the first things that came to mind when thinking about the ecological crisis. She also described our relationship with environmental problems as a “false connection”, especially when such problems are mentioned through media messages that tend to be “not meaningful”. Additionally, they attributed feelings of “environmental anxiety” to “us learning more about what is happening” but emerging “because we don’t feel connected”.

Xavier (60) mentioned a recent encounter he had when visiting a new skyscraper in a Maltese locality, and stated that when they went to this place, “[they] feel that [they] are not in Malta anymore”. This distance from Maltese roots was also raised by Vicky (59), who said: “We now understand a farmhouse as being a villa not a farm … Look how much the culture has changed”. Vicky (59) also tapped into her own roots from “a family of farmers”, professing that she is “using the farmer element within [herself]” through a work-related project she is part of that involves “agricultural activities”.

Noting the controversy of their statement and highlighting the possible ways through which one can have a relationship with the environment, participant Max (56) stated the following:

> I am more ready to tolerate bird hunters because they took care of Mizieb and to a certain extent in their own way bird hunting is how they interact with the environment, even though they kill birds. But they do less damage than other people like developers. (Max, 60)

Simon (24) revealed their way of appreciating nature, which is by going “for an hour in open space … for a walk” “instead of staying inside”, which is one type of pro-environmental behaviour.

Coping Potential

This theme discusses participants' perceptions regarding the causes and motives of the ecological crisis, its predicted outcomes, its urgency, their efficacy or lack of efficacy beliefs, the negativity of the media and politicisation of the situation.

Causes of Ecological Degradation. Participants shared their views on the causes of the ecological crisis. The younger participants did not mention any natural causes. Darren (21) explicitly stated that it is "man-made", including "capitalism" (Aaron, 23), "lack of vision" (Axel, 23; Rita, 25) and corruption of the "whole system" (Una, 25). This contrasts to some older participants, who referred to past events to explain why they view the current ecological crisis as being caused by natural processes:

> Like there was the Ice Age, and things started over again, or when there was the bunch of rain in the Bible, maybe now the world is going to burn. But it would be followed by rebirth, by new beginnings (Vicky, 59)

Nonetheless, other older participants also noted "unsustainability" (Helen, 41) and "technological development" (Xavier, 60) as causes.

Locally speaking, the Maltese "culture" was viewed as a cause for local environmental degradation that tends to promote "laziness" (Jasper, 24), "apathy" (Jasper, 24), and "lack of critical thinking" (Una, 25). "Policies of governments" that are "outdated" (Axel, 23) and car-centric (Simon, 24; Jasper, 24) were also mentioned.

Some participants commented on their views on who is particularly responsible for environmental degradation, and whether it is the individual or the "higher-up's" (Jasper, 24), meaning the government and organisations. Fiona (21) said that she "[doesn't] think it's fair to blame the individual because the people who should be taking care of us are not

empowering us to make these right decisions". This sentiment was also expressed by Simon (24), attributing blame to policy.

Some participants made a distinction between the causes of different environmental problems. For example, Zach (65) stated that the overall global ecological crisis is a "natural" one. However, the "over-production of plastic" and pollution, and the local environmental changes are caused by humans, especially manufacturers. Despite this, Zach (65) noted that "we may not be the actual 100% of the cause. We might be 15%, but we can work on that 15% as well".

Motives of Environmental Degradation. The motives mentioned the most by participants were "greed" (Kate, 57; Peter, 60; Ezra, 59; Zach, 65; Helen, 41) and "money" (Simon, 24; Amy, 26; Aaron, 23; Lydon, 25; Rita, 25; Zach, 65). These motives were described as held by the "people in charge" (Zach, 65), such as politicians, developers and manufacturers.

A difference between generations was noted by Mario (27), who stated that "our generation is becoming more aware, and the older generations kind of try to do whatever to keep its pockets safe". However, participant Axel (23) justified this generational difference as the "generation before… were more attached to nature and in a sense more poor… so when these new technologies came out, they just instantly wanted more… they didn't know that it would end up like this". The notion of generations was also put forward by Max (56), who stated that "we are irresponsible… selfish. Selfish not only for ourselves just to get the most we can but also selfish because we don't think of the generations to come" (Max, 56)

The solutions currently in place were viewed sceptically by Louis (24) and Una (25) who stated that the government is "coming up with projects just to shut people's mouths"

(Una, 25). This was attributed to their "focus on what [they] are going to gain short-term" (Una, 25).

Outcome Predictability. Participants' predictions of the outcome of the ecological crisis have been split into three: positive, negative, and neutral.

Despite being in the minority, some participants expressed their hope for the future. Belief in the current generation's potential to propel "things [to] change" (Simon, 24) was professed by Simon (24), Jasper (24), Kate (57), Xavier (60) and Helen (41) with Xavier (60) and Helen (41) placing hope for a better future in children's hands due to increased awareness and education on the matter.

On the other hand, words and phrases like "bad" (Amy, 26), "going to get worse and worse" (Fiona, 21), "inertia" (Fiona, 21), "the situation is very precarious" (Welma, 59) and "I think it's impossible to go forward and make a change" reflected the prediction of negative outcomes, that resulted in "worry" (Amy, 26) and feeling "hopeless" (Fiona, 21). This was paired with the inability to foretell the future for certain, which led to feelings of "worry" (Amy, 26). "fear" (Kate, 57), "sadness, loss, overwhelmed" (Welma, 54) and being "not too hopeful" (Lydon, 25).

Fiona (21) explained that she did not become vegetarian due to the predicted outcomes of doing so, more specifically, "[she] know[s] that [her] not eating meat is not going to make a difference" and "if [she] change[s] [her] behaviour, it's redundant" (Fiona, 21).

Lastly, some neutral comments were passed regarding the participants' predicted outcomes. George (24), although stating that they are "not too hopeful", continued by stating

“But who knows? We’ll see.”. This is also echoed by participant Vicky (59), who said “anything can happen”.

Urgency. The ecological crisis was described as a “beyond repair” (Helen, 41) and “precarious” situation” (Welma, 54), highlighting the urgency to and need for “drastic change” (Mario, 27). Although some participants reported a “sense of hopelessness” (Welma, 54), they also stated that “[they] don’t think we can afford to give into that” (Welma, 54) and “there is no point feeling helpless” (Ezra, 59) due to the situation’s urgency.

This urgency of the ecological situation is sometimes not reflected in the media, as some types of media “don’t make a lot of emphasis on it” (Isabelle, 22). More so, Max (56) spoke about “converting people” to a more sustainable way of living, and how they think it is happening “slowly and the damage will still be done”. This, they proclaimed, leads to “fear”.

Efficacy versus Lack of Efficacy. Participants cited the individuals and the “higher-ups” (Jasper, 24) as reasons for environmental degradation, with some thinking that unnecessary pressure is put on the individual to better the situation as opposed to governments, companies and developers, while others believing in the potential of the individual. Simon (24) consolidated this agreement by stating that “the people in power… have every incentive and place every incentive on the individual to work against the environment… if not, you get buried” (Simon, 24).

Meanwhile, Fiona (21) expressed that “the people who should be taking care of us are not empowering us to make the right decisions”, and Mario (27) feels “claustrophobia” because “it’s not really in [their] hands unless [they] take a position in government”. Changes made by the individual were perceived as “redundant” and “in vain” “as the big corporations are not making changes” by Fiona (21). Additionally, Tania (34) expressed feeling “hopeless”, questioning “what [they] can do as one individual within the whole population”.

Ezra (59) professed that she found herself "in between helplessness and hope". Although the situation makes her feel "helplessness", she stated that it is "useless feeling helpless", wishes to learn more about the issue, and "if there is a small fraction of what I can do, then I will do it", with such an outlook leading to "hope".

Simon (24) was one of the few who professed being "energised" and "optimistic that there is a possibility that we can do something", signalling high levels of efficacy. They also referred to "the example of a revolution", stating that "it's not impossible for something like this to happen… they happened in the past, and when there was a spark, the thing flipped over completely" (Simon, 24). Reference to past examples of revolutions was also made by Ezra (59), who said that "[they] believe a lot in the individual… to put certain pressure because revolutions have happened". However, they also questioned "how much we are going to do a revolution… when it comes to the environment".

To those who attributed cause for the ecological crisis to natural processes, the situation was viewed as one that is inevitable. For example, Vicky (59) said that "if not one thing, it would be another… it's a cycle". Nonetheless, they pointed out some ways through which individuals can exert their power, such as "buy[ing] less" and "consum[ing] less" (Vicky, 59).

Negativity of Media. The media was mainly portrayed in a negative light as it was appraised as being "manipulating" (Xavier, 60), "not meaningful" (Axel, 23), "politicised" (Skyler, 23; Ezra, 59) and "contradictory" (Igor, 41). Isabelle (22) and Fiona (21) stressed that the media makes them feel "guilty". The "false connection between the media [regarding the environmental situation]… and the person receiving the message" leaves people feeling anxious about ecological degradation as they do not know what the

solution is, and if they do, they think that “it has to be something huge” or “something that someone else has to do” (Axel, 23). This is summarised in Fiona’s (21) quote:

> It doesn’t celebrate the small wins… so you never feel like anything is being done because the good is usually not harped on in the media… It reinforces my idea that whatever I am going to do, it’s never going to be enough. So again, more hopelessness. (Fiona, 21)

The media was portrayed as a contributor to feelings of lack of efficacy by Jasper (24), Fiona (21), Skyler (23), Axel (23) and Igor (41) due to “too much emphasis on negativity” (Jasper, 24), which leads to hopelessness. Nonetheless, George (24) proclaimed that the media is “effective because if it didn’t exist, [he] would know much less. [He] already know[s] very little. Without it, [he] would know nothing basically”.

Also, Louis (24) commended the increased “emphasis on the media” regarding the ecological situation, while Aaron (23) said the opposite in reference to such media: “there aren’t enough people putting it in my face… I feel like it’s not their priority”.

Different types of media were mentioned by participants, including “commercials on Maltese television that inform the public about the Maltese environment” (Helen, 41), documentaries and docuseries made by “Zac Efron” and “David Attenborough” (Vicky, 59), and science fiction “films set in dystopian societies… that present it [the ecological collapse] as a comedy” (Welma, 54).

Politicisation. Apart from the politicisation of the media, participants also labelled "construction" (Xavier, 60) and "buildings" (Igor, 41) as "politicised" industries. More so, participant Rita (25) stated that governments "politicise the agenda of making things more environmentally-friendly" and doing whatever benefits the economy.

When asked to state the first thing that comes to mind when thinking about the ecological crisis, participant Una (25) said "disaster… especially from a political perspective". Meanwhile, participant Vicky (59) mentioned that "the biggest issue is best use of land, not for speculation", tying in with participant Igor's (41) comments on the "lack of space and… using buildings to move our economy".

Action and Engagement

This theme differentiates between intention and behaviour, and later highlights the costs of and barriers to behaviour.

Pro-environmental Intentions. Participants expressed their intention to perform the following pro-environmental behaviours: using the car less (Una, 25; Rita, 25; Xavier, 60) and instead, "use[ing] public transport" (Skyler, 23; George, 24; Ezra, 59), walking more (Una, 25), and cycling (Isabelle, 22; Louis, 24; Vicky, 59). Isabelle (22) stated that they wished to participate in "beach clean-up's", and Rita (25) wished to "consume less... clothes". Two participants professed their desire to "learn more" (Welma, 54) and "read more" (Welma, 54), while four participants wished to get into planting and gardening (Mario, 27; Kate, 57; Peter, 60; Xavier, 60).

Apart from behaviours that are directly pro-environmental, those that encourage others to behave pro-environmentally were also mentioned. One intention mentioned by participant Zach (65) was "trying to get people to act progressively and consume more

ecofriendly packaging". Another was to "put pressure on people who can make big changes" (Aaron, 23).

Pro-environmental Behaviours. Some participants shared the pro-environmental behaviours they currently perform and ways in which they engage with the ecological problem, such as going "for an hour in open space... for a walk" (Simon, 24), "using a lot of [their] time to running a greenhouse" with "10,000 trees" (Axel, 23), recycling (Amy, 26; Kate, 57), reusing paper (Peter, 60) and "agricultural activities" (Vicky, 59).

Costs of and Barriers to Pro-environmental Behaviours. When participants mentioned their pro-environmental intentions, they also discussed what stops them from acting on these intentions, including the costs of behaving pro-environmentally, and the physical, psychological and social barriers to doing so. Participants who expressed their wish to use public transportation listed its inefficiency (Louis, 24; Skyler, 23; Helen, 41), discomfort (Helen, 41), the lack of "necessary precautions to make sure that buses are safe" (Fiona, 21), the time-consuming trips compared to using the car (Tania, 34; Helen, 41), and bad experiences with using it that "kills any effort" (Una, 25) as barriers to performing this pro-environmental behaviour. Amy (26) also stated that their only option is using the car, which makes them feel "hopelessness".

Tying in with this, the mentioned costs of giving up one's car included surrendering the "comfort of arriving behind your door" (Tania, 34). Darren (21) stated that "multiple times [he] thought of switching to a motorcycle... Thinking about it, it is more ecological... traffic-wise it is better", followed by the barriers that stopped him from making the switch: "but... Maltese roads are not safe, the bad weather, people not driving well" (Darren, 21). Louis (24) said that "[he] would go to work with [his] bike, but [he] would be risking [his]

life", while Amy (26) and Vicky (59) quoted health reasons as barriers to adopting this behaviour.

Simon (24) referred to "policy" that "is implemented with the idea of it being car-centric" that acts as a barrier to not using one's car, also noting that "we cannot blame people for using cars". More so, "the people in power... have every incentive and place every incentive on the individual to work against the environment" (Simon, 24) and "are not empowering us to make the right decisions" (Fiona, 21). People are therefore "disincentivised from taking action... because it negatively impacts [their] quality of life" (Simon, 24), because "there's going to be pressure on [them] to not do it" (Jasper, 24) or because the person has no choice (Zach, 65).

Time, money and energy as barriers to performing pro-environmental behaviours were mentioned by Simon (24), Axel (23) and Isabelle (22). Axel (23) expressed his wish to dedicate more time volunteering at the NGO he is part of, but listed "time" and "money" as reasons for not doing so. Also, Simon (24) asked the following rhetorical question: "I am going to take the time to go and do the BCRS?... In my little free time? (Simon, 24). Isabelle (22) said that she would be "so exhausted at the end of the day that the only thing that keeps [her sane... is convenience". Isabelle (22) continued by asking: "I'm going to sacrifice that too?", placing inconvenience as a cost of engaging in pro-environmental behaviours.

