

**CLIMATE CHANGE AND CONSUMER BEHAVIOUR –
THE IMPACT OF ECO-ANXIETY ON THE
CONSUMPTION HABITS OF FINNS BELOW 30 YEARS
OF AGE**

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ABSTRACT

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Title Climate change and consumer behaviour: The impact of eco-Anxiety on the consumption habits of Finns below 30 years of age	
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<p>Climate change is a severe global concern, which in addition to its effects on the environment will also impact human health, both physically and mentally. A threat of this magnitude will undoubtedly evoke a wide range of emotions, and climate change-induced anxiety in particular has been discussed more in recent years. However, academic literature regarding this so-called <i>eco-anxiety</i> remains limited – especially in Finland.</p> <p>This thesis aims to increase awareness about eco-anxiety by providing an overview on its prevalence in the Finnish population as well as its impacts on consumer behaviour. The scope of this study is focused on Finns below 30 years of age. The theoretical framework goes through the psychological impacts of climate change as well as the theory behind pro-environmental consumer behaviour. The data for this Master's Thesis was gathered via a questionnaire with 2070 respondents in total, out of which 343 were under 30 years of age. The data was analysed using contingency table analyses to see how big of a portion of below 30-year-old Finns have experienced eco-anxiety, and how it has impacted their consumption habits.</p> <p>The findings indicate that a significant portion – over one third – of below 30-year-old Finns have experienced eco-anxiety. Additionally, the findings suggest that there is a clear correlation between experiencing eco-anxiety and changing one's consumption habits to more sustainable ones. The correlation was strongest with regards to the consumption of general consumer goods, but those respondents who had experienced eco-anxiety were also more active in changing their dietary and living habits than their non-anxiety-experiencing counterparts. Further research could focus e.g., on how eco-anxiety affects other dimensions of behaviour, such as mobility or electoral behaviour.</p>	
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TIIVISTELMÄ

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<p>Ilmastonmuutos on vakava globaali uhka, joka vaikuttaa ympäristön lisäksi myös ihmisten terveyteen, niin fyysisesti kuin henkisesti. Näin suuren mittaluokan uhka herättää väistämättä laajan joukon erilaisia tunteita, ja etenkin ilmastonmuutokseen liittyvästä ahdistuksesta on puhuttu viime vuosina yhä enenevässä määrin. Tästä nk. <i>ilmastoahdistuksesta</i> löytyy kuitenkin vielä toistaiseksi verrattain vähän akateemista kirjallisuutta - varsinkin Suomessa.</p> <p>Tämä pro gradu-tutkielma pyrkii lisäämään tietoisuutta ilmastoahdistukseen liittyen tarjoamalla yleiskatsauksen sen esiintyvyyteen Suomen väestössä sekä siihen, miten se vaikuttaa suomalaisten kulutustottumuksiin. Tutkielman laajuus on rajattu käsittelemään alle 30-vuotiaita suomalaisia. Teoreettinen viitekehys käy läpi ilmastonmuutoksen psykologisia vaikutuksia sekä ympäristöystävällisen kuluttajakäyttäytymisen teoriaa. Tämän tutkielman aineisto kerättiin kyselyllä, jossa oli kokonaisuudessaan 2070 vastaajaa, ja joista alle 30-vuotiaita oli 343. Aineiston analyysi tehtiin ristiintaulukoinnilla, jonka avulla selvitettiin kuinka iso osa alle 30-vuotiaista suomalaisista on kokenut ilmastoahdistusta, ja miten se on vaikuttanut heidän kulutustottumuksiinsa.</p> <p>Tulokset osoittavat, että merkittävä osa - yli kolmasosa - alle 30-vuotiaista suomalaisista on kokenut ilmastoahdistusta. Tämän lisäksi tulokset viittaavat siihen, että ilmastoahdistuksen kokeminen korreloi kestävien kulutustottumusmuutosten kanssa. Korrelaatio oli voimakkainta yleisten kulutustavaroiden kuluttamiseen liittyen, mutta ilmastoahdistusta kokeneet vastaajat olivat muuttaneet myös ravintoon ja asumiseen liittyvää kulutustaan enemmän kuin he, jotka eivät olleet kokeneet ilmastoahdistusta. Jatkotutkimusta voitaisiin keskittää etenkin siihen, miten ilmastoahdistus vaikuttaa muihin käyttäytymisen muotoihin, kuten esim. liikkumiseen tai äänestyskäyttäytymiseen.</p>	
Asiasanat Ilmastonmuutos, ilmastoahdistus, kuluttajakäyttäytyminen, kysely, määrällinen tutkimus	
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1 INTRODUCTION

1.1 Background of the study

Climate change is a globally recognized concern, and there is a very strong scientific consensus that it is largely caused by greenhouse gas emissions from human activities. In their 2018 report, the Intergovernmental Panel on Climate Change (IPCC) estimated that human activities have already caused approximately 1.0°C of global warming above pre-industrial levels, and that the warming will likely reach 1.5°C in the next 10 to 30 years if it continues to increase at the current rate. Should the 1.5°C of global warming be exceeded, the IPCC estimates that the opportunities for adapting to various climate risks will likely become constrained and have limited effectiveness (IPCC, 2018; IPCC, 2022).

The impacts of human caused global warming are already observable in natural systems: rising sea levels, decreases in the extent of Arctic sea-ice, increase of extreme weather events such as heavy precipitation and warm and cold temperature extremes, increases in ocean acidification, decreasing crop yields and changes in the geographic ranges, migration patterns and abundances of several marine, terrestrial and freshwater species. These climate and ecosystem risks are appearing faster and getting more severe sooner than previously estimated (IPCC, 2022).

In addition to its adverse effects on the natural environment, global climate change will affect the health of most human populations and put the lives and wellbeing of billions of people at increased risk. Physical impacts of climate change include for example mortality due to extreme weather events, increase in vector-borne diseases such as malaria, heat-related mortality and increased respiratory illnesses (Hayes et al., 2018). According to estimates by the World Health Organization (WHO), excess deaths due to the “well understood impacts of climate change” will increase by 250 000 per year between 2030 and 2050 (Watts et al., 2015), making it reasonable to refer to climate change as the

most serious global health threat of the 21st century. However, the negative health impacts of climate change are not limited solely on the physical health of humans. Clayton, Manning and Hodge (2014) argue that climate's impacts on human well-being can be divided into three main dimensions: impacts on mental health, impacts on physical health, and impacts on community health. Out of these three distinct categories, the impacts on mental health have been researched the least, and although academic discussion on the topic has been steadily increasing in recent years, there is still a growing need for more information on the mental health consequences of climate change (Hayes et al., 2018; Pihkala, 2018).