Participants who indicated their intention to engage in more gardening mentioned structural features as barriers to doing so, including limited living space (Kate, 57; Peter, 60) and lack of light (Mario, 27; Xavier, 60). The negativity of the media and perceived lack of efficacy were also prevalent in participants' discussions of the barriers to and costs of pro-environmental behaviours, as discussed in previous sub-themes.

Perceived Solutions

This theme tackles the participants' perceived solutions to the ecological crisis.

Need for Change. As Simon (24) said, "most people want solutions". Jasper (24) expressed their belief in the need "to put pressure on policy makers" as "if people are not putting pressure on policy makers to make this kind of infrastructure, then the policy makers don't need to make this infrastructure", referring to environmentally-friendly infrastructure. According to participants, there needs to be more transparency from the higher-ups on why certain decisions are made (Rita, 25; Helen, 41), better planning (Ezra, 59), such as rewilding (Axel, 23; Max, 56), introducing "multiple paths that give a solution to the same problem" (Louis, 24), a reduction in plastic use (Ezra, 59; Max, 56), and "tak[ing] care of what greenery is left, arrang[ing] what we have, and not reduc[ing] the amount we have" (Tania, 34).

Simon (24), Fiona (21), Darren (21) and Axel (23) called for more positive media that "celebrate[s] the small wins" (Fiona) to increase feelings of efficacy. Axel (23) also stated that "policies are outdated" and highlighted the need to update them.

Instigators of Change. Besides the need for change, who is to instigate that change was also debated among participants. Some participants stated that governments, policy makers, manufacturers and developers are to instigate change, while others believed that it is in the hands of the people as individuals during their day-to-day lives, as citizens who participate and put pressure on the higher-ups, and as consumers.

Simon (24) hypothesised that "if we had to have policies that are environmentally conscious, we flip it over. You are incentivised to act environmentally conscious", as opposed to current policies that disincentivise people to behave pro-environmentally. Fiona

(21), Mario (27) and Xavier (60) noted the redundancy of individual action compared to changes made by big corporations.

On the other hand, Jasper (24), Aaron (23), Ezra (59) and Zach (65) stated that "there needs to be pressure on policy makers" (Jasper, 24), "corporations" (Aaron, 23), "governments" (Ezra, 59) and "manufacturers (Zach, 65) by individuals "because revolutions have happened" (Ezra, 59) and "corporations... shift with the public opinion".

Both the individual and the higher-ups were considered to be potential instigators of change according to Tania (21), Kate (57), Ezra (59), Zach (65), Xavier (60) and Welma (54). For example, Welma (54) professed that "it's too complex, from the little I know", but then proceeded to saying that "the institutions, large companies that produce fuel, the military has the biggest carbon footprint. The normal person in the street, it's not in our hands"

Nonetheless, this same participant (Welma, 54) stated their belief in the individual's responsibility, saying that "we need to participate, to be active".

What is the Solution? The following quote said by Lydon (25) sums up this sub-theme: "In practicality, what is the plan?... I don't even know what the solution is".

Participants questioned current solutions being presented, such as electric and hybrid cars. Such a solution was perceived as having "hidden costs" (Aaron, 23), with participants questioning "what is actually pushing this" (Igor, 41) and whether "their production is clean" and "these solutions [are] good" (Xavier, 60). Louis (24) condemned the fact that we are only "focusing on one solution", being electric cars.

Information available on pro-environmental behaviours was labelled "conflicting" (Kate, 57), and the media was portrayed as a contributor to confusion, feelings of inefficacy and deception. Igor (41) also noted that "it could be that 10 years from now, what we believe

turns out to be bad", meaning that the solutions that are promoted today may eventually result in negative impacts that contradict what was expected. Not knowing the solution and whether current solutions will bring about the predicted outcomes "creates anxiety", as Axel (23) stated.

Education and Research. Two proposed solutions for the ecological crisis to prevent future environmental degradation were education and research.
Participants referred to both formal education (Axel, 23; Una, 25; Rita, 25; Kate, 57; Xavier, 60; Max, 65) and the media as a way of raising awareness (Skyler, 23; George, 24; Kate, 57; Helen, 41).

Axel (23) emphasised the need for "research" and "new ideas" (Axel, 23) as precursors to "a restructuring" of "the whole system". This was also proposed by Louis (24), who stated that "information on the impacts" and "effectiveness" of environmental projects should be "translated in a way that... the average Joe could read it and interpret it" so that "people could inform themselves better".

Conclusion

This study sought to explore the participants' experience with eco-anxiety and the ecological crisis using an explanatory sequential mixed-methods approach..

Working in a field related to the environment and climate change was found to be significantly associated with eco-anxiety levels (small effect), while age, gender and highest level of education showed no significant association.

Additionally, eco-anxiety was positively and significantly correlated with exposure to climate change news (large effect), pro-environmental intentions (moderate correlation), and pro-environmental behaviours (weak correlation). Eco-anxiety was also significantly and moderate-to-strongly positively correlated with anxiety felt regarding the seven environmental events (climate change, species extinction, ecological degradation, resource depletion, ozone hole, ocean pollution and deforestation), and moderately and positively with the six personal impacts (carbon footprint, waste production, air travel, meat consumption, water consumption and energy consumption).

The themes that emerged from the focus group analysis incorporated their perceptions towards the global and local ecological situation, their perceived coping potential, pro-environmental intentions and behaviours, the costs of and barriers to behaving on these intentions, and perceived solutions to the ecological crises, with participants expressing their emotions towards these perceptions.

The quantitative and numeric findings from the survey, and the qualitative themes and supporting quotes from the focus group transcripts will be combined to guide the discussion about how eco-anxiety is experienced by the Maltese participants, presented in the upcoming chapter.

Chapter 5: Discussion and Conclusion

Introduction

The purpose of this study was to explore the phenomenon of eco-anxiety as it is experienced by Maltese participants through a mixed methods research design. The findings of the quantitative and qualitative phases will be synthesised and discussed in light of related literature in this chapter. Meanwhile, the limitations, implications and directions for future research will serve as concluding remarks for this study.

Demographics and Eco-Anxiety

The quantitative findings of this study indicated a small but statistically significant difference in eco-anxiety scores between those who work and do not work in an environment-related field. Notably, those engaged in environment-related work exhibited higher eco-anxiety scores. This finding aligns with prior research, which identified eco-anxiety as one emotion reported by individuals working in climate science, and elevated eco-anxiety among environmental professionals (Clayton et al., 2017; Cunsolo et al., 2020; Hoggett & Randall, 2018). This was attributed to their increased knowledge about the ecological crisis, direct exposure to environmental degradation, and the experienced urgency to find solutions.

In conjunction with heightened eco-anxiety, individuals working within the environment field have also demonstrated a tendency to distance themselves from eco-anxiety as a defence mechanism. This encompasses downplaying negative emotions, emphasising positive emotions, and resorting to institutional defenses, which can also be linked to ‘optimism bias’ (Head, 2016; Hoggett & Randall, 2018; Wright & Nyberg, 2012). Some focus group participants, who worked in an environment-related field, reported feeling

"optimistic" and "energised" at the prospect of being able to mitigate the ecological crisis. Considering the literature, we could say that they were either genuinely optimistic about the future of the environment, or possibly unconsciously engaging in institutional defences.

As a form of engagement, individuals may also volunteer their time to an environmental cause, which was the case for one focus group participant who volunteered at a greenhouse as part of an NGO. Ediz and Yanik (2023) found that young climate activists had higher levels of climate anxiety compared to the more moderate levels of non-climate activists, coupled with hopelessness due to a higher level of knowledge about climate change. Such knowledge could have been acquired from education and training, linking with one's field of study and work, or through the media and news reporting, linking with our finding that the higher the exposure to climate change news, the higher the eco-anxiety scores. In fact, the participant who volunteered his time to an environmental cause criticised the media for its negativity and unmeaningful content that tends to portray solutions to the ecological crisis as unknown or as something that others have to do, giving rise to anxiety and hopelessness.

Contrary to findings from previous studies, there were no significant differences in eco-anxiety scores for males and females. Generally, females were found to possess higher risk perception regarding climate change, which has been linked to higher eco-anxiety (Devine-Wright et al., 2015; McCright et al., 2016; Pollack, 2020; Scannell & Gifford, 2013; van der Linden, 2015). Nonetheless, others studies have indicated that females displayed higher engagement through ecologically adaptive responses, which highlights the potential practical nature of eco-anxiety (Casey & Scott, 2006; Dunlap & Brulle, 2020; Ojala et al., 2021; Pickering & Dale, 2023; Wullenkord & Reese, 2021).

Whereas past researchers found that having a higher education was a predictor of higher risk perception and subsequent eco-anxiety, this study found insignificant differences in eco-anxiety scores between participants whose highest level of education was secondary or tertiary (van der Linden, 2015). Age was another demographic variable that was found to bring statistically insignificant differences in eco-anxiety scores among age groups. This contrasted to the findings of Bell et al. (2021), Clayton and Karazsia (2020) and Gifford and Gifford (2016), who found that younger participants reported significantly higher climate anxiety, distress and concern. More so, the latest reports from the Yale Program on Climate Change Communication showed that Gen Z-ers and Millenials were more likely to be in the 'Alarmed' or 'Concerned' groups than older generations, implying greater risk perception that constitutes eco-anxiety (Ballew et al., 2023).

News and Eco-Anxiety

Eco-anxiety can result from subacute exposure, which involves indirectly witnessing the effects of the ecological crisis through mediums such as the media (Cianconi et al., 2020). In fact, Brulle et al. (2012), Loll et al. (2023), Maran and Begotti (2021), and Olausson (2011) claim that media is one of the primary factors influencing eco-anxiety. In the context of this study, a clear trend of increased eco-anxiety scores was strongly and significantly associated with more frequent exposure to climate change news. Furthermore, analysis revealed that a notable 17% of the variance in participants' eco-anxiety scores could be attributed to participants' exposure to climate change news, supporting the claims of Loll et al. (2023), Brulle et al. (2012), Maran and Begotti (2021) and Olausson (2011).

During the focus group discussions, participants delved into their perceptions of the media's portrayal of environmental issues, particularly raising concerns about the media's penchant for highlighting the negative aspects while neglecting to acknowledge the small victories. Interestingly, this tendency was identified as a factor reinforcing participants' belief in the futility of individual actions in the face of the pervasive negative media coverage of environmental issues, leading to feelings of hopelessness and eco-anxiety. It is worth noting that the sense of diminished self-efficacy induced by the media contrasted with the findings of Maran and Begotti (2021), who identified a positive correlation between paying attention to information about climate change and efficacy beliefs.

Other participants also offered critical insights into the portrayal of environmental issues in the media, characterising it as manipulative, contradictory, full of biases, self-serving and highly politicised. These observations aligned with the concerns raised by the Intergovernmental Panel on Climate Change, which has warned against disinformation and misinformation circulating within the media that can mislead media consumers, foster polarisation, instigate paralysing eco-anxiety and hinder climate action (Intergovernmental Panel on Climate Change, 2023). Consequently, there is a clear imperative for more responsible and effective media reporting, as well as for further investigations into the intricate relationship between different types of media content, eco-anxiety, and pro-environmental behaviour.

In pursuit of a more informed and engaged public, Innocenti et al. (2023) advocate for the accessibility and comprehensibility of knowledge to all individuals. Notably, some participants emphasised the importance of translating research and education in a manner that the general public can easily understand and interpret, thereby enabling individuals to empower themselves with better-informed choices. Indeed, Lamb et al. (2020), Ojala (2012)

and the United Nations (2022) support a more opportunity- and meaning-focused approach in media reporting.

Another perspective that emerged from focus group participants' discussions pertained to the perceived lack of meaning in environmental news. This lack of meaningful connection between the media and its audience can engender eco-anxiety, as individuals may find themselves without a clear solution or harbour the belief that any solution must be grand in scale and executed by external actors. This can be linked to the habituation of "news about various overwhelming environmental and social problems" that may strip the news from its relevance and meaning to the viewer, resulting in environmental numbness and paralysing eco-anxiety (Moser, 2007, p. 68; Scherer, 2001; Gifford, 2011). To address this issue, Dahlstrom and Rosenthal (2018) and the National Academies of Sciences, Engineering, and Medicine (2017) advocate for the incorporation of narratives within environmental media that present content with greater significance.

Cause and Responsibility

Within Scherer's Appraisal Theory (2001), one crucial aspect pertains to the appraisal of the causes behind a particular situation. Such appraisal involves categorising the situation as a result of one's actions, the actions of another entity, or as a consequence of natural phenomena. This assessment of causality subsequently exerts a significant influence on the emotional response experienced.

A subgroup of participants in our study viewed the ecological crisis as a natural process, referencing historical events like Ice Ages and Biblical narratives to justify this perspective. They also perceived ecological collapse as an inevitable outcome, regardless of

mitigation efforts. This can be viewed as a form of psychological distancing, which Spence et al. (2012) characterised as a defense mechanism to absolve humanity of collective responsibility for the ecological crisis.

In terms of categorising these participants within the 'Six Americas' framework, one might place them within the 'Doubtful' group, given their belief that climate change is a part of a natural cycle. This would also imply that they do not perceive climate change as a significant risk. However, it's noteworthy that these same participants discussed some of the environmental issues they believed Malta is currently facing, the pro-environmental behaviours they were presently engaging in, and their aspirations to partake in more eco-friendly actions. These expressions hint at a level of risk perception and a belief in the efficacy of personal actions in mitigating environmental concerns, contrary to the typical beliefs characterising the ‘Doubtful’ group.

These paradoxical views held by these participants, wherein they attribute environmental degradation to natural causes but also acknowledge a level of risk perception and a commitment to pro-environmental behaviours, can be elucidated by a participant’s unique perspective on personal responsibility in relation to the cause of the ecological crisis. Specifically, this participant made a distinction between the global ecological crisis, which he perceived as naturally driven, and more localised environmental challenges stemming from human activities. Furthermore, the participant underscored humanity's responsibility in addressing these local environmental issues, even when not entirely being the cause. This nuanced viewpoint underscores the multifaceted nature of the ecological crisis, with various components being appraised, experienced, and addressed differently.

Furthermore, an age-related pattern in causal attribution was observed. The focus group participants that attributed environmental changes to natural processes were all over

the age of 40. Meanwhile, all younger participants emphasised human causes, including irresponsibility, a capitalist mentality, and a lack of long-term planning. This is supported by Hickman et al.'s (2021) study, which found that younger individuals were more likely to believe in human-caused environmental degradation.

However, human causes and motives were also discussed by older participants, with older participants expressing anger at humanity's level of greed, and emphasising their disgust towards the way we treat the environment due to our irresponsibility and selfishness over future generations. This reflects diverse perspectives on the crisis's origins and subsequent emotional responses.

Participants indicated a distinction between individual and large-scale efforts when discussing responsibility for ecological crisis mitigation and solutions. This separation between the 'self' and the 'other,' as explained by Self-Categorisation Theory (Turner, 1985), mirrors Scherer's differentiation between causal attribution to the 'self' and 'other' and their impact on emotions and actions. Participants perceived the 'self' as individuals, consumers, or citizens through the use of words such as "we" and "everyone" when discussing responsibility, contrasting with the 'other' category encompassing governments, manufacturers, and companies through their use of "they" and "them". The latter was said to wield greater power, with participants expressing apathy at their beliefs in the redundancy of individual behaviour compared to more large-scale efforts performed by the 'other'. Such beliefs may reduce feelings of environmental self-efficacy, leading to paralysing eco-anxiety.

The media was portrayed as guilt-provoking by some participants, which Kurth and Pihkala (2022) classified as eco-anxiety's self-reflective response. This self-reflective response of eco-anxiety entails individuals feeling responsible for harming something that is ecologically significant, oftentimes leading to actions to make amends for this harm.

However, participants continued by expressing feelings of hopelessness due to the perceived ineffectiveness of individual action, with one participant stating that they did not adopt a vegetarian diet because they viewed them not eating meat as a redundant action in fighting climate change compared to more large-scale change. This links with Eckersley's (2008) concept of “apocalyptic nihilism”, a defeatist approach that results from the perception of personal actions as futile, while lacking reassurance by the actions taken by oneself and by others to reduce the threat (Hickman, 2020; Lorenzoni et al., 2007). From an existential perspective, Norgaard (2011) views this attitude as a form of diffusion of responsibility, which stems from the global nature of the ecological crisis and resulting perception that personal action is not urgent or necessary (Norgaard, 2011). This can also be said to be a barrier to adopting pro-environmental behaviours.

On this note, participants stated that blame is disproportionately put on individuals, when it is the actions of the ‘other’, being large entities, that are really to blame and that can make a difference. They continued by stating that the decisions taken by these large entities, in turn, influence individuals’ behaviour, with participants saying that the top-down policies put in place do not empower individuals to make the right decisions, incentivising those working against the environment and vice-versa. Such claims point towards the systemic causes of poor self-efficacy beliefs and paralysing eco-anxiety.

Participants also criticised large corporations, governments, and manufacturers for their insufficient efforts in tackling the ecological crisis, while prioritising financial gains and short-term outcomes. This viewpoint was substantiated by the Eurobarometer survey, revealing that many Maltese participants believed their national government was not doing enough to combat climate change (European Commission, 2023). Such findings exemplify lack of collective efficacy beliefs. Conversely, the Eurobarometer survey also found that

Maltese individuals put greater emphasis on individual action and responsibility when compared to the EU average, although they also placed responsibility on governments, businesses, environmental groups and the European Union. Therefore, Maltese participants view their government as contributors to the ecological crisis, while also giving importance to their personal contributions to fighting climate change. This juxtaposition was also noted in participants' discussions regarding the instigators of change.

With regards to proof regarding the effectiveness of individual action, authors and experts have debated the role that individual action plays in mitigating environmental degradation, and whether it is to be encouraged over higher-scale action, such as that from governments. For example, Hiller (2011) presents moral and philosophical arguments in favour and against individual action effectiveness, concluding that individual causal responsibility and action may act as a stepping stone to collective and political action. Therefore, it can be assumed that high self-efficacy beliefs may stimulate high collective efficacy, with both having been linked with practical eco-anxiety and pro-environmental behaviour (Homburg & Stolberg, 2006). In line with this, participants mentioned the need to put pressure on manufacturers to produce environmentally-friendly products by actively not purchasing their current environmentally-unfriendly products, which is an example of how individual behaviour can accumulate into a collective effort.

Participants acknowledged the conflicting information surrounding environmentally-friendly solutions, leading to uncertainty, paralysing eco-anxiety and a lack of motivation to adopt pro-environmental behaviours. Some solutions mentioned included conservation and rewilding, better planning and reduction in plastic use. Again, who is to act on these solutions, and whether these solutions are effective, remained questionable. Difficulty in establishing solutions is indeed a characteristic of a global super-wicked problem, as

proposed by Peters (2018), with a participant positioning eco-anxiety as a response to this difficulty.

The conduciveness of electric vehicles was also questioned by some participants, who doubted whether they are environmentally-friendly in the first place and whether this personal behavioural change is necessary and effective. Although Gifford (2011) acknowledges the existence of conflicting information on electric vehicle use and their impacts, he also lists the uncertainty of risks evoked by new green technology as a dragon of inaction, given the obstructive nature of this uncertainty on adopting more pro-environmental behaviour. This links with a participant's argument regarding the need for more research and scientific communication on possible environmentally-friendly solutions, that could ease paralysing eco-anxiety and empower individuals to make more well-informed choices.

Anxiety about Personal Impacts

Linked to the above, the quantitative survey captured participants' anxiety about their personal impacts, specifically being asked to rate how anxious they feel about their waste production, carbon footprint, energy consumption, water consumption, meat consumption and air travel.

When applying Scherer's Appraisal Theory (2001) to this construct, together with anxiety about environmental events discussed later, it could be assumed that high anxiety about these environmental events and personal impacts may emerge from perceiving them as relevant, uncertain, urgent and inconducive to one's desire of environmental stability and of reducing environmental degradation, and as possibly posing limited ability for one to exert their power to reduce their personal impacts on the environment.

With regards to personal impacts, participants were most anxious about their waste production, and least anxious about their air travel. There was a significantly moderate positive correlation between anxiety about the six personal impacts and eco-anxiety. Moreover, eco-anxiety scores of participants with different levels of anxiety about the six personal impacts were statistically different, with anxiety about one's carbon footprint and one's waste production having the largest significant effects on eco-anxiety scores.

Linking to participants' anxiety about their waste production, the Eurobarometer survey found that the vast majority of Maltese participants engaged in waste reduction and recycling (European Commission, 2023). Waste separation was also the environmental contribution Maltese participants reported the most in the Environmental Attitude Survey (Environment and Resources Authority, 2020). Although the link between anxiety about one's waste production, and engagement in waste reduction and separation behaviours was not tested in this study, it can be assumed that being anxious about producing waste may lead to practical eco-anxiety, which in turn may stimulate engagement in waste reduction and separation, therefore pointing towards the potential enabling nature of eco-anxiety. Conversely, lack of self-efficacy and/or high costs of reducing waste may result in paralysing eco-anxiety, reducing the chances of adopting such pro-environmental behaviours.

Meanwhile, considering the carbon footprint of one's transport when planning a holiday was the least performed action reported by Maltese participants (European Commission, 2023). This study produced a similar finding, with participants scoring the lowest on anxiety about their air travel. This may imply the low relevance of the environmental impacts of air travel to an individual, that leads to its inconsideration.

Anxiety about Environmental Events

The quantitative survey investigated participants' anxiety about environmental events, including climate change, species extinction, ecological degradation, resource depletion, the ozone hole, ocean pollution and deforestation. Participants were most anxious about deforestation and ocean pollution, and least anxious about climate change and the ozone hole. However, anxiety about climate change was found to have the largest effect on eco-anxiety scores. There also was a positive correlation between anxiety about the seven events and eco-anxiety. Meanwhile, anxiety about the ozone hole contributed the least to eco-anxiety scores. A focus group participant specifically mentioned the ozone hole and how, through large-scale effort, it has started to heal due to the global ban of CFCs. This global initiative and its apparent positive environmental effects could explain the low anxiety about the ozone hole and its least contribution to eco-anxiety.

The high anxiety about deforestation ties in with the first thing that some participants thought of when thinking about the ecological crisis, which in fact was "deforestation". This also links with "lack of greenery" and "no trees" being mentioned as some pressing environmental issues Malta is facing. This ties in with the high levels of worry about the country's natural environment, and concern for the loss of nature, species, habitats and trees reported by Maltese participants in the Environmental Attitudes Survey (Environment and Resources Authority, 2020). Ocean pollution was another thing that participants worried about often in this attitude survey, with ocean pollution being the second most environmental event that participants were anxious about in this study. Given that deforestation, species extinction and ocean pollution were three environmental events that each had a large effect on eco-anxiety scores, it could be said that eco-anxiety as experienced by Maltese individuals constitutes anxiety towards these specific environmental events.

Focus group participants also commented on the fact that natural spaces are being taken over by buildings and infrastructure. In fact, Maltese participants were the most to profess that they find it difficult to access nature and green spaces compared to the other 26 EU member states (European Commission, 2023). This trumps Maltese individuals' ability to satisfy their need for connection to nature, which Passmore et al. (2022) and Wilson (1986) view as essential for our wellbeing. Being disconnected from nature can indeed be a precurser to eco-anxiety (Wullenkord et al., 2021; Passmore et al., 2022). In line with this, some participants expressed sadness, loss and claustrophobia at the fact that Malta's natural landscapes are changing and being replaced by buildings. Kurth and Pihkala (2022) discuss the grief-oriented response to eco-anxiety, which is precisely the responses these participants had towards ecological change. Meanwhile, their proclaimed appreciation of nature for its intrinsic value, condemnation of viewing nature as having a function, and need for a connection with nature made the situation inconducive to their needs, which can be said to result in grief-oriented eco-anxiety (Kurth & Pihkala, 2022).

Apart from the loss of natural spaces, participants also acknowledged that individuals are incentivised to build for economic profit, which is affecting the Maltese environment. In fact, this links with what some participants said about being incentivised to work against the environment, and how this acts as a barrier to working in favour of the environment. Interestingly, the vast majority of respondents in the Environmental Attitude Survey thought that construction in Malta should be controlled according to environmental needs (Environment and Resources Authority, 2020). Therefore, given these positive attitudes towards environmentally-friendly construction and use of land, and the current economic disincentives to building in an environmentally-friendly way, it could be said that individuals and developers would be more likely to consider the environment when economically

incentivised to do so through environmentally-conscious policies. These policies would allow individuals to behave pro-environmentally and act on their pro-environmental intentions through practical eco-anxiety, while decreasing the costs (Kaiser et al., 2010)

Pro-Environmental Intentions and Behaviours

According to the Campbell Paradigm of Attitudes, one is first to intend to act before performing the intended behaviour (Kaiser et al., 2010). This paradigm also posits that an individual can intend on performing mitigating actions or stopping actions currently being performed that harm the environment, but may not actually follow through (Kaiser et al., 2010). What determines whether someone acts on their pro-environmental intentions depends on the costs of acting and attitudes towards acting, with such attitudes including one's emotional response towards the ecological crisis.

Starting from the quantitative findings on pro-environmental intentions, participants reported being most likely to proactively choose green electricity products and services, followed by carpooling, walking, cycling or using public transportation for commutes less than 5 kilometres long, avoiding eating meat and cutting down on flying, respectively. From these results, it could be assumed that proactively choosing green electricity products and services is perceived in a more positive light and requires lower costs than using other means of transport rather than one's private car.

After waste separation, participants in the Environmental Attitudes Survey chose using energy-saving lightbulbs and investing in PV and solar water heaters as environmental contributions they focus on, which also points towards the relative easiness of such

behaviours and positive attitudes towards their effectiveness (Environment and Resources Authority, 2020).

Some of the pro-environmental intentions that focus group participants reported having included using public transport, walking and biking as opposed to using one's car, consuming less, putting pressure on people who can make large-scale changes, participating in beach clean-up's and gardening. One participant also mentioned her desire to speak about environmental issues more, and how their experience in the focus group made them realise its importance. In fact, Norgaard (2006) and Ojala (2012) call for open conversations about the ecological crisis and how individuals are emotionally, socially, psychologically and behaviourally experiencing it, to fight socially organised climate change silence and denial, and transform paralysing eco-anxiety into its practical form.

Interestingly, the frequency of pro-environmental intentions was significantly and moderately positively correlated to eco-anxiety scores. Whether having pro-environmental intentions and having high eco-anxiety leads to pro-environmental behaviour was beyond the scope of this research study. However, environmental efficacy has been found to be an important factor in such a relationship, given its moderating effect between risk perception and ecologically adaptive behaviour performance (Higginbotham et al., 2014; Innocenti et al., 2023; Mead et al., 2012). Low environmental efficacy can lead to paralysing eco-anxiety, that in turn halts an individual from acting on their intentions to behave in a pro-environmental manner (Albrecht, 2019; Kurth & Pihkala, 2022; Sackett, 2019). This was evident when one participant expressed their intention to adopt a vegetarian diet, only to later abandon the idea due to their low self-efficacy and the belief that this individual action would have little impact.

With regards to pro-environmental behaviours already being performed by participants, the behaviour that participants reported performing the most was reusing plastic bags, with buying products with minimal packaging being performed the least. Once again, the Campbell Paradigm of Attitudes would assume that reusing plastic bags is the behaviour that incurs the least costs and that is the most positively appraised (Kaiser et al., 2010). On the other hand, buying products with minimal packaging seemed to be the behaviour that participants perceived the least positive and effective, and being outweighted by its high costs (Kaiser & Wilson, 2019). This can be viewed as an example of tokenism, which Gifford (2011) described as a dragon of inaction that entails individuals choosing easier actions over more-costly ones.

Some participants stated that they recycle and separate waste, which was the environmental contribution Maltese participants said that they focused on the most in the Environmental Attitudes Survey (Environment and Resources Authority, 2020). The Eurobarometer survey also found that the vast majority of Maltese participants engaged in recycling. The least environmental contribution they focused on was volunteering with an environmental non-governmental organisation (European Commission, 2023). In fact, only one focus group participant stated that they volunteer with an environmental NGO.