Existing research literature on the topic provides increasing evidence that a changing climate and subsequent extreme weather events can trigger a wide variety of mental health issues, including stress, sleep disorders, major depressive disorder (MDD), post-traumatic stress disorder (PTSD), anxiety, depression, survivor guilt, recovery fatigue, substance abuse and suicidal ideation, among others. Other common psychological responses include feelings of hopelessness and despair, as the actions taken to address global climate change might seem insignificant and futile compared to the scale and magnitude of the threats that it poses (Hayes et al., 2018; Pihkala, 2018). These challenging and in some cases even detrimental psychological responses can be divided into direct and indirect impacts (Hayes et al., 2018; Doherty & Clayton, 2011; Reser & Swim, 2011). Doherty and Clayton (2011) further divide the indirect psychological impacts of climate change into vicarious and psychosocial impacts. Direct psychological impacts refer to mental health trauma resulting directly from extreme weather events such as floods, heat waves and hurricanes, whereas indirect and vicarious psychological impacts arise from the awareness of the threats and effects that climate change has on the current and future well-being of life on Earth, which can cause anxiety and long-term emotional distress in some individuals (Doherty & Clayton, 2011; Hayes et al., 2018). Finally, the psychosocial impacts are caused by social, environmental and economic disturbances such as famine, migration and civil conflicts related to or caused by a changing climate.

A significant portion of the currently observed psychological impacts of climate change can be categorized as the abovementioned indirect and vicarious psychological impacts. Especially in the western world, most of these psychological impacts are the result of the continuously developing awareness of climate change as a global existential threat, rather than from experiencing climate change events firsthand. The more people's understanding of climate change grows and expands, the likelier it is to have an impact on their social, emotional and spiritual wellbeing (Fritze et al., 2008; Pihkala, 2018). Instead of experiencing climate change as a direct threat in their daily life, many people perceive it as a global, existential threat to civilization (Hayes et al., 2018). These perceptions often manifest themselves as some sort of anxiety – some people experience stronger and more easily definable states of anxiety, whereas a

considerably larger portion of people experience milder anxiety symptoms such as fear, restlessness, anger, sadness, melancholy and stress (Pihkala, 2018).

As the spectrum of climate change related psychological impacts is quite vast, it is appropriate to find a general-purpose term that encompasses this wide range of symptoms. Pihkala (2018) argues that the term 'eco-anxiety' could be used for this purpose. Eco-anxiety refers to anxiety and other challenging emotions caused by environmental issues and the threats and problems related to them (Hayes et al., 2018; Pihkala, 2019). A special characteristic of eco-anxiety is that it is both ambiguous and comprehensive by its nature – as climate change affects practically all facets of life, its psychological implications can be considered equally extensive. Concern for the environment can affect the choices and behaviour of individuals in numerous ways, and it can often exacerbate the stress and anxiety caused by other significant aspects and decisions in people's lives, such as planning one's future, choosing a new job, family planning etc. Eco-anxiety can become a serious issue if it is strong enough to cause debilitating depression, but in principle it should not be considered a mental illness per se, but rather an understandable reaction to the enormity of environmental issues threatening the Earth (Pihkala, 2019).

Coffey et al. (2021) argue that although the use of the term 'eco-anxiety' has become more and more prevalent in media and in discussions amongst experts, the term is still inconsistently used and further clarity and consistency regarding the emotions and other issues associated with eco-anxiety is required in order to improve the understanding of the concept. Indeed, while research regarding the broader psychological impacts of climate change is quite common, and although some of this literature includes references to eco-anxiety as well, more specific research on eco-anxiety itself remains limited. Naturally, as the concept of eco-anxiety is still relatively unexplored when it comes to academic research, its links to other phenomenon such as environmental action or consumer behaviour, too, requires further familiarization. While there exists a vast amount of research on the relationship (or lack thereof) between environmental attitudes and pro-environmental consumer behaviour, (see e.g., Roberts & Bacon, 1997; Minton & Rose, 1997; Kollmuss & Agyeman, 2002; Dagher & Itani 2012) what is not yet extensively researched is the influence of eco-anxiety – and other psychological impacts of climate change – on consumer behaviour.

1.2 Research task and questions

The objective of this Master's Thesis is to define the concept of eco-anxiety, study how commonly it manifests itself among Finns and explore how it influences the consumption behaviour of Finns below 30 years of age. As discussion about eco-anxiety, particularly among young people, has ramped up both globally and in Finland in the recent years, the author felt that a deeper understanding regarding not only the phenomenon's prevalence but also its impact on

consumer behaviour would be useful from an environmental management perspective.

The choice of focusing particularly on the Finnish population was influenced by two main factors. Firstly, the topic of eco-anxiety and its effect on the consumption habits of Finnish consumers has not yet been thoroughly researched in Finland. Secondly, the author had established connections to Finnish market research companies through their work at the Finnish Innovation Fund Sitra, which provided a great opportunity to utilize an extensive pool of Finnish respondents, whereas access to other countries' data was more restricted. A study focusing on consumers of another nationality, or a broader set of nationalities would have most likely resulted in a smaller sample size thus reducing the accuracy and reliability of the data. Therefore, the author felt that it was appropriate to focus solely on Finnish consumers in this study.

The research was conducted as a quantitative study utilizing the results of an online survey with 2070 respondents as the basis for the research. The survey data was collected by the market research company Kantar TNS Oy as part of Sitra's project on climate emotions, which was led by the author. The author had an active role in designing the survey along with experts from both Sitra and Kantar TNS Oy. A descriptive research design was utilized to formulate the two research questions that answer the research problem.

The study aims to answer the following research questions:

1. What percentage of Finns below 30 years of age have experienced the feeling of eco-anxiety, and how common and strong are the symptoms?
2. How does the perceived eco-anxiety impact the consumption habits of Finns below 30 years of age?