Connecting with nature is a type of ecologically adaptive response, which may imply pro-environmental values and an environmental self-identity, two contructs that have been found to be associated with pro-environmental behaviour (Andrews & Hoggett, 2019; Balundė et al., 2019; Nordlund & Garvill, 2002; Steg et al., 2014; van der Werff et al., 2013). However, pro-environmental values have also been found to be associated with higher levels of climate anxiety (Clayton & Karazsia, 2020; Searle & Gow, 2010). Therefore, the positive correlation between eco-anxiety and pro-environmental behaviours found in this study, which

coincides with findings from Mathers-Jones and Todd (2023), Ogunbode et al. (2022) and Verplanken and Roy (2013), may be explained by participants' practical eco-anxiety alongside strong pro-environmental values and high environmental efficacy.

Eco-anxiety has also been found to hinder pro-environmental action due to its paralysing effect. This is especially the case when the ecological crisis is appraised as uncertain and high risk, and one's coping potential as futile (Albrecht, 2019; Innocenti et al., 2023; Sackett, 2019). Although eco-anxiety and pro-environmental behaviour were found to be positively correlated in this study, the correlation was weak, which could imply a form of paralysing eco-anxiety that weakened this relationship.

Besides ecologically adaptive responses, focus group participants also mentioned some ecologically maladaptive responses they engage in, such as non-action and the continuation of actions that harm the environment, despite wishing to behave more pro-environmentally (Andrews & Hoggett, 2019; Koh, 2016; Nisbet, 2009; Taylor, 2020; Ursano et al., 2017). The Campbell Paradigm of Attitudes attributes this process to the high costs of ecologically adaptive responses that outweigh pro-environmental attitudes, while Andrews and Hoggett (2019) attribute this to avoidance coping and defence mechanisms, stemming from paralysing eco-anxiety and further fuelling this emotion (Kaiser et al., 2021).

One cost of pro-environmental behaviour is its implied changes to one's lifestyle and habits. This was noted by focus group participants, with some stating that they did not want to change their current habits, such as using their car, due to their convenience, efficiency, safety and timeliness compared to more ecologically adaptive behaviours, such as using public transportation. More so, the disbelief in the effectiveness of pro-environmental behaviours, which was reported by some focus group participants, implied negative attitudes towards ecologically adaptive responses and their environmental value, contributing to poor

self-efficacy beliefs. In fact, Bandura (2007) stated that lack of efficacy in the face of threats stimulates a high anxiety response, which in this case, would be classified as paralysing eco-anxiety. Despite these accounts, the vast majority of respondents in the Environmental Attitude Survey stated that they were willing to change their lifestyle in order to help improve the environment (Environment and Resources Authority, 2022).

An interesting observation made was that no focus group participants mentioned the effect of social norms on their environmental behaviours. Meanwhile, social norms and costs of behaving against the status quo are discussed in both the Campbell Paradigm of Attitudes (Kaiser et al., 2010) and Scherer's Appraisal Theory (2001). More so, Fehr and Schurtenberger (2018) describe the ecological crisis as a psychosocial issue, with responses being maintained by social norms and culturally sanctioned if non-normative.

Limitations

The limitations of this study are to be considered when interpreting its findings. Firstly, non-probability sampling techniques were used to recruit participants for both the quantitative and qualitative phases, leading to selection bias that reduced the sampling validity of the findings (Trochim & Donnelly, 2008). The sample composition in the quantitative phase was unbalanced in terms of gender, age and highest education level, with a disproportionate number of participants with differing education levels and unequal distribution for age also being noted in the qualitative phase. Therefore, the findings cannot be generalised to the entire Maltese population, limiting their external validity (Cook & Campbell, 1979; Jager et al., 2017). Also, both the questionnaire and the focus groups involved the collection of self-reported data which is prone to response bias stemming from

misunderstanding of questions and responses, to social desirability bias (Rosenman et al., 2011).

In the quantitative phase, some participants had missing data, affecting the statistical test results, despite the removal of those with incomplete questionnaires (20% of items or more). Also, the use of non-parametric tests limited the power of the results (Siegel & Castellan, 1988). Additionally, the measurement of 'pro-environmental intentions' and 'pro-environmental behaviours' using selected items from standardised scales rather than the complete scales posed a limitation to the constructs' validity. Nonetheless, computed measures were created for analysis while acknowledging these limitations. More so, the construct and content validity of the standardised Hogg Eco-Anxiety Scale (2021) using Cronbach's Alpha could only be assessed after data collection.

This study could not establish causality or changes over time. Participants' eco-anxiety scores may have been influenced by recent ecological events, making the data time-sensitive. Additionally, qualitative thematic analysis is susceptible to reductionism, where rich data is simplified into limited themes, potentially losing depth and nuance (Braun & Clarke, 2006). More generally, qualitative data analysis is inherently subjective as researchers bring their own perspectives, biases, and preconceptions to the analysis process. These biases must be and were managed through researcher reflexivity (Braun and Clarke, 2006).

To conclude, eco-anxiety is a broad construct that has been explained through and studied from various psychological standpoints and beyond, being influenced by and influencing various variables, such as media and pro-environmental behaviour respectively. Therefore, the scope of this study’s research questions was narrow compared to the breadth and depth of eco-anxiety, mainly due to time and resource constraints. Yet, the findings of

this study present certain implications, while providing an avenue for future research on eco-anxiety with differing research designs and research questions, further explained below.

Implications

Despite these limitations, these results suggest several theoretical and practical implications. Firstly, it highlights the importance of recognising and engaging with eco-emotions to instil ecologically adaptive responses and buffer against maladaptive reactions, (Albrecht, 2011; Weintrobe, 2013; Norgaard, 2006; Ojala, 2012). It also corresponds with Pfister and Böhm's (2008) call for the use of concrete emotions with regards to the emotional responses towards the ecological crisis to be distinguished, with this study particularly focusing on eco-anxiety.

This study also suggests demographic differences in eco-anxiety experiences. For example, the higher eco-anxiety in individuals working in an environment-related field, as found in other studies, underscores the role of exposure, knowledge, expertise and responsibility in driving eco-anxiety. More so, the expression of optimism by focus group participants who worked in an environment-related profession, coupled with previous research indicating high utilisation of defense mechanisms in such individuals, calls for further research to delve into the experiences of individuals working in such fields, including their level of eco-anxiety alongside their professional role and its implications.

More so, this finding warrants further exploration to identify which comes first: the choice of work or the eco-anxiety. Irrespective of the cause-and-effect relationship, this finding calls for work-based interventions that target employees' mental health through stress management programs and resilience-building training, while supporting employees in

translating their concerns and paralysing eco-anxiety into meaningful contributions through practical eco-anxiety.

The focus group participants' expressions of concern, worry, anxiety, fear, anger, claustrophobia, sadness, and hopelessness emphasised the emotional toll of eco-anxiety and the ecological crisis, indicating the importance of incorporating emotional regulation, coping strategies and resilience into therapeutic interventions. Indeed, mental health practitioners have expressed an increase in individuals seeking therapy due to eco-emotions (Hickman, 2020). This influx of individuals experiencing eco-emotions and seeking professional help has fostered the need for ecotherapy, which involves “psychotherapeutic activities… undertaken with an ecological consciousness or intent” (Doherty, 2016). Additionally, recognising the perceived ineffectiveness of individual actions in the face of large-scale environmental changes suggests the potential benefit of collective and community-based therapeutic approaches to empower individuals and foster a sense of collective efficacy in addressing ecological concerns.

Previous research supports this study’s finding of eco-anxiety’s positive correlation with news exposure, and the hopelessness that the media instils within individuals. This implies media’s negative effects on consumers’ emotional wellbeing. As focus group participants noted, individuals may find it overwhelming to process the constant influx of negative information, potentially leading to anxiety and fatigue. What was not studied or discussed in this research was the potential of the media as a motivator for action, which coincides with the Maran and Begotti’s (2021) finding of a positive correlation between paying attention to information about climate change, and individual and collective efficacy.

Nonetheless, this finding underscores the importance of responsible reporting and balanced coverage that not only highlights challenges but also offers solutions, opportunities

and positive examples. This may lead to more meaning-focused coping strategies and eco-consciousness, in which scientific information is communicated in an understandable, relatable, relevant and motivating way, presenting the urgency of the ecological crisis while emphasising both the problem and its potential solutions, together with the opportunities it brings (Dahlstrom, 2014; National Academics of Sciences, Engineering and Medicine, 2017; Ojala, 2012; Lamb et al., 2020; United Nations, 2022; Lin & Chang, 2012; Sharma & Kesherwani, 2015).

Apart from instilling meaning-focused coping, the media also plays a role in influencing viewers' perceptions, opinions and emotions towards the ecological crisis. Therefore, careful attention is to be taken by media houses to fight off disinformation and misinformation, while presenting factual and effective media messages (Intergovernmental Panel on Climate Change, 2023). More so, encouraging media literacy and helping individuals to filter and manage the information they consume can be beneficial.

Focus group participants emphasised the lack of and need for open green spaces in Malta, as also highlighted in the Eurobarometer survey (European Commission, 2023). This finding aligns with theories related to urban planning and environmental psychology, such as the restorative environment theory (Clayton, 2012; Gifford & Sussman, 2012; Joye & van den Berg, 2018; Rosa & Collado, 2019; Wilson, 1986; Xie et al., 2022). This theory supports the idea that people have an innate connection to nature and that access to green spaces can have positive psychological and emotional effects, therefore calling for collaboration between health authorities and urban planners to prioritise green infrastructure that prioritises residents' needs and is accessible by all.

Additionally, the lack of open green spaces in Malta may affect the sense of place and attachment that residents feel towards their environment. Theoretical frameworks related to

sense of place, place attachment, and place identity can be applied to understand how the absence of green spaces influences people's connections to their surroundings, and as justifications for the need for green spaces.

Another implication of this study, this time related to focus group participants' uncertainty of the effectiveness of individual action compared to more large-scale changes, highlights a need to consider perceived self-efficacy and collective efficacy theories (Bandura, 1997; 2007). These findings also call for educational initiatives and climate literacy programs that clarify the role of individual actions in climate change mitigation and empower more informed choices. Environment-related messages should also be framed in a way that emphasise the interconnectedness of individual and collective actions, and encourage collaboration between citizens, governments, and businesses.

On a more national and international level, the focus group participants' accounts on the barriers to behaving pro-environmentally call for the development of policies and incentives that encourage sustainable practices within both individual and corporate contexts, which would in turn stimulate collective efficacy, and eventually, self-efficacy.

Directions for Future Research

The present study represents a first attempt at exploring eco-anxiety within the Maltese population. Its findings offer valuable insights into the complex interplay between eco-anxiety and environmental perceptions, perceptions of the self in relation to the environment, and attitudes towards environment-related behaviours in the Maltese population. However, the multifaceted nature of eco-anxiety and its implications suggest several promising avenues for future research.

If, as the present study suggests, individuals working in an environment field experience higher eco-anxiety, then there is a need for research that explores this further to provide insights into the role of education and field of study in shaping eco-anxiety levels. Such research could target these individuals to identify the defense mechanisms they employ, if any, and whether high eco-anxiety drives individuals to seek ecologically adaptive employment, or vice-versa.

Much work remains to be done before developing a full understanding of the extent of age and gender on eco-anxiety to provide a comprehensive overview of the diverse eco-anxiety experiences across different demographic groups. This is especially the case given the lack of significant differences between age groups, and males and females on eco-anxiety scores found in this study, contrasting with previous literature that suggests otherwise. These relationships could be investigated through the inclusion of potential moderating factors, such as self- and collective efficacy, that could help explain the relationships' strength and direction.

The same applies to the relationship between eco-anxiety and education. Indeed, education can be linked to one's type of profession, given that working in an environment-related field requires specific education and training. Therefore, future research could also explore the relationship between eco-anxiety and one's specific field of study, identifying what fields correlate with eco-anxiety, why, and what comes first.

Hickman's (2020) conceptual framework that categorises eco-anxiety into four levels calls for further research on the relationship between these categories and Maltese individuals' wellbeing. This exploration can shed light on how eco-anxiety severity impacts emotional and psychological health. The classification of the 'Six Americas's by Leiserowitz

et al. (2009, 2022) also exposes the link between political ideology and climate change beliefs, that may be investigated within the Maltese population in future research.

There is a need to delve deeper into the effects of eco-anxiety on individuals' intentions and actions, given the paralysing and practical forms of eco-anxiety scholars have proposed (Kurth & Pihkala, 2022). This study found a positive correlation between eco-anxiety and pro-environmental behaviours, but the weak correlation suggests the presence of paralysing eco-anxiety. Research should identify the variables that influence the relationship between eco-anxiety and action, together with the mechanisms distinguishing paralysing from practical eco-anxiety. Additionally, this could include investigating the role of risk perception, environmental self-efficacy, pro-environmental values, coping strategies, social norms, and the social, psychological and structural barriers that hinder individuals from translating their pro-environmental intentions into actions (Higginbotham et al., 2014; Mead et al., 2012; Innocenti et al., 2023). This could also be paired with the discovery of factors that encourage eco-friendly behaviours that could establish effective interventions and policies.

Lastly, to gain a deeper understanding of how media influences eco-anxiety, future studies could delve into the various categories of media messages related to the ecological crisis. Investigating the emotional, psychological, and behavioural impacts of different message types and framing strategies is essential for crafting effective communication strategies that could stimulate practical eco-anxiety, meaning-focused coping strategies, environmental efficacy and ecologically adaptive responses to the ecological crisis.

These proposed directions for future research aim to build on the existing knowledge about eco-anxiety and its impact on individuals and societies. By investigating these areas, researchers can contribute to a more comprehensive understanding of eco-anxiety and its

complex relationship with environmental perceptions, efficacy beliefs, values, identity and pro-environmental behaviours, ultimately guiding effective strategies for addressing ecological challenges in a psychological, emotional and collective way.

Conclusion

In conclusion, this dissertation explored the multifaceted dimensions of eco-anxiety within the Maltese population using an explanatory sequential mixed methods research design, therefore triangulating quantitative and qualitative data. Quantitative surveys that investigated relationships between variables were followed by qualitative focus group discussions that revealed thematic insights into the participants' perspectives, with the themes of Ecology, Coping Potential, Action and Engagement, and Perceived Solutions emerging from the abductive thematic analysis.

One key finding was the noteworthy difference in eco-anxiety scores between individuals working in climate-related jobs and those who do not. Those engaged in such fields displayed higher eco-anxiety scores, pointing to the potential impact of occupation on eco-anxiety levels.

This study also revealed a moderate-to-strong positive relationship between the frequency of exposure to climate change-related news and the level of eco-anxiety. As participants reported higher eco-anxiety scores with increased news consumption, the media's role in shaping eco-anxiety became evident. Focus group participants acknowledged the increased awareness brought about by the media, but also criticised its focus on negativity and describing it as manipulating and contradictory while lacking meaning for the media consumer. This lack of meaning diminished feelings of hope and efficacy, and brought about eco-anxiety.

Eco-anxiety was found to be associated with concerns about specific environmental events and personal impacts. Notably, the environmental events of climate change, ecological degradation, deforestation, species extinction, ocean pollution and resource depletion, and the

personal impacts of one's carbon footprint and waste production, were identified as the primary sources of eco-anxiety with large effects among Maltese participants, respectively. The focus groups exposed participants' appreciation of Maltese ecology, and sadness at the loss of natural spaces that are being overcome by the construction of buildings. The discrepancy between their expectations of Maltese landscapes based on past experiences and the reality of these landscapes nowadays can be said to give rise to cognitive dissonance, which Festinger (1957) stated leads to anxiety.

Furthermore, the research highlighted the interplay of eco-anxiety on pro-environmental intentions and behaviours. Participants who expressed stronger intentions to engage in pro-environmental behaviours tended to exhibit significantly higher eco-anxiety scores. Focus group participants put forward the barriers they face to acting on their pro-environmental intentions, such as using public transport, reducing consumption, and advocating for change, with such barriers including fear of change, the convenience of ecologically maladaptive behaviours, financial constraints, and feelings of inefficacy. Nonetheless, participants disclosed engaging in pro-environmental activities like walking, waste reduction and separation, volunteering with environmental NGOs, and agricultural projects, that they felt contributed to a sense of achievement and efficacy, together with stronger environmental values and closeness to nature.

The focus group discussions provided valuable insights into the participants' perceptions of the causes and motives of the ecological crisis, together with its implications on accountability and responsibility for solutions, their efficacy beliefs and resulting eco-anxiety experiences. The qualitative analysis pointed to the perceived imbalance in responsibility and guilt, with institutions often escaping accountability and individuals feeling overwhelmed by responsibility, leading to paralysing eco-anxiety and non-action. These

findings call for the reframing of the ecological crisis in a way that suggests a reasonable amount of personal accountability and responsibility, together with the promotion of pro-environmental behaviour facilitators, such as efficacy beliefs, to encourage personal and collective engagement and meaning-focused coping (Ojala, 2007; 2012; Pihkala, 2018; Hickman, 2020).

Overall, this research not only advanced our understanding of eco-anxiety, but also highlighted the interplay between eco-anxiety, news exposure, environmental concerns, concern about personal impacts, efficacy beliefs, biospheric values, and individual intentions and behaviours. It calls for a comprehensive approach to address eco-anxiety, and emphasises the importance of clear, positive, and empowering communication on environmental issues that stimulates action, together with the removal of barriers to and costs of ecologically adaptive responses to make more adaptive responses easier, more convenient and, in turn, engaged in more frequently and meaningfully. Further research in various domains, as outlined in the proposed directions for future research, is essential for addressing the ecological crisis that is being emotionally, psychologically, cognitively and collectively experienced, to transform paralysing eco-anxiety into practical eco-anxiety, eco-hope, eco-empathy and eco-consciousness, therefore facilitating proactive engagement with ecological issues in Malta and beyond.

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Appendix A

Quantitative Questionnaire in English with Information Letter and Consent Form

Introduction

My name is Claire Bonello and I am a student at the University of Malta, presently reading for a Master of Science in Psychological Studies. I am conducting a research study for my thesis that aims to explore attitudes towards climate change among the Maltese population under the supervision of Professor Mary Anne Lauri.

This survey will take approximately 8 minutes to complete.

Any data collected from this survey will be used solely for purposes of this study. There are no direct benefits or anticipated risks in taking part. Participation is entirely voluntary, i.e., you are free to accept or refuse to participate. At no point will you be asked to provide your name or any other personal data that may lead to you being identified. Furthermore, you may skip over any questions that you do not wish to answer. All data collected will be stored in an anonymized form and erased within 3 years of completion of the study in June 2023.

If you wish to participate in this study, please click the button that reads “I agree to participate”. If not, please close the browser window (or click "I do not wish to participate").

A copy of this information sheet can be downloaded by following this link.

Thank you for your time and consideration. Should you have any questions or concerns, please do not hesitate to contact me on +35679252473 or via e-mail on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt.

1. I hereby confirm that I am 18 years of age or older. I am aware that completing and submitting this anonymous questionnaire implies that I am participating voluntarily and with full informed consent on the conditions listed above.
    a. I agree to participate - begin survey
    b. I do not wish to participate - exit survey

Demographics:

1. Gender:
    a. Male
    b. Female
    c. Other
    d. Prefer not to say
2. Age:
    a. 18-30 years
    b. 31-45 years
    c. 46-60 years
    d. 61-75 years
3. Highest level of education attained:
    a. Primary education
    b. Secondary education
    c. Tertiary education or above
4. Does your line of work involve dealing with issues related to climate change (e.g., environmental science, environmental law, environmental engineering, conservation, sustainability)?
    a. Yes
    b. No
    c. Unsure

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5. What one word or phrase comes to mind when you hear the term 'climate change'?
   _____

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6. In your opinion, how often would you say you experience anxiety related to climate change and the environment?

    a. Rarely/ Not at all

    b. Sometimes

    c. Often

    d. Almost always

Within the past 2 weeks, how often have you been bothered by these symptoms when thinking about climate change and other global environmental conditions (e.g., global warming, ecological degradation, resource depletion)?

7. Feeling nervous, anxious or on edge.
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
8. Not being able to stop or control worrying
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
9. Worrying too much
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
10. Feeling afraid
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
11. Unable to stop thinking about future climate change and other global environmental problems
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday

12. Unable to stop thinking about past events related to climate change
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
13. Unable to stop thinking about losses to the environment
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
14. Difficulty sleeping
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
15. Difficulty enjoying social situations with family and friends
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
16. Difficulty working and/or studying
    a. Rarely/ not at all
    b. Several of the days
    c. Over half of the days
    d. Nearly everyday
17. Feeling anxious about the impact of your personal behaviours on the earth
    a. Rarely/ not at all
    b. Several of the days

c. Over half of the days

d. Nearly everyday

18. Feeling anxious about your personal responsibility to help address environmental problems

a. Rarely/ not at all

b. Several of the days

c. Over half of the days

d. Nearly everyday

19. Feeling anxious that your personal behaviours will do little to help fix the problem

a. Rarely/ not at all

b. Several of the days

c. Over half of the days

d. Nearly everyday

Rate your level of agreement to the following statements.

20. I believe there is evidence of global climate change.

a. Strongly disagree

b. Disagree

c. Neither agree nor disagree

d. Agree

e. Strongly agree

21. Human activities cause global climate change.

a. Strongly disagree

b. Disagree

c. Neither agree nor disagree

d. Agree

e. Strongly agree

22. I think most of the concerns about environmental problems have been exaggerated.

a. Strongly disagree

b. Disagree

c. Neither agree nor disagree

d. Agree

e. Strongly agree

23. I can do my part to make the world a better place for future generations.

a. Strongly disagree

b. Disagree

c. Neither agree nor disagree

d. Agree

e. Strongly agree

24. Acting environmentally friendly is an important part of who I am.

a. Strongly disagree

b. Disagree

c. Neither agree nor disagree

d. Agree

e. Strongly agree

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25. Do you feel anxious or distressed when thinking about…

	Never/ Rarely	**Sometimes**	**Often**	**Almost always**
Climate change				
Species extinction (e.g., the extinction of entire animal populations)				
Ecological degradation (e.g., the destruction of ecosystems such as the Great Barrier Reef)				
Resource depletion (e.g., the reduction of the world's natural resources such as water and food)				
The ozone hole (e.g., the depletion of the ozone layer)				
Pollution of the oceans				
Deforestation				
Your carbon footprint (e.g., the amount of greenhouse gases you emit)				
Your waste production				
Your air travel (e.g., taking long-haul flights that emit high levels of carbon dioxide)				
Your meat consumption				
Your water consumption				
Your energy consumption				

26. How often do you watch or read news related to climate change?

    a. Less than once a week
    b. Once a week
    c. Several times a week
    d. Once a day
    e. Several times a day

How often do you **plan** to perform these behaviours in the **future**?

27. Cut down on the amount you fly.

    a. Never
    b. Occasionally
    c. Often
    d. Always

28. Avoid eating meat.

    a. Never
    b. Occasionally
    c. Often
    d. Always

29. Carpool, walk, cycle or use public transportation for short journeys (less than 5km).

    Examples of distances that are less than 5 kilometres:

    - Valletta City Gate <-> Manoel Island
    - Żejtun <-> Marsascala/Marsaxlokk
    - Mġarr <-> Golden Bay
    - Ċirkewwa Ferry Terminal <-> Għadira Bay, Mellieħa

    a. Never
    b. Occasionally
    c. Often
    d. Always

30. Proactively choose ‘green’ electricity products and services.
    a. Never
    b. Occasionally
    c. Often
    d. Always

How often do you **currently** perform these behaviours?

31. I reuse plastic shopping bags for future shopping and/or other purposes.
    a. Never
    b. Occasionally
    c. Often
    d. Always
32. I turn the television off when it is not in use.
    a. Never
    b. Occasionally
    c. Often
    d. Always
33. I take short showers to limit water use.
    a. Never
    b. Occasionally
    c. Often
    d. Always
34. I buy products with minimal packaging (eg. products that are packed in a minimal amount of plastic).
    a. Never
    b. Occasionally
    c. Often
    d. Always

35. I use the washing machine only when it has a full load.
    a. Never
    b. Occasionally
    c. Often
    d. Always
36. When writing, I use both sides of the paper.
    a. Never
    b. Occasionally
    c. Often
    d. Always
37. When travelling short distances (approx. 1-2 kilometres), I walk as opposed to driving or taking the bus.

    Examples of distances that are between 1-2 kilometres:

    - Valletta City Gate <-> Valletta Waterfront (restaurants)
    - St. Julian's Tower <-> Spinola Bay
    - Il-Majjistral Nature & History Park <-> Riviera Bay

    a. Never
    b. Occasionally
    c. Often
    d. Always
38. When brushing my teeth, I turn the tap off rather than leaving it run.
    a. Never
    b. Occasionally
    c. Often
    d. Always
39. When available, I half flush the toilet as opposed to full flush.
    a. Never
    b. Occasionally
    c. Often
    d. Always

Thank you for taking the time to fill out this survey.

The second phase of this research will involve focus groups with individuals aged 18 and above. If you wish to participate in a focus group on climate change and 'eco-anxiety', you may send me an email on claire.bonello.17@um.edu.mt expressing your interest.

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A kind reminder regarding the following: Any data collected from this survey will be used solely for purposes of this study, stored in an anonymised form and erased within 3 years of completion of the study in June 2023.

Should you have any questions or concerns, please do not hesitate to contact me via e-mail on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt

Appendix B

Quantitative Questionnaire in Maltese with Information Sheet and Consent Form

Introduzzjoni

Jiena Claire Bonello, studenta fl-Università ta' Malta, u bħalissa qed insegwi kors l-universita' jismu Master of Science in Psychological Studies. Għat-teżi tiegħi, qed nesplora lattitudnijiet tal-poplu Malti lejn it-tibdil fil-klima taħt is-supervizjoni tal-Professoressa Mary Anne Lauri.

Dan il-kwestjonarju onlajn mhuwiex ħa jdum iktar minn tminn minuti biex jimtela.

L-informazzjoni kollha li tinġabar ħa tintuża biss għall-fini ta' dan l-istudju. Jekk tagħżel li tipparteċipa, tajjeb tkun taf li m'hemm l-ebda benefiċċju jew riskju magħruf jew mistenni. Ilparteċipazzjoni tiegħek f'dan l-istudju tkun għalkollox volontarja; fi kliem ieħor, inti liberu/a li taċċetta jew tirrifjuta li tieħu sehem. Fl-ebda punt m'int se tintalab tagħti ismek jew dettalji personali oħra li jistgħu jintużaw biex tiġi identifikat. Ukoll, tista' taqbeż mistoqsijiet li ma tixtieqx twieġeb. L-informazzjoni se tinġabar u tkun maħżuna b'mod anonima u mħasra tliet snin wara jintemm l-istudju f'Ġunju 2023.

Jekk tixtieq tipparteċipa f'dan l-istudju, jekk jogħġbok ikkonferma billi tagħfas il-buttuna "Nixtieq nipparteċipa" hawn taħt. Billi tagħfas il-buttuna, qed tikkonferma wkoll li għandek tmintax-il sena jew iktar. Jekk ma tixtieqx tipparteċipa, tista' tagħlaq il-'window' jew tagħfas "Ma nixtieqx nipparteċipa".

Tista' tniżżel kopja ta' din l-ittra ta' tagħrif biex iżżommha bħala referenza billi tagħfas fuq din il-'link'.

Grazzi tal-ħin u l-kunsiderazzjoni tiegħek. Jekk ikollok xi mistoqsija, tiddejjaqx tikkuntattjani fuq +35679252473 jew claire.bonello.17@um.edu.mt; tista' tikkuntattja wkoll lit-tutur tiegħi fuq mary-anne.lauri@um.edu.mt. 1. Jien nikkonferma li għandi 18-il sena jew aktar.