The first research question helps to formulate a current and topical view of the prevalence of eco-anxiety in Finnish society particularly among young people, who in this Master's Thesis are defined as people below 30 years of age. Furthermore, the second research question sheds light on how anxiety related to climate change influences the consumption habits of young Finns. In this Master's Thesis, consumption is determined to particularly refer to household utility consumption (primarily heat, water and electricity), food consumption and general consumption such as clothes or consumer technology. This is done mostly for practical reasons; to narrow down the scope of the study and to make both the research design and data analysis more manageable. The author believes that the answers to these research questions can provide valuable insights into how climate change affects young Finns on an emotional level, and how these effects in turn impact the consumption habits of young Finns. The goal of this Master's Thesis is to increase awareness regarding climate change's psychological impacts and to provide data on how these psychological impacts affect the behaviour of the people experiencing them.

1.3 Structure of the research report

The structure of this Master's Thesis goes as follows: in the theoretical framework part the author will provide a detailed theoretical review on the broader psychological impacts of climate change and how they relate to the more specific phenomenon of eco-anxiety, as well as give a clearly structured definition for the term eco-anxiety. In addition, the author will explore the defining characteristics of pro-environmental consumer behaviour as well as the conceptual framework of factors that influence it, and finally, examine how climate change and the associated psychological impacts, particularly eco-anxiety, affect consumer behaviour. The theoretical framework will be followed by an extensive examination of the research problem and the data collection methods used to gather the necessary data for this research. Next, the author will present the results of the research by analyzing the data collected from the survey, and finally provide conclusions drawn from the data analysis, supported by an examination of the reliability and validity of the research and its findings.

2 THEORETICAL FRAMEWORK

The objective of this Master's Thesis is to define the concept of eco-anxiety and explore how it affects the consumption behaviour of Finns below 30 years of age. In order to successfully do this, the broader psychological impacts of climate change must first be discussed, as anxiety is only one manifestation of the mental health impacts relating to climate change. This chapter of the Master's Thesis will include a deeper look at the wide range of psychological impacts associated with climate change by dividing them into three main categories, and by exploring how the intensity and frequency of these psychological impacts vary between different communities and groups of people. Additionally, this chapter will include an analysis of the theory of consumer behaviour with a focus on pro-environmental behaviour and behaviour change, before discussing the effects eco-anxiety can have on consumer behaviour.

2.1 Psychological impacts of climate change

Compared to the rather extensive documentation and academic discussion regarding the physical health effects of a changing climate, the psychological impacts of climate change have so far received relatively little attention. Doherty and Clayton (2011), however, argue that climate change should be perceived not only as a geophysical phenomenon, but as a social and psychological phenomenon as well, and that there exists sufficient evidence that its impacts reach far beyond just the biophysical sphere. Therefore, the author believes that there is good reason to focus research on the non-physical impacts of climate change in addition to the already well-researched physical dimensions.

One of the key aspects regarding the psychological impacts of climate change is to recognize that the impacts will vary widely between individuals and communities depending on a range of factors. The impacts can occur after or even before an extreme weather event (Clayton et al., 2017), they can be the result of more gradual changes in the climate over a longer period of time, or they can

stem simply from the realization and awareness of the consequences of a rapidly changing climate, even if the physical effects of climate change would not necessarily hit close to the person experiencing these mental health impacts. The actual mental health impacts of climate change can take many forms: from minimal stress symptoms to clinical disorders such as anxiety, depression, post-traumatic stress disorder (PTSD), sleep deprivation and even suicidal ideation (Cianconi, Betro & Janiri, 2020).

Several scholars (e.g., Hayes et al., 2018; Doherty & Clayton, 2011; Reser & Swim, 2011) propose that the psychological impacts of climate change can be divided into direct and indirect impacts. Furthermore, Doherty and Clayton (2011) divide the indirect psychological impacts into indirect and vicarious impacts and psychosocial impacts. See Figure 1 for an overview of these different categories of psychological impacts of climate change. However, it is important to keep in mind that these categorizations are not absolute, and that many of these psychological impacts partially overlap and can also occur simultaneously.

In the following chapters, the author will explore the different dimensions of the psychological impacts of climate change through this framework provided by Doherty and Clayton (2011) by taking a closer look at each of the three categories, examining what sets them apart, what kind of specific mental health impacts they entail, and which communities or groups of people are usually most susceptible to them.

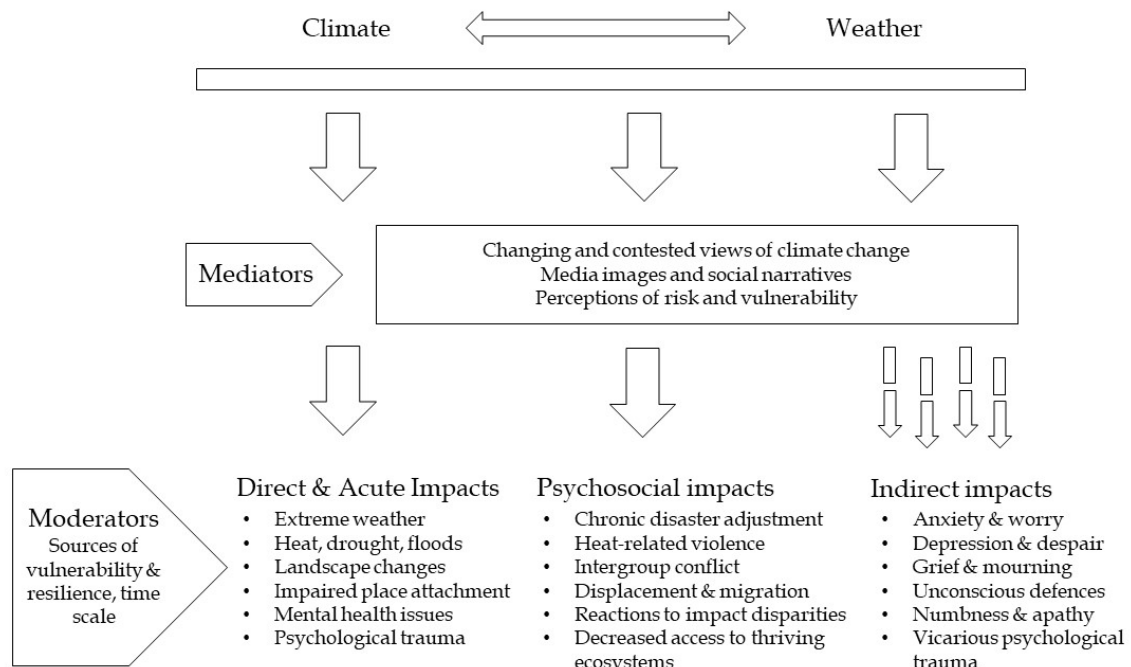


Figure 1. Differentiating between classes of psychological impacts (Doherty & Clayton, 2011).