1. Jien konxju/a li billi nimla dan il-kwestjonarju anonimu qed nimplika li qed nipparteċipa b'mod volontarju u b'kunsens infurmat assolut dwar il-kundizzjonijiet insemmija hawn fuq.
    a. Nixtieq nipparteċipa – jibda l-kwestjonarju
    b. Ma nixtieqx nipparteċipa – jintemm il-kwestjonarju

Demografija

2. Ġeneru:
    a. Maskil
    b. Femminil
    c. Ġeneru ieħor
    d. Nippreferi ma ngħidx
3. Eta’:
    a. 18-30 sena
    b. 31-45 sena
    c. 46-60 sena
    d. 61-75 sena
4. L-ogħla livell ta’ edukazzjoni:
    a. Edukazzjoni primarja
    b. Edukazzjoni sekondarja
    c. Edukazzjoni terzjarja jew akter
5. Il-linja tal-impjieg tiegħek tinvolvi xogħol relatat mat-tibdil fil-klima (e.ż.,xjenza ambjentali, liġi ambjentali, inġinerija ambjentali, konservazzjoni, sostenibbilta’)?
    a. Iva
    b. Le
    c. Miniex ċert/a

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6. Liem kelma jew fraži tiġik f'moħħok meta tisma' il-fraži 'tibdil fil-klima'?

    _____

---

7. Fl-opinjoni tiegħek, kemm-il darba taħseb li int tesperjenza anzjeta’ relatata mat-tibdil fil-klima u problemi ambjentali?
    a. Rari/Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Kwazi dejjem

F’dawn l-aħħar ġimagħtejn, kemm-il darba esperjenzajt dawn is-sintomi meta ħsibt fit-tibdil fil-klima u kundizzjonijiet ambjentali globali oħra (eż. ‘global warming’, degredazzjoni ekoloġika, tnaqqis ta’ riżorsi)?

8. Tħossok nervuż/a jew anzjuż/a.
    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

9. Ma tkunx tista’ twaqqaf jew tikkontrolla l-inkwiet.
    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

10. Tinkwieta wisq.
    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

11. Tħossok imbeżża.
    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

12. Ma tkunx tista’ tieqaf taħseb fuq it-tibdil fil-klima tal-futur u problemi ambjentali globali oħra.
    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

13. Ma tkunx tista’ tieqaf taħseb f’avvenimenti tal-passat relatati mat-tibdil fil-klima.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

14. Ma tkunx tista’ tieqaf taħseb fit-telf ambjentali.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

15. Diffikulta’ torqod.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

16. Diffikulta’ tgawdi sitwazzjonijiet soċjali mal-familja u ħbieb.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

17. Diffikulta’ taħdem u/jew tistudja.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

18. Tħossok anzjuż/a dwar l-impatt tal-azzjonijiet personali tiegħek fuq id-dinja.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

19. Tħossok anzjuż/a dwar ir-responsabbilta’ personali tiegħek biex tindirizza l-problemi ambjentali.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

20. Tħossok anzjuż/a dwar il-fatt li l-azzjonijiet personali tiegħek mhumiex ħa jagħmlu ħafna effett biex tittejjeb il-problema.

    a. Rari/Qatt
    b. Uħud mill-ġranet
    c. Iktar minn nofs il-ġranet
    d. Kwazi kuljum

Kemm taqbel ma' dawn id-dikjarazzjonijiet?

21. Jien nemmen li hemm evidenza favur it-tibdil fil-klima globali.

    a. Assolutament ma naqbilx
    b. Ma naqbilx
    c. La naqbel u lanqas ma naqbilx
    d. Naqbel
    e. Totalment naqbel

22. Attivitajiet umani jikkawżaw it-tibdil fil-klima globali.

    a. Assolutament ma naqbilx
    b. Ma naqbilx
    c. La naqbel u lanqas ma naqbilx
    d. Naqbel
    e. Totalment naqbel

23. Jien naħseb li l-maġġoranza tal-inkwiet dwar problemi ambjentali huma esaġerati.

    a. Assolutament ma naqbilx
    b. Ma naqbilx
    c. La naqbel u lanqas ma naqbilx
    d. Naqbel
    e. Totalment naqbel

24. Jien nista’ nagħmel il-parti tiegħi biex inħalli dinja aħjar warrajja għall-ġenerazzjonijiet tal-futur.
    a. Assolutament ma naqbilx
    b. Ma naqbilx
    c. La naqbel u lanqas ma naqbilx
    d. Naqbel
    e. Totalment naqbel
25. Li nagħmel azzjonijiet favur l-ambjent hija parti importanti ta’ jien minn jien.
    a. Assolutament ma naqbilx
    b. Ma naqbilx
    c. La naqbel u lanqas ma naqbilx
    d. Naqbel
    e. Totalment naqbel

26. Tħossok anzjuż/a meta taħseb dwar…:

	Rari/Qatt	**Xi drabi**	**Ħafna drabi**	**Kwazi dejjem**
It-tibdil fil-klima				
L-estinzjoni tal-ispeċi (eż., l-estinzjoni ta' popolazzjoni sħiħa ta' annimali)				
Degradazzjoni ekoloġika (eż., id-distruzzjoni ta' ekosistemi, bħal 'Great Barrier Reef')				
It-tnaqqis ta' riżorsi (eż., it-tnaqqis tar-riżorsi naturali globali, bħall-ilma u l-ikel)				
Il-ħofra fis-saff tal-ożonu ('ozone layer').				
It-tniġġis tal-oċeani				
Deforestazzjoni				
Il-marka tal-karbonju tiegħek (eż., l-ammont ta' karbonju li tipproduċi)				
L-iskart li tipproduċi				
L-ivjaġġar bl-ajru (eż., titjiriet twal li jipproduċu livell għoli ta' dijossidu tal-karbonju/'carbon dioxide')				
Il-konsum tal-laħam tiegħek				
Il-konsum tal-ilma tiegħek				
Il-konsum tal-enerġija tiegħek				

27. Kemm il-darba tara jew taqra aħbarijiet relatati mat-tibdil fil-klima?

    a. Inqas minn darba fil-ġimgħa
    b. Darba fil-ġimgħa
    c. Bosta drabi fil-ġimgħa
    d. Darba kuljum
    e. Bosta drabi kuljum

Kemm il-darba **tippjana** tagħmel dawn l-azzjonijiet fil-**futur**?

28. Tnaqqas l-ammont ta' vjaġġar bl-ajruplan.

    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

29. Tevita tiekol il-laħam.

    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

30. 'Carpool', timxi, tuża r-rota jew tuża trasport publiku għal vjaġġijiet qosra (inqas minn 5km).

    Eżempji ta' distanzi inqas minn 5 kilometru:

    - Bieb il-Belt <-> 'Manoel Island'
    - Żejtun <-> Marsaskala/Marsaxlokk
    - Mġarr <-> 'Golden Bay'
    - It-terminal taċ-Ċirkewwa <-> Il-Bajja tal-Għadira

    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

31. B’mod proattiv tagħżel prodotti u servizzi tal-eletriku ‘green’.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

Kemm- il darba tagħmel dawn l-affarijiet fil-**preżent**?

32. Terġa’ tuża basktijiet tax-xiri tal-plastik għal meta tmur tixtri darb’oħra u/jew għal raġunijiet oħra.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
33. Titfi t-televixin meta ma jkunx qed jintuża.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
34. Tieħu ‘shower’ qasir biex tillimita l-użu tal-ilma.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
35. Tixtri prodotti b’ippakkjar minimu (eż. prodotti li huma ppakkjati b’ammont minimu ta’ plastik).
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

36. Tuża l-magna tal-ħasil biss meta tkun mimlija.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
37. Biex tikteb, tuża ż-żewġ naħat tal-karta.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
38. Meta tivvjaġġa distanzi qosra (bejn wieħed u ieħor 1-2 kilometri), timxi għall-kuntrarju li ssuq jew taqbad tal-linja.

    Eżempji ta' distanzi bejn 1-2 kilometri:

    - Bieb il-Belt <-> 'Valletta Waterfront'
    - It-Torri ta' San Ġiljan <-> Il-Bajja ta' Spinola
    - Il-Majjistral 'Nature & History Park' <-> Ir-Ramla ta' Għajn Tuffieħa

    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
39. Meta taħsel snienek, tagħlaq il-vit minflok tħalli l-ilma nieżel.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem
40. Meta tista', tifflaxxja t-tojlit bin-nofs għall-kuntrarju li tifflaxxjah kollu.
    a. Qatt
    b. Xi drabi
    c. Ħafna drabi
    d. Dejjem

Konklużjoni

Grazzi talli ħadt il-ħin biex timla' dan il-kwestjonarju.

It-tieni fażi ta' dan l-istudju tinvolvi 'focus groups' ma' individwi li għandhom 18-il sena jew aktar. Jekk tixtieq tipparteċipa f''focus group' dwar it-tibdil filklima, tista' tibgħatli 'email' fuq claire.bonello.17@um.edu.mt biex turi linteress.

--

Nixtieq infakkrek dwar dan li ġej:

L-informazzjoni kollha miġbura minn dan il-kwestjonarju ħa tintuża biss għall-fini ta' dan listudju, maħżuna b'mod anonimu u mħassra tliet snin wara li jintemm l-istudju f'Ġunju 2023.

Jekk għandek xi mistoqsijiet, tista' tikkuntatjani bl-'email' fuq claire.bonello.17@um.edu.mt, jew it-tutur tiegħi fuq mary-anne.lauri@um.edu.mt.

Appendix C

Permission from Primary Author of Hogg Eco-Anxiety Scale to Use and Translate the Scale

Claire Bonello <claire.bonello.17@um.edu.mt> 10 March 2022 at 18:48
To: "Teaghan.Hogg" <Teaghan.Hogg@canberra.edu.au>

Dear Teaghon,

I hope this email finds you well.

Following our correspondence and recent updates on ethical approval procedures, I would like to formally ask for your permission to use the 13-item Hogg Eco-Anxiety Scale for my research titled 'Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design', and permission to translate this scale to Maltese.

The latter is necessary as the target population is lay people (i.e. the general Maltese population), thus requiring participants to be given the choice between accessing and answering in English or Maltese.

I look forward to your response. Kindest regards.
[Quoted text hidden]

Teaghan.Hogg <Teaghan.Hogg@canberra.edu.au> 11 March 2022 at 00:18
To: Claire Bonello <claire.bonello.17@um.edu.mt>

Hi Claire,

Of course, you are more than welcome to translate the HEAS-13 into Maltese.

Good luck with your research and I look forward to hearing about your results.

All the best,

Teaghan

Appendix D

Email Correspondence with Registrar to Share Participant Request

L-Università ta' Malta

Claire Bonello <claire.bonello.17@um.edu.mt>

Gatekeeper Permission (SWB-2022-00162)

7 messages

Claire Bonello <claire.bonello.17@um.edu.mt> 25 May 2022 at 09:55
To: registrar@um.edu.mt, academicregistrar@um.edu.mt
Cc: Mary Anne Lauri <mary-anne.lauri@um.edu.mt>

To whom it may concern,

I hope this email finds you well.

I am Claire Bonello, a student currently reading for a Master of Science in Psychological Studies at the University of Malta. In part fulfilment of this course, I am conducting a mixed-methods research study on eco-anxiety; the title being: 'Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design'. This study is being supervised by Professor Mary Anne Lauri.

The aim of this study is to explore eco-anxiety within the Maltese population through a two-phased mixed methods explanatory sequential study. The first phase, being quantitative in nature, will require participants to fill in an anonymous online questionnaire that will take no longer than 5-7 minutes to complete. The second phase, being qualitative in nature, will require participants to take part in a focus group that would take no longer than one hour.

I am writing to you to ask for your formal permission to disseminate this participant recruitment letter, both for the quantitative and qualitative phase of this research, respectively, once the study is officially launched.

My research ethics application (SWB-2022-00162) has been **approved on condition that I provide all the gatekeepers' permissions**. The only gatekeeper for this research is the UM Registrar. Therefore, it will be approved once I get this permission. You may find the email from SWB FREC attached to this email.

You may find the information to be distributed for each phase below:

Quantitative phase (phase 1):

"My name is Claire Bonello and I am a student at the University of Malta, presently reading for a Master of Science in Psychological Studies. I am presently conducting a research study for my thesis titled “Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design”. This is being supervised by Professor Mary Anne Lauri.

The aim of my study is to explore eco-anxiety within the Maltese population through a two-phased mixed methods explanatory sequential study. The survey that you have been invited to complete forms part of the first phase of this study, and will take no longer than 5-7 minutes to complete. **The survey may be accessed through this link**: [link]. Individuals eligible to take part are to be **between the ages of 18 and 70**.

Any data collected from this survey will be used solely for the purposes of this study. There are no direct benefits or anticipated risks in taking part. Participation is entirely voluntary; i.e., you are free to accept or refuse to participate. Data collected will be anonymised at the source, and the online platform used to collect responses will not be retaining any identifying information (e.g. IP addresses). Once submitted, there will be no way of retrieving and editing/deleting the responses.

At no point will you be asked to provide your name or any other personal data that may lead to you being identified. Furthermore, you may skip over any questions that you do not wish to answer. All data collected will be stored securely and erased within 3 years of completion of the study in June 2023.
If you wish to participate in this study, kindly access the link above and ‘click’ the button that reads “I agree to participate”. If not, please close the browser window (or click "I do not wish to participate").

Thank you for your time and consideration. Should you have any questions or concerns, please do not hesitate to contact me on +356 79252473 or by email on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt.”

Qualitative phase (phase 2):

"My name is Claire Bonello and I am a student at the University of Malta, presently reading for a Master of Science in Psychological Studies. I am presently conducting a research study for my thesis titled “Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design”. This research is being supervised by Professor Mary Anne Lauri. This letter is an invitation to participate in the second phase of this study. Below you will find information about the study and what your involvement would entail, should you decide to take part.

The aim of my study is to explore eco-anxiety within the Maltese population through a two-phased mixed methods explanatory sequential study. The first phase has been completed; therefore, this is an invitation to take part in the second phase of this study. Your participation would entail **participating in a focus group that will not last longer than an hour**. The focus group will be held at a time and place that is convenient for participants, and will be audio-recorded.

By participating you will help contribute to a **better understanding of the experiences of and attitudes towards climate change and its emotional reactions, including eco-anxiety**. Individuals eligible to take part are to be **between the ages 18 and 70**.

If you wish to participate, **kindly contact me (the researcher) on claire.bonello.17@um.edu.mt**.

Any data collected from this survey will be used solely for the purposes of this study. There are no direct benefits or anticipated risks in taking part.

Participation is entirely voluntary; i.e., you are free to accept or refuse to participate. You are also free to withdraw from the study at any time, without needing to provide any explanation and without any negative repercussions for you. Should you choose to withdraw, any data collected from the focus group will be deleted as long as this is technically possible (for example, before it is anonymised or published), unless erasure of data would render impossible or seriously impair achievement of the research objectives, in which case it shall be retained in an anonymised form.

Data collected will be transcribed verbatim with the use of pseudonyms, treated confidentially, and only accessed by me (the researcher) and the supervisor if need be. Information linking participants to their respective pseudonyms will be stored securely on a password-protected laptop in an encrypted folder, together with transcripts and audio recordings. All data collected will be stored in a pseudonymised and protected form and erased within 3 years of completion of the study in June 2023.

Thank you for your time and consideration. Should you have any questions or concerns, and if you wish to participate in this focus group, please do not hesitate to contact me on +356 79252473 or by e-mail on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt."

Thank you. I look forward to your reply.

--
Claire Bonello
claire.bonello@gmail.com/ claire.bonello.17@um.edu.mt
79252473/ 21468329
0376099M

SWB-2022-00162_FREC_Email.pdf
109K

Academic Registrar <academicregistrar@um.edu.mt> 25 May 2022 at 11:46
To: Claire Bonello <claire.bonello.17@um.edu.mt>
Cc: Mary Anne Lauri <mary-anne.lauri@um.edu.mt>

Dear Ms Bonello

Thank you for your email.

Please provide a statement by your supervisor (an email is enough) confirming that this research is being carried out in connection with studies at the UM. Once this is received I will prepare and send you the requested letter.

Regards,

Maria

L-Università ta' Malta

Dr Colin Borg | Academic Registrar
Ph.D., M.A.(Public Policy), B.Com (Hons.)

Office of the Registrar
Administration Building
+356 2340 2385/2386

[Quoted text hidden]

Claire Bonello <claire.bonello.17@um.edu.mt> 26 May 2022 at 16:36
To: Mary Anne Lauri <mary-anne.lauri@um.edu.mt>

Dear Prof. Lauri,

I hope you are well.

The Registrar is asking for a statement by you via email.

Thank you!
[Quoted text hidden]

Mary Anne Lauri <mary-anne.lauri@um.edu.mt> 26 May 2022 at 17:52
To: Academic Registrar <academicregistrar@um.edu.mt>
Cc: Claire Bonello <claire.bonello.17@um.edu.mt>, Home <mary-anne.lauri@um.edu.mt>

Dear Maria,

Claire Bonello is doing her research under my supervision.

Mary Anne

L-Università ta' Malta

Prof. Mary Anne Lauri
B.A. (Hons)(Melit.),M.Sc.(Lond.),Ph.D.(Lond.),C.Psychol.

Department of Psychology, Faculty for Social Wellbeing
Room 230, Old Humanities Building (OH)
+356 2340 2350

[Quoted text hidden]

Academic Registrar <academicregistrar@um.edu.mt> 30 May 2022 at 11:56
To: Claire Bonello <claire.bonello.17@um.edu.mt>

Dear Ms Bonello

Attached please find the requested letter.

Please do not hesitate to contact me should you require any further assistance.

Regards,

Maria

L-Università ta' Malta

Dr Colin Borg | Academic Registrar
Ph.D., M.A.(Public Policy), B.Com (Hons.)

Office of the Registrar
Administration Building
+356 2340 2385/2386

On Wed, 25 May 2022 at 09:56, Claire Bonello <claire.bonello.17@um.edu.mt> wrote:
[Quoted text hidden]

Claire Bonello.pdf
17K

Claire Bonello <claire.bonello.17@um.edu.mt> 17 October 2022 at 14:49
To: Academic Registrar <academicregistrar@um.edu.mt>, Mary Anne Lauri <mary-anne.lauri@um.edu.mt>, registrar@um.edu.mt

To whom it may concern,

I hope this email finds you well.

I am Claire Bonello, a student currently reading for a Master of Science in Psychological Studies at the University of Malta.

I had contacted you on the 25th of May 2022 to request gatekeeper permission to disseminate my participant recruitment letter, to which you granted acceptance.

I have attained ethical approval (see screenshot attached). You may also access the gatekeeper permission letter signed by Dr. Colin Borg stating that the Registrar accepts to disseminate the questionnaire part of the first phase of my research study. The second phase will commence in a few months' time, and I will contact you again to distribute the focus group participation invitation.

You may find the letter below (in English and Maltese), together with a recruitment poster with QR codes for the English and Maltese versions of the questionnaire.

English:

> My name is Claire Bonello and I am a student at the University of Malta, presently reading for a Master of Science in Psychological Studies. I am presently conducting a research study for my thesis titled "Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design". This is being supervised by Professor Mary Anne Lauri.
>
> The aim of my study is to explore eco-anxiety within the Maltese population through a two-phased mixed methods explanatory sequential study. The survey that you have been invited to complete forms part of the first phase of this study and will take no longer than 6 minutes to complete. Participants eligible to participate are to be 18 years or older.
>
> **The survey may be accessed through this link**: **https://www.surveymonkey.com/r/climatechangeenglish**.
>
> Any data collected from this survey will be used solely for the purposes of this study. There are no direct benefits or anticipated risks in taking part. Participation is entirely voluntary; i.e., you are free to accept or refuse to participate. Data collected will be anonymised at the source, and the online platform used to collect responses will not be retaining any identifying information (e.g. IP addresses). Once submitted, there will be no way of retrieving and editing/deleting the responses.

> At no point will you be asked to provide your name or any other personal data that may lead to you being identified. Furthermore, you may skip over any questions that you do not wish to answer. All data collected will be stored securely and erased within 3 years of completion of the study in June 2023.
>
> If you wish to participate in this study, kindly access the link above [https://www.surveymonkey.com/r/climatechangeenglish] and 'click' the button that reads "I agree to participate".
>
> Thank you for your time and consideration. Should you have any questions or concerns, please do not hesitate to contact me on +356 79252473 or by email on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt.

Maltese:

> Jiena Claire Bonello, studenta fl-Università ta' Malta, u bħalissa qed insegwi kors l-universita jismu Master of Science in Psychological Studies. Ir-riċerka għat-teżi tiegħi jisimha: "Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design". It-tutur tiegħi hi l-Professura Mary Anne Lauri.
>
> L-għan tal-istudju hu li jesplora l-fenomenu 'eco-anxiety' f'popolazzjoni Maltija bl-użu ta' riċerka mħalta (i.e. kwantitattiva u kwalitattiva). L-ewwel fażi, li se tkun kwantitattiva, tikkonsisti minn kwestjonarju anonimu li jimtela' onlajn li jdum mhux iktar minn sitt minuti biex jintlesta. Individwi li huma eliġibli biex jipparteċipaw għandhom ikollhom tmintax-il sena jew iktar.
>
> **Dan il-kwestjonarju jista' jiġi aċċessat billi ssegwi din il-'link': https://www.surveymonkey.com/r/climatechangemalti.**
>
> L-informazzjoni li se tinġabar ħa tintuża biss għall-iskop ta' dan l-istudju. M'hemm l-ebda benefiċċji diretti jew riskji jekk tipparteċipa. Il-parteċipazzjoni f'dan l-istudju hija għalkollox volontarja u l-parteċipanti se jkunu liberi li jieqfu jieħdu sehem meta jixtiequ, mingħajr ebda riperkussjoni.
>
> L-informazzjoni miġbura se tkun anonima, u l-parteċipanti mhumiex ħa jiġu mistoqsija biex jipprovdu informazzjoni personali. Ukoll, il-parteċipanti għandhom id-dritt li jaqbżu kwalunkwe mistoqsija li ma jixtiequx jirrispondu. L-informazzjoni ħa tiġi maħżuna b'mod sigur u mħassra tlett snin wara t-tmiem ta' dan l-istudju f'Ġunju 2023.
>
> Jekk tixtieq tipparteċipa f'dan l-istudju, tista' taċċessa l-kwestjonarju billi ssegwi din il-'link' [https://www.surveymonkey.com/r/climatechangemalti] u tgħafas il-buttuna "Nixtieq nipparteċipa".
>
> Grazzi tal-ħin u l-kunsiderazzjoni tiegħek. Jekk ikollok xi mistoqsija, tiddejjaqx tikkuntattjani fuq +356 79252473 jew claire.bonello.17@um.edu.mt; tista' tikkuntattja wkoll lit-tutur tiegħi fuq mary-anne.lauri@um.edu.mt.

Kindly let me know if you require any further information. Kindest regards.

--

Claire Bonello
claire.bonello@gmail.com/ claire.bonello.17@um.edu.mt
79252473/ 21468329
0376099M
[Quoted text hidden]

3 attachments

FREC Ethical Approval Screenshot.png
88K

Attitudes towards Climate Change - Recruitment Poster V2.1.jpg
226K

Registrar - Permission from Gatekeeper.pdf
17K

Academic Registrar <academicregistrar@um.edu.mt> 20 October 2022 at 13:59
To: Claire Bonello <claire.bonello.17@um.edu.mt>

Dear Claire

Your message has been distributed amongst students as requested.

Good luck with your studies.

Regards,

Maria

L-Università ta' Malta

Dr Colin Borg | Academic Registrar
Ph.D., M.A.(Public Policy), B.Com (Hons.)

Office of the Registrar
Administration Building
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[Quoted text hidden]

Appendix E

Information Sheet and Consent Form for Qualitative Participants in English

Information Letter

Dear Sir/Madam,

My name is Claire Bonello, and I am a student at the University of Malta, currently reading for a Master of Science in Psychological Studies. I am presently conducting a research study for my thesis. This research is being supervised by Professor Mary Anne Lauri. This letter is an invitation to participate in the second phase of this study, being qualitative in nature. Below you will find information about the study and about what your involvement would entail, should you decide to take part.

The aim of my study is to explore how the ecological situation is experiences by Maltese individuals, including thoughts, emotions and behaviours, through a two-phased mixed methods explanatory sequential study. Your participation in this study would help contribute to a better understanding of the experiences of and attitudes towards the environmental crisis and its cognitive, emotional and behavioural reactions.

Should you choose to participate, you will be asked to participate in a focus group for no longer than an hour, held at a time and place that is convenient for you. The focus group will be audio recorded. Individuals eligible to participate are to be between the ages of 18 and 70.

Any data collected from this research will be used solely for purposes of this study. Data collected will be transcribed with the use of pseudonyms, treated confidentially, and will only be accessed by me (the researcher) and the supervisor if needs be.

Participation in this study is entirely voluntary; in other words, you are free to accept or refuse to participate, without needing to give a reason. You are also free to withdraw from the study at any time, without needing to provide any explanation and without any negative repercussions for you. Should you choose to withdraw, any data collected from you in the focus group will be deleted as long as this is technically possible (for example, before it is anonymised or published), unless erasure of data would render impossible or seriously impair achievement of the research objectives, in which case it shall be retained in an anonymised form.

If you choose to participate, please note that there are no direct benefits to you. Your participation does not entail any known or anticipated risks.

Please also note that, as a participant, you have the right under the General Data Protection Regulation (GDPR) and national legislation to access, rectify and where applicable ask for the data concerning you to be erased. All transcriptions and audio recordings will be stored in a pseudonymized form within a password-protected device, and backed-up in an encrypted folder, and erased within 3 years of completion of the study in June 2023.

A copy of this information sheet is being provided for you to keep and for future reference.

Thank you for your time and consideration. Should you have any questions or concerns, please do not hesitate to contact me via phone on +35679252473, or by e-mail on claire.bonello.17@um.edu.mt, or my supervisor via email: mary-anne.lauri@um.edu.mt.

--

Sincerely,

Claire Bonello
claire.bonello.17@um.edu.mt
Researcher

Prof. Mary Anne Lauri
mary-anne.lauri@um.edu.mt
Research Supervisor

Participants' Consent Form

I, the undersigned, give my consent to take part in the study conducted by Ms. Claire Bonello. This consent form specifies the terms of my participation in this research study:

1. I have been given written and/or verbal information about the purpose of the study. I have had the opportunity to ask questions and any questions that I had were answered fully and to my satisfaction.
2. I also understand that I am free to accept to participate, or to refuse or stop participation at any time without giving any reason and without any penalty. Should I choose to participate, I may choose to decline to answer any questions asked. In the event that I choose to withdraw from the study, any data collected from me will be erased as long as this is technically possible (for example, before it is anonymised or published), unless erasure of data would render impossible or seriously impair achievement of the research objectives, in which case it shall be retained in an anonymised form.
3. I understand that I have been invited to participate in a focus group in which the researcher will moderate the focus group and ask questions to explore participants' experiences with and attitudes towards the ecological situation, and its resulting cognitive, emotional and behavioural reactions. I am aware that the focus group will take approximately 1 hour. I understand that the focus group is to be conducted in a place and at a time that is convenient for me.
4. I am aware that focus group discussions should be considered confidential and that I should not disclose details of those participating and/or of the nature of discussions to others.
5. I am aware that my data will be pseudonymized; i.e., my identity will not be noted on transcripts or notes from the focus group, but instead, a pseudonym will be assigned. The pseudonym that links my data to my identity will be stored securely and separately from the data in an encrypted file on the researcher's password-protected computer, and only the researcher will have access to this information. Any physical copies of information will be stored in a locked cupboard. All data collected will be stored securely in a pseudonymised form, and erased within 3 years of completion of the study in June 2023.
6. I am aware that extracts from the focus group may be reproduced in research outputs with the use of pseudonyms. I am aware that my identity and personal information

will not be revealed in any publications, reports or presentations arising from this research.

7. I understand that my participation does not entail any known or anticipated risks.
8. I understand that there are no direct benefits to me from participating in this study.
9. I understand that, under the General Data Protection Regulation (GDPR) and national legislation, I have the right to access, rectify, and where applicable, ask for the data concerning me to be erased.
10. I have been provided with a copy of the information letter and understand that I will also be given a copy of this consent form.
11. I am aware that, if I give my consent by ticking the box below, this focus group will be audio recorded and converted to text (transcribed) as it has been recorded (verbatim), with names being pseudonymized:

    ☐ I agree to this focus group being audio recorded.

    ☐ I do not agree to this focus group being audio recorded.

I have read and understood the above statements and agree to participate in this study.