2.1.1 Direct psychological impacts

It is important to note that climate change will not affect all regions and communities in a similar fashion. Certain regions in the world are particularly vulnerable to the direct physical effects of climate change due to their geographical location alone. The direct physical impacts of climate change can vary widely from serious natural disasters with immediate effects, such as floods, wildfires, and hurricanes, to more gradual effects that show themselves over longer periods of time, such as changing weather patterns, deforestation, desertification or rising sea levels (Clayton, Manning & Hodge, 2014).

The psychological responses to climate change-induced physical impacts on the environment vary widely depending on the type, scale and abruptness of the impacts, as well as the social, cultural and historical context in which they occur. The severity of these psychological responses is also affected by the degree of vulnerability of the individuals and communities experiencing the impacts, as well as the availability of appropriate emergency responses and resources for support and rebuilding (Fritze et al., 2008).

Regions with a high degree of vulnerability to climate change-related extreme weather events include, for example, small island developing states (SIDS) such as the Maldives (Hassan & Cliff, 2019), Middle East (Gornall, 2018), and South Asia (Kulp & Strauss, 2019). According to Clayton et al. (2014), one of the most important factors increasing a region or community's vulnerability to the psychological effects of climate change is "the frequency and intensity of climate impacts." Therefore, it is rather safe to assume that communities living in regions with a high vulnerability to the physical impacts of climate change are, on average, at a higher risk of suffering from the psychological impacts of climate change as well.

In addition to the physical impacts of climate change, other factors affecting communities' and individuals' vulnerability are, for example, a weakened state of physical infrastructure and socioeconomic issues such as economic inequality and low education levels, which in many cases are prevalent in the same regions that are also geographically most vulnerable to climate change (Clayton et al., 2014). The groups and communities that are most susceptible to the diverse psychological impacts of climate change are discussed in more detail in Chapter 2.1.5.

Research regarding the mental health consequences of climate change-related extreme weather events is quickly expanding, and there exists a constantly growing amount of evidence linking the two. According to Hayes et al. (2018), extreme heat and humidity are a particularly notable driving force for a wide array of mental health consequences, and that they often result in increased hospital admissions for serious mood and behavioural disorders such as schizophrenia, mania, and other neurotic disorders. An interesting observation relating to extreme heat is that it tends to disproportionately affect people with impaired thermoregulation, a condition in which "exaggerated or abnormal changes in body temperature occur spontaneously or in response to environmental or internal stimuli" (Skelton, 2013). Thermoregulatory

dysfunction often occurs in people with pre-existing mental health disorders, people who suffer from alcohol and drug abuse and people taking prescription medication, namely lithium, neuroleptic and anticholinergic drugs (Hayes et al., 2018).

Extreme heat events are also directly linked to wildfires, which can cause substantial negative mental health consequences to those caught in their way. For instance, Bryant et al. (2014) studied the psychological impacts of the Black Saturday bushfires in Victoria, Australia on the communities that were most vulnerable to the effects of the fires and found links to post-traumatic stress disorder, depression and severe psychological distress. Similar results have also been observed in other parts of the world that regularly experience wildfires. For example, victims of wildfires in Greece have showcased increases in depression, paranoia, hostility and anxiety, and out of Californian residents affected by wildfires, 33 percent have showed symptoms of major depression and 24 percent have showed symptoms of post-traumatic stress disorder (Cianconi et al., 2020; Adamis et al., 2011).

In addition to heat and wildfires, other extreme weather events that are often linked to detrimental psychological consequences include natural disasters such as floods and hurricanes. Climate change-induced natural disasters have been shown to have a particularly high potential for causing immediate and severe psychological trauma resulting for example from personal injury, the injury or death of a loved one, or damages to or loss of personal property (Clayton et al., 2017). Fritze et al. (2008) have stated that acute traumatic stress is the most commonly occurring psychological impact related to natural disasters. Although these acute symptoms of trauma often subside after the disaster event has passed and after safety and security conditions in the affected area have been restored, many survivors also report prolonged chronic mental health disorders such as post-traumatic stress disorder, depression, suicidal ideation or general anxiety (Clayton et al., 2017).

Some concrete examples from academic research include the study by Tunstall et al. (2006), who found that impacts on mental health were more prevalent than physical impacts among people affected by flooding across England and Wales. Additionally, Cianconi et al. (2020) state that mental health effects seem to be “the principal effect” for flood survivors, often leading especially to post-traumatic stress disorder. Indeed, a study by Waite et al. (2017) found that as many as 36 percent of direct flood victims had been diagnosed with post-traumatic stress disorder, 28.3 percent with anxiety and 20 percent with depression. There are several flood-related factors contributing to the risk of suffering from depression, anxiety or post-traumatic stress disorder, as shown by studies conducted all over the world, from Bangladesh to Venezuela. These factors include for instance mourning, displacement and stress resulting from the loss of lives and belongings (Cianconi et al., 2020).

Regarding the mental health impacts resulting from hurricanes, the survivors of Hurricane Katrina have probably been researched the most. A study by Whaley (2008), for instance, estimated that between 20 to 35 percent of the

people affected by Hurricane Katrina experienced some forms of mental health issues following the event. Further, Rhodes et al. (2010) reported that 47.7 percent of low-income residents in New Orleans showed signs of post-traumatic stress disorder after the disaster, while Galea, Brewin and Gruber (2007) found that almost one third of the survivors of Hurricane Katrina showed anxiety-mood disorders.

As mentioned above, not all climate change-induced physical impacts occur abruptly and wreak havoc in a short period of time such as floods, hurricanes or wildfires. Some physical impacts build up over longer periods of time and can be identified and monitored well in advance. Such gradually unfolding environmental changes have been shown to cause acute and chronic psychological impacts in people whose physical living environments undergo changes that fundamentally change their spatial and cultural foundations (Doherty & Clayton, 2011; Cianconi et al., 2020).

When it comes to psychological impacts, one of the most researched gradually unfolding climate hazards is drought. Droughts directly affect food and water supplies which can have a direct impact not only on food and water security of the affected regions, but on the economic and mental wellbeing of the people living in the area as well (Hayes et al., 2018; Vins et al., 2015). Furthermore, the adverse impacts from drought are often disproportionately focused on rural and remote communities. For instance, O'Brien et al. (2014) found that rural people experience more drought-related distress than people living in urban centers. The authors concluded that the economic adversity resulting from land degradation is the main driving force of the mental health impacts relating to droughts, and that these effects are most commonly seen in farm workers whose livelihoods and financial stability are directly dependent on the environment. Supporting evidence has been provided for example by Stain et al. (2008), whose study showed that over 70 percent of farmers or farm workers reported high levels of stress due to prolonged drought. In addition to mental distress, even suicidal ideation has been reported among farmers who have experienced serious financial insecurity related to droughts (Ellis & Albrecht, 2017). Persistent, long-term drought has also been linked to psychosocial impacts such as intergroup conflicts, displacement and forced migration, which will be discussed in more detail in Chapter 2.1.4.

Another gradually unfolding climate hazard with psychological implications is deforestation. Deforestation refers to the loss of plant biomass due to both human activity and climatic events. The world loses around 5 million hectares of forest cover annually, 95 percent of which occurring in the tropics. The main drivers of deforestation are agriculture, animal grazing and mining, with agricultural activities such as clearing forests for crop land and raising livestock accounting for at least three quarters of the total amount of global deforestation (Ritchie & Roser, 2021).

Biospheric concern refers to a type of stress caused by the witnessing of plants or animals in a vulnerable state and is often linked with deforestation and other forms of loss of plant life. Individuals experiencing biospheric concern have been

reported to perceive climate change threats as having profound effects on their own or their family's life (Helm et al., 2018). Furthermore, changes in landscapes can cause individuals to develop a significant sense of loss of connection to familiar environments. The term *solastalgia* refers to this type of detachment, particularly in cases where an individual is struggling to adapt to changes in the environment and is at risk for mental health issues.

Increase in sea level is another slowly occurring climate change-induced event that causes changes in landscapes and is associated with solastalgia. Global sea level is expected to rise somewhere between 30 to 120 centimeters by the end of the century, mostly due to melting glaciers and the expansion or warming water molecules. This puts enormous pressure for example on countries with low-lying urban areas and small island developing states, or SIDS. Residents of such countries could be forced to migrate to other areas, possibly leading to a host of mental health implications, such as post-traumatic stress disorder, anxiety, depression, substance abuse, and loss of autonomy, control, and identity, which can further lead to feelings of e.g., fear, helplessness, solastalgia and eco-anxiety (Asugeni et al., 2015; Cianconi, Betro & Janiri, 2020). Many of the aforementioned mental health effects, particularly solastalgia and eco-anxiety, are commonly categorized as being more of *indirect* mental health consequences of climate change. Both of these phenomena, as well as other indirect and vicarious mental health impacts, are discussed more thoroughly in the following chapter.

2.1.2 Indirect and vicarious psychological impacts

In addition to the physical experience of climate change-induced environmental events – such as the ones listed in the previous chapter – climate change can impact people's mental health through the realization and awareness of climate change as an ongoing global environmental threat. The more this understanding and awareness grows and deepens, the stronger its impacts on people's social and emotional wellbeing. These long-term mental health impacts that arise from the growing awareness of the climate crisis are often referred to as the indirect psychological impacts of climate change (Fritze et al., 2008).

Doherty and Clayton (2011) describe these indirect psychological impacts as follows: "The indirect, vicarious impacts of global climate change include emotional and affective responses associated with viewing images of environmental degradation or human suffering in the media or with questions of lifestyle or purchasing choices." Anxiety and worry are particularly commonly associated with the awareness of the looming threats to the environment and human societies caused by climate change, but other symptoms are often present as well, such as: stress, depression, grief, sense of loss, mourning, numbness, and apathy (Dodgen et al., 2016; Doherty & Clayton, 2011).

This emotional distress related to the awareness of the extensive range of problems resulting from climate change is still a relatively new and under-researched topic in academia, with no distinct and widely adopted terminology among researchers. There are, however, some terms with comparable definitions that are often used when discussing these indirect and vicarious psychological

impacts of climate change. For instance, the Australian environmental philosopher Glenn Albrecht (2011) suggests that these psychological impacts contribute to “psychoterratic syndromes”, which include the following phenomena: *solastalgia*, *ecoparalysis*, *econostalgia* and *eco-anxiety*.

Solastalgia refers to “the distress and isolation caused by the gradual removal of solace from the present state of one’s home environment”, whereas ecoparalysis refers to the complex array of feelings stemming from an individual’s inability to effectively mitigate climate change risks. Econostalgia, on the other hand, refers to the melancholia experienced by individuals who return to a familiar biophysical location that has been completely transformed in their absence, either by climate change or human development (Albrecht, 2005; Albrecht et al., 2007; Albrecht, 2011; Hayes et al., 2018).

The final phenomena related to these psychoterratic syndromes, eco-anxiety, can be defined as the anxiety people experience from being constantly surrounded by the complex problems related to climate change. Eco-anxiety is probably the most well-known and most widely used term when discussing the psychological impacts resulting from the awareness of the dangers of climate change. It has gained considerable traction in recent years, particularly in social and editorial media, and the phenomenon’s prevalence especially among younger generations has been widely reported in international news outlets (See e.g., Gregory, 2021; Harrabin, 2021; Young, 2020; Thompson, 2021).

The indirect and vicarious psychological impacts of climate change – and more specifically eco-anxiety – and their effect on the consumption habits of young Finns are the focus of this Master’s Thesis. In the following chapter, the author will define the term eco-anxiety in detail.

2.1.3 Eco-anxiety

Eco-anxiety is a wide-ranging phenomenon that can be examined and approached from several different frames of reference (Pihkala, 2019). In its broadest definition, eco-anxiety can be described as being part of an expansive set of negative feelings and emotions related to climate change and other environmental threats. Other such negative feelings include, for instance, fear, despair, anger and melancholy. In this wide-ranging context eco-anxiety can be seen as a part of the phenomenon where the state of the world – or so-called macrosocial factors – affect an individual’s mental health (Coffey et al., 2021; Pihkala, 2019).

There also exists a wide array of more specific definitions for eco-anxiety in academic literature related to the psychological impacts of climate change. Most of these definitions are very similar to each other, to the point of being interchangeable. Some examples include Clayton (2020), who defines eco-anxiety as “Anxiety associated with perceptions about climate change, even among people who have not personally experienced any direct impacts.”; Helm et al. (2018), who state that eco-anxiety is “A severe and debilitating worry related to a changing and uncertain natural environment.”; and Stanley et al. (2021), who describe eco-anxiety as “Anxiety experienced in response to the ecological crisis.”

Panu Pihkala (2018), one of Finland’s leading experts in the psychological dimensions of climate change, prefers to use the term eco-anxiety as a sort of general “umbrella” term for the wide range of psychological impacts caused by environmental threats such as climate change. Pihkala states that anxiety is often the result of a broad spectrum of emotions that an individual has been unable to sufficiently process, and that although some authors prefer to use terms such as environmental concern, environmental stress, or environmental distress, none of these terms represent the range of emotions as adequately as eco-anxiety. The author has decided to use the term eco-anxiety in the same way in this Master’s Thesis: as a general umbrella term for the wide range of emotions related to environmental threats.

These different emotions are often divided into “positive” and “negative” emotions in academic literature, but Pihkala (2019) points out that this kind of division might unnecessarily present some emotions as more desirable or “good”, and others as avoidable and “bad”, although in reality any of the emotions related to eco-anxiety can be either sources of empowerment or deflation. In order to avoid unintendedly dismissing or repressing some of these emotions related to eco-anxiety, some researchers suggest using the term “difficult emotions”. These difficult emotions include, for example, grief, trauma, fear, powerlessness, helplessness, anger, guilt, shame, and inadequacy. The general framework for processing and coping with these different emotions related eco-anxiety is laid out in Figure 2.

The emotional coping trajectory of eco-anxiety

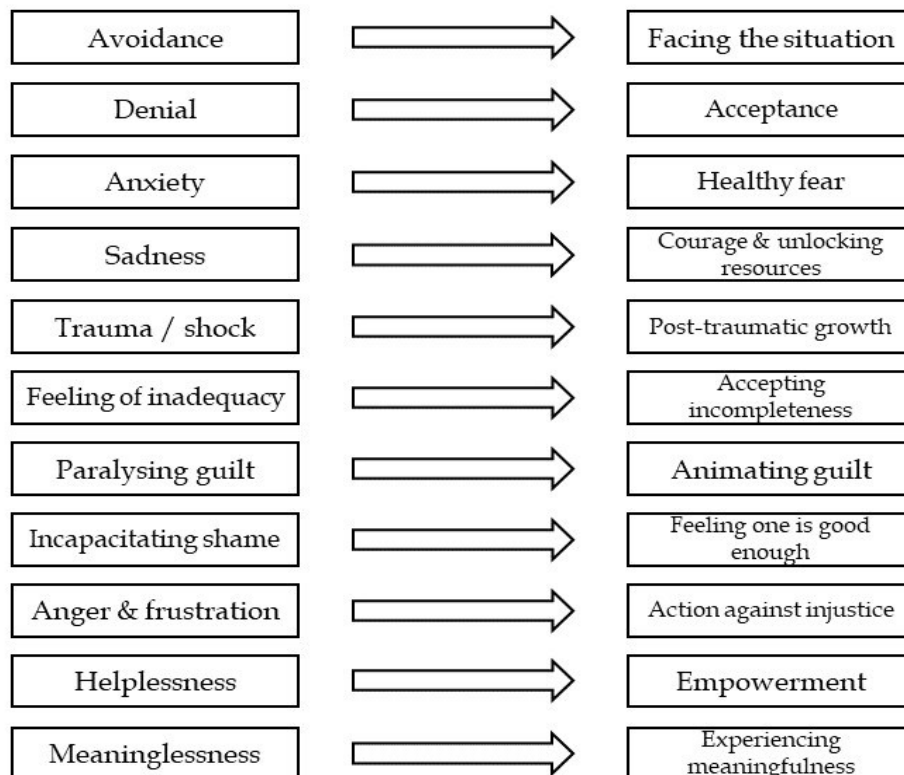


Figure 2. The emotional coping strategy of eco-anxiety (Pihkala, 2019).

According to Pihkala (2019) eco-anxiety can become a serious problem if it is strong enough to cause paralysis¹ or depression, but that in principle, it should not be viewed as an illness but rather as an understandable reaction to the enormous scope of environmental challenges the world is facing. Pihkala continues to state that eco-anxiety can in fact be a considerable source of mental fortitude, as long as the individual experiencing eco-anxiety has devoted sufficient time and space for dealing with their emotions and finds sufficient opportunities for meaningful climate action. Coffey et al. (2021) agree and write that “While negative emotions are often associated with eco-anxiety, they can also be a healthy psychological adaptation and response to threat.”

Pihkala (2019) states that the symptoms of eco-anxiety can be roughly divided into two main categories: severe and mild symptoms. Severe symptoms include, for example, considerable psychosomatic signs of mental illness such as severe sleep disorder, depressive episodes, clinically diagnosed anxiety disorders, obsessive-compulsive disorders that have been called e.g., “climate anorexia” or “climate orthorexia”, chronic difficulty maintaining functioning, and at its most severe, self-destructive behaviour, such as substance abuse or self-harming. Milder symptoms include, for instance, occasional sleep disorders, restlessness, feeling sad, occasional difficulty maintaining functioning, or mood swings (Pihkala, 2019; Clayton et al., 2017; Berry et al., 2018).

The prevalence of eco-anxiety in the general population, especially in Finland, has not yet been extensively studied, although Pihkala (2017) estimates that the majority of people experience some sort of anxiety (in a broad sense) related to climate change, due to the extensive scope of the phenomenon. It’s also important to note that eco-anxiety might not be easily identified in surveys due to respondents’ tendency to be in denial of such emotions (Pihkala, 2017). For example, in a survey conducted by Taloustutkimus Oy on behalf of Loiste (2019), 67 percent of respondents reported being concerned about climate change, while only 17 percent specifically reported themselves as experiencing eco-anxiety. One major factor possibly influencing such results is the fact that different people can have different meanings and definitions for the term ‘anxiety’, and while some might perceive it as being closer to a state of serious anxiety disorder, others might think of it as being more akin to worry (Sangervo, 2020).

Hickman et al. (2021) surveyed 10,000 young people (aged between 16 to 25 years) in ten countries on their thoughts and feelings about climate change and found that an overwhelming majority of respondents were very or extremely worried (59 percent) or at least moderately worried (84 percent) about climate change. More specifically, over half of the respondents reported feeling either sadness, anxiousness, anger, powerlessness, helplessness or guilt relating to climate change.

As climate change affects practically all aspects of life, its psychological impacts can be simultaneously both explicit and significant as well as ambiguous and difficult to point out. Climate change-induced anxiety can increase stress related to other issues, such as career choices or parenting, and oftentimes eco-

¹ As in a state of powerlessness or incapacity to act

anxiety is reported along with other stressors (Pihkala, 2019). Research has shown that certain factors and circumstances can make individuals more vulnerable to the more severe symptoms of eco-anxiety, and more susceptible to the adverse mental health impacts from climate change and other environmental threats in general. The author will examine these more vulnerable population groups in more detail in Chapter 2.1.5.

2.1.4 Psychosocial impacts

The direct and indirect psychological impacts of climate change discussed in the previous two chapters affect people mostly on an individual level. However, in addition to these individually experienced mental health effects, climate change can have impacts on a more social and communal level as well. The term *psychosocial*, or, more specifically, *psychosocial impacts*, is well suited to describe these effects on social and community relationships and is used in academic literature regarding the psychological impacts of climate change by e.g., Doherty and Clayton (2011). The American Psychological Association (APA, 2020) defines psychosocial as: “*adj.* describing the intersection and interaction of social, cultural, and environmental influences on the mind and behaviour.”

While some of these psychosocial impacts can be directly related to changing climatic conditions, the majority of them are most likely the indirect results of changes regarding how people occupy and utilize different regions and territories. A changing climate will inevitably have an effect on which regions will be cut out for agricultural and aquacultural activities, as well as influence which territories will be suitable for human habitation. These changes will consequently alter the geographical distribution of population groups, which in turn will have consequences for both interpersonal and intergroup relations (Doherty & Clayton, 2011).

People who are forced to move from their home region because of climate change are called *climate refugees*, and in 2020, the UN Human Rights Committee ruled that people who are fleeing the effects of climate change cannot be forced to return to their home countries by the country they have immigrated to. As the amount of people forced to leave their homes due to climate change has been estimated to reach as many as 200 million by mid-century, the risk for increased tensions and intergroup conflict can increase significantly (Picheta, 2020; Clement et al., 2021).

On a broader scale, people who are uprooted from their homes due to sudden or long-term environmental changes are referred to as *environmental migrants*. The International Organization for Migration (IOM, 2007) defines environmental migrants as: “persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad.” Environmental migrants are further divided into sub-categories by the International Organization for Migration, which are: environmental emergency migrants, environmental forced migrants, and

environmental motivated migrants. Climate refugees, too, are considered to be a subset of environmental migrants.

Environmental migrants can suffer the psychosocial impacts from displacement and relocation, where a loss of connection to one's home can have serious negative mental health effects. Forced relocations due to climate change can seriously fracture existing social networks, cut off ties to places with high emotional value, and hinder the ability to uphold the cultural integrity of the affected peoples. Social exclusion is another form of psychosocial consequence often affecting people who are forced to migrate due to climate change. Social exclusion refers to a lack of connection with a wider community, and can entail, for example, lack of economic participation, social disconnection and a decreased access to services and thriving ecosystems (Doherty & Clayton, 2011; Fritze et al., 2008).

Other dimensions to the psychosocial impacts of climate change include for instance *heat-related violence*. According to Doherty and Clayton (2011), a causal relationship between heat and violence has been established in both experimental and correlational research, which have shown that an increase in temperature is likely to go along with an increase in violently aggressive behaviour. Fritze et al. (2008), on the other hand, point out that a direct causal link between climate change and violent conflict is still a topic of conflicting views. At the very least, climate change is likely to negatively affect human security by reducing access to and increase competition for natural resources that are necessary to sustain livelihoods. This in turn has historically been established to have links to increased violence. These *intergroup conflicts* are another highly probable psychosocial impact of climate change.

The degree and severity of these psychosocial impacts of climate change is also affected by other simultaneously occurring trends and patterns, and even if the impacts or the drivers behind those impacts – such as environmental immigration – is constricted to a particular geographical region, the possibly resulting economic consequences can have spill over effects in other countries as well (Doherty & Clayton, 2011).

2.1.5 Exposure groups

There are certain groups of people that have been identified to be at a higher risk for anxiety, distress, and other adverse mental health effects relating to climate change. The vulnerability of any given group of people to these negative psychological impacts is determined by their sensitivity and exposure to climate change related health risks, as well as their capacity for responding and adapting to changing climatic conditions. Factors contributing to sensitivity and exposure include, for example, a person's occupation, where a person lives, a person's ability to respond to extreme weather events (for instance, low-income populations or those with limited mobility tend to have fewer chances of evacuating in a case of emergency), and a person's socioeconomic status and access to appropriate infrastructure and health care. Many of the same factors

contributing to sensitivity and exposure also contribute to an individual's or community's ability to respond and adapt to climate change (Gamble et al., 2016).

Groups of people with an increased vulnerability to the negative mental health effects of climate change include, for example, women (particularly pregnant and post-partum women), people with pre-existing mental health issues or compromised mobility or cognitive function, children, the elderly, the homeless and other economically disadvantaged groups of people, as well as emergency workers and first responders. Additionally, communities or individuals whose livelihood depend on the natural environment, such as farmers or professional fishers and hunters, are also more susceptible to the adverse mental health effects of climate change (Dodgen et al., 2016; Gamble et al., 2016).

Because the effects of climate change often disproportionately affect regions and communities with a lesser degree of economic and social privilege, there is a dimension of social justice implications of climate change that need to be addressed as well (McMichael et al., 2008).

2.2 Consumer behaviour

As the objective of this Master's Thesis is to explore the effect of eco-anxiety on the consumption habits of young Finns, it's important to understand the context and framework in which consumption habits are formed in the first place, and which factors influence consumer behaviour in general. In this chapter, the author will present and examine previous academic literature particularly concerning pro-environmental consumer behaviour; how, why and under which circumstances changes in consumer behaviour occur, and how climate change has been found to impact consumer behaviour in earlier studies.

2.2.1 Pro-environmental consumer behaviour

In the academic discussion concerning consumer behaviour, pro-environmental consumer behaviour, or 'green consumerism', or 'green purchase behaviour' has received ever increasing interest from consumer behaviour scholars (Nguyen, Lobo & Greenland, 2016).

Before examining the more specific concept of pro-environmental *consumer* behaviour, it is useful to understand what is meant by pro-environmental behaviour in general. Steg et al. (2014) defines pro-environmental behaviour as "any action that enhances the quality of the environment", while Stern et al. (1999) classified pro-environmental behaviour as belonging to two distinct categories or 'spheres': public and private. Public sphere behaviour is considered to consist of environmentally positive citizenship (such as petitioning on sustainability issues), committed activism and support for pro-environmental policies, while behaviour in the private sphere refers to the purchase and use of products that have a benign impact on the environment.

It is this kind of private-sphere behaviour that is meant when discussing pro-environmental *consumer* behaviour, which refers to purchasing products and services that have as positive of an impact on the environment as possible (Mainieri et al., 1997). This kind of purchasing behaviour has been further divided into two subcategories by Stern (2000), based on how the environmental impact of such behaviour is spread out during the stages of production and consumption. For example, purchasing products such as organic food or recycled clothes reflects the kind of consumption behaviour that influences the environmental impact of future production demand, whereas for example major household purchases, such as a car or a washing machine, tend to have a more significant environmental impact during the consumption or use stage of the product's life cycle.

2.2.2 Determinants of pro-environmental consumer behaviour

According to Nguyen et al. (2016), the Theory of Planned Behaviour has been successful in predicting environmentally beneficial behaviour, such as recycling or sustainable consumption choices. The Theory of Planned Behaviour (Ajzen, 1991) refers to a psychological theory according to which an individual's behavioral intentions are mostly formed by three main elements: attitude, subjective norms, and perceived behavioral control. Furthermore, the Theory of Planned Behaviour states that behavioral intention is a core determinant of human social behaviour. Academic research on the Theory of Planned Behaviour has found that individuals are more likely to act in an environmentally sustainable manner if they believe that such behaviour will result in increased social approval, positive consequences, and greater control over performing the behaviour, which link back to the three core elements of the Theory of Planned Behaviour: subjective norms, attitude, and perceived behavioral control, respectively (Nguyen et al., 2016; Kalafatis et al., 1999).

However, critics say the Theory of Planned Behaviour focuses excessively on self-interest motives, and other determining factors such as personal beliefs and values are left under-examined in the theory. Indeed, Nguyen et al. (2016) state that the role of personal values in determining pro-environmental behaviour is an area of growing interest in the academic literature concerning sustainable consumption, and that a direct link between personal values and sustainable consumption choices have been found in several studies.

Carrete et al. (2012) suggest a framework for determining the factors that influence eco-friendly behaviour in individuals in which they have divided these factors into three distinct dimensions: external, internal and situational. External factors include e.g., education, culture, and media, internal factors consist of e.g., beliefs, attitudes, knowledge, awareness, and values, whereas situational factors refer to e.g., legislation and economic rewards. Another similar framework is presented by Zhang and Dong (2020), who, based on an extensive literature review, classified the factors influencing pro-environmental consumer behaviour into individual and external factors, where the external factors are further

divided into social and product-related factors. This comprehensive framework by Zhang and Dong (2020) is showcased below in Figure 3.

Determinants of pro-environmental consumer behaviour

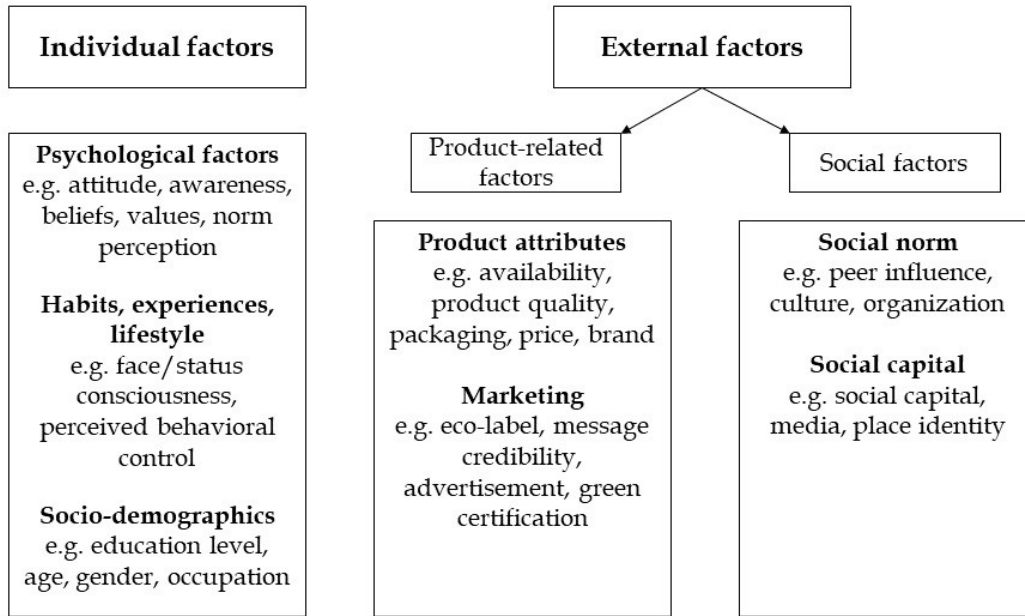


Figure 3. Determinants of pro-environmental consumer behaviour (Zhang