Name of participant: _____

Signature: _____

Date: _____

--

Sincerely,

Claire Bonello
claire.bonello.17@um.edu.mt
Researcher

Prof. Mary Anne Lauri
mary-anne.lauri@um.edu.mt
Research Supervisor

Appendix F

Information Sheet and Consent Form for Qualitative Participants in Maltese

Ittra ta' Tagħrif

Għażiż/a Sinjur/a,

Jiena Claire Bonello, studenta fl-Università ta' Malta, u bħalissa qed insegwi kors l-universita jismu Master of Science in Psychological Studies. Parti ta' dan il-kors, jirrikjedi li nagħmel riċerka. It-tutur tiegħi hi l-Professura Mary Anne Lauri. B'din l-ittra nixtieq nistiednek tipparteċipa fit-tieni fażi ta' din ir-riċerka. Hawn taħt issib aktar informazzjoni fuq l-istudju li qed nagħmel u fuq xi jkun l-involviment tiegħek jekk tiddeċiedi li tieħu sehem.

L-għan tal-istudju hu li jesplora l-esperjenzi rigward is-sitwazzjoni ekoloġika ta' individwi Maltin, inkluż il-ħsibijiet, emozzjonijiet u azzjonijiet involuti, bl-użu ta' riċerka mħalta (i.e. kwantitattiva u kwalitattiva). Sehmek jgħin biex ikun hawn iżjed għarfien dwar l-esperjenzi ta' u attitudni lejn is-sitwazzjoni ekoloġika tal-poplu Malti, u r-reazzjonijiet konjittivi, emozzjonali u kompartmentali.

Jekk taqbel li tipparteċipa, tintalab biex tieħu sehem f''focus group' li mhuwiex ħa jdum iktar minn siegħa, u ħa jseħħ f'post u ħin li huwa konvenjenti għall-parteċipanti. Il-'focus group' ħa jiġi rrekordjat bl-awdjo. Individwi li jistgħu jipparteċipaw għandhom ikunu bejn l-etajiet ta' tmintax u sebgħin.

L-informazzjoni kollha li se tinġabar fir-riċerka se tintuża biss għall-fini ta' dan l-istudju. L-informazzjoni miġbura ha tibqa' kunfidenzjali bl-użu ta' psewdonimi u ħa tiġi aċċessata biss mir-riċerkatriċi (jien), u t-tutur jekk ikun hemm bżonn.

Il-parteċipazzjoni tiegħek f'dan l-istudju tkun għalkollox volontarja; fi kliem ieħor, inti liberu/a li taċċetta jew tirrifjuta li tieħu sehem, mingħajr ma tagħti raġuni. Inti wkoll liberu/a li twaqqaf il-parteċipazzjoni tiegħek fl-istudju meta tixtieq, mingħajr ma jkollok tagħti spjegazzjoni u mingħajr ebda riperkussjoni. Jekk tagħżel li tirtira mir-riċerka, l-informazzjoni li tkun laħqet ittieħdet mingħandek fil-'focus group' titħassar dment li dan ikun teknikament possibbli (ngħidu aħna, qabel ma tiġi anonimizzata jew ippubblikata), u sakemm l-għanijiet tar-riċerka jkunu jistgħu jintlaħqu u ma jintlaqtux serjament. F'dak il-każ, l-informazzjoni tiegħek tintuża u tinżamm anonima.

Jekk tagħżel li tipparteċipa, jekk jogħġbok innota li m'hemm l-ebda benefiċċju dirett għalik. Il-parteċipazzjoni tiegħek ma fiha l-ebda riskju magħruf jew mistenni.

Bħala parteċipant/a, għandek id-dritt, skont ir-Regolament Ġenerali dwar il-Protezzjoni tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali, li taċċessa, tikkoreġi u fejn hu applikabbli, titlob li l-informazzjoni li tikkonċernak titħassar. It-transkrizzjonijiet u r-'recordings' ħa jkunu maħżuna b'mod psewdonimizzat fuq 'laptop' protett b'password, b'kopja li sservi bħala 'back-up' maħżuna f''encrypted folder', u ħa jiġu mħasra tlett snin wara jintemm l-istudju f'Ġunju 2023.

Qed ngħaddilek kopja ta' din l-ittra biex iżżommha bħala referenza.

Grazzi tal-ħin u l-kunsiderazzjoni tiegħek. Jekk ikollok xi mistoqsija, tiddejjaqx tikkuntattjani fuq +356 79252473, jew claire.bonello.17@um.edu.mt; tista' tikkuntattja wkoll lit-tutur tiegħi fuq mary-anne.lauri@um.edu.mt.

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Tislijiet,

Claire Bonello
claire.bonello.17@um.edu.mt
Riċerkatriċi

Prof. Mary Anne Lauri
mary-anne.lauri@um.edu.mt
Tutur

Formola tal-Kunsens tal-Parteċipant/a

Jiena, hawn taħt iffirmat/a, nagħti l-kunsens tiegħi li nieħu sehem fl-istudju tas-Sinjura Claire Bonello dwar 'eco-anxiety'. Din il-formola tal-kunsens tispjega t-termini tas-sehem tiegħi f'din ir-riċerka.

1. Ingħatajt l-informazzjoni bil-miktub u/jew bil-fomm dwar l-iskop tar-riċerka; kelli l-opportunità nagħmel il-mistoqsijiet, u kull mistoqsija ngħatajt tweġiba għaliha b'mod sħiħ u sodisfaċenti.
2. Nifhem ukoll li jien/a liberu/a li naċċetta li nieħu sehem, jew li nirrifjuta, jew li nwaqqaf il-parteċipazzjoni tiegħi meta nixtieq mingħajr ma nagħti spjegazzjoni jew mingħajr ma niġi penalizzat/a. Jekk nagħżel li nipparteċipa, jaf niddeċiedi li ma nweġibx kull mistoqsija li ssirli. F'każ li nagħżel li ma nkomplix nieħu sehem fl-istudju, l-informazzjoni miġbura mingħandi se titħassar dment li jkun teknikament possibbli (ngħidu aħna, qabel ma tiġi anonimizzata jew ippubblikata), u sakemm l-għanijiet tar-riċerka jkunu jistgħu jintlaħqu u ma jintlaqtux serjament. F'dak il-każ, l-informazzjoni tiegħi tintuża u tinżamm anonima.
3. Nifhem li ġejt mistieden/mistiedna nipparteċipa f'dan il-'focus group' li ħa tiġi moderata mir-riċerkatriċi. L-għan ta' dan il-'focus group' huwa li jesplora l-esperjenzi rigward is-sitwazzjoni ekoloġika ta' individwi Maltin, inkluż il-ħsibijiet, emozzjonijiet u azzjonijiet involuti, bl-użu ta' riċerka mħalta (i.e. kwantitattiva u kwalitattiva). Jien/a konxja li dan il-'focus group' ħa jdum madwar siegħa. Jien/a konxja li dan il-'focus group' ħa jseħħ f'post u ħin li huwa konvenjenti għalija.
4. Nifhem li d-diskussjonijiet f'dan il-'focus group' għandhom jiġu kkunsidrati kunfidenzjali u li m'għandhomx jiġu ddiskutati ma' ħadd ieħor.
5. Nifhem li l-informazzjoni kollha miġbura se tinżamm b'mod psewdonimizzat; l-identita tiegħi m'hijiex ħa tiġi rrivellatha fuq it-transkritti jew noti, imma minflok, ħa jingħatali psewdonimu. L-informazzjoni li tassoċjani mal-psewdonimu li ningħata ħa tiġi storjatha b'mod sigura u separata mill-informazzjoni f''encrypted file' fuq il-kompjuter tar-riċerkatriċi li hu protett b''password', u r-riċerkatriċi biss ħa jkollha aċċess għal din l-informazzjoni. Kopji fiżiċi ta' informazzjoni ħa jitpoġġew f''cupboard' maqful.

Kwalunkwe materjal ħa jiġi storjat b'mod sigur u psewdonimizzat, u ħa jitħassar tlett snin wara li jintemm l-istudju f'Ġunju 2023.

6. Konxju/a li siltiet mill-'focus group' jistgħu jiġu riprodotti b'mod psewdonimizzat. Nifhem li l-identita' u informazzjoni personali tiegħi mhumiex ħa jintkifxu fl-ebda publikazzjonijiet, reporti jew presentazzjonijiet dwar ir-riċerka.
7. Nifhem li l-parteċipazzjoni tiegħi ma fiha l-ebda riskju magħruf.
8. Nifhem li bil-parteċipazzjoni tiegħi f'dan l-istudju, m'hemm l-ebda benefiċċju dirett għalija.
9. Nifhem li, skont ir-Regolament Ġenerali dwar il-Protezzjoni tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali, għandi dritt naċċessa, nikkoreġi u, fejn hu applikabbli, nitlob li l-informazzjoni li tikkonċernani titħassar.
10. Ingħatajt kopja tal-ittra ta' tagħrif biex inżommha u nifhem li se ningħata wkoll kopja ta' din il-formola tal-kunsens.
11. Nifhem li, billi nimmarka l-ewwel kaxxa t'hawn taħt, inkun qed nagħti l-kunsens tiegħi biex dan il-'focus group' jiġi rrekordjat bl-awdjo u maqlub f'kitba fl-istess waqt (traskrizzjoni), bl-ismijiet psewdonimizzati.

☐ Naqbel li l-'focus group' jiġi rrekordjat bl-awdjo.

☐ Ma naqbilx li l-'focus group' jiġi rrekordjat bl-awdjo.

Qrajt u fhimt l-istqarrijiet t'hawn fuq, u naqbel li nipparteċipa f'dan l-istudju.

Isem il-parteċipant/a: _____

Firma: _____

Data: _____

--

Tislijiet

Claire Bonello
claire.bonello.17@um.edu.mt
Researcher

Prof. Mary Anne Lauri
mary-anne.lauri@um.edu.mt
Research Supervisor

Appendix G

Focus Group Guide

1. What is the first thing that comes to mind when thinking about the current ecological and environmental situation? You can write it down or draw something quickly on the paper in front of you.
    a. What emotion does this instil within you?

2. Tell me about what you think is the most pressing issue in Malta regarding ecology and the environment, and why you think it is.
    a. How do you think this will affect you, your social and familial circles, and future generations?
    b. How does this make you feel?

3. In your opinion, what/who is causing the environmental degradation and climate change?
    a. Could you elaborate on the motives of [agent that they say is causing eco-crisis] you think are behind these actions?
    b. How does this make you feel?

4. Tell me about one pro-environmental behaviour that you wish to perform, but haven't gotten around to doing, or don't do as much as you like.
    a. What do you think are some barriers to this?
    b. How does this make you feel?

5. How does the media influence what you think and feel about the ecological crisis and related issues?
    a. How does it affect your behaviour?

Filler:

6. Tell me about your relationship with nature and the environment, and what nature means to you.
7. From everything we discussed today, what are you going to take with you?

Appendix H

Faculty Research Ethics Committee Approval Email (SWB-2022-00162)

27/11/2023, 19:40 University of Malta Mail - Research Ethics Application - Approved by FREC, no UREC decision needed

L-Università ta' Malta

Claire Bonello <claire.bonello.17@um.edu.mt>

Research Ethics Application - Approved by FREC, no UREC decision needed
1 message

SWB FREC <research-ethics.fsw@um.edu.mt> 22 July 2022 at 12:50
To: Claire Bonello <claire.bonello.17@um.edu.mt>
Cc: Mary Anne Lauri <mary-anne.lauri@um.edu.mt>, Gottfried Catania <gottfried.catania@um.edu.mt>

REDP Application ID: SWB-2022-00162

Dear Claire Bonello,

Your ethics application regarding your research titled *Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design* has been **approved**.

Faculty Research Ethics Committees are authorised to review and approve research ethics applications on behalf of the University of Malta, except in the case of sensitive personal data. In this regard, your ethics proposal **does not need to be sent to UREC-DP**. Hence, **you may now start your research**.

Disclaimer: *The research team should note that only the English versions of the documents submitted have been reviewed by FREC. It is the duty of the research team to ensure that all documents in Maltese (or any other language) are faithful translations of the English version.*

Regards,

L-Università ta' Malta

Faculty Research Ethics Committee

Faculty for Social Wellbeing
Room 113, Humanities A Building
+356 2340 2237
um.edu.mt/socialwellbeing/students/researchethics

Appendix I

Data Management Plan

Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design

The research titled ‘Eco-conscious or eco-anxious? An Exploration of Eco-Anxiety within the Maltese Context using a Mixed-Methods Research Design’ will involve the collection of both quantitative and qualitative data in two separate phases, respectively.

Quantitative data will be collected first via an anonymous online questionnaire using SurveyMonkey. The quantitative data will be attained from 400-500 anonymous participants; therefore, the respondents will not be made identifiable, and no IP addresses will be collected. Demographic data collected will include participants’ gender, age range and highest level of education attained. Responses will be exported as an Excel sheet, then imported into the Statistical Package for the Social Sciences to generate descriptive and inferential statistics. The raw quantitative data will be stored within a password-protected SurveyMonkey account. The Excel sheet including the raw quantitative data will be stored in a password-protected laptop.

Qualitative data will be collected in the second phase of this study through four focus groups consisting of 5 to 8 participants each. Each participant will be given a pseudonym, being an androgenous name so as not to identify the participants’ gender. These pseudonyms and their link to the participants’ names will be written in a document that will be encrypted with a password using Microsoft Word. Focus groups will be audio recorded on both a mobile and laptop device, with these recordings being stored on a password-protected laptop. These recordings will be transcribed verbatim, with the participants’ names already being pseudonymized upon transcription.

Audio recordings, pseudonymized transcriptions and the list of pseudonyms will be backed-up in a protected OneDrive folder within a Personal Vault, which will require a two-step identity verification to gain access to it.

This password-protected data and back-up will be stored as mentioned above and erased within 3 years of completion of the study in June 2023.

Any data collected from this research will be used solely for purposes of this study. Data collected will be treated confidentially, and will only be accessed by the researcher, and, if needs be, the supervisor.

Quotes from the transcripts included in the data collection and analysis sections of the written research study will be pseudonymized. Only the quotes included in the written study will be made available for sharing. The raw quantitative dataset and qualitative pseudonymized transcripts will not be made available for public access. Quantitative and qualitative data in an aggregated form (i.e. descriptive and inferential statistics, and quotes respectively) will be included in the write-up and available for public access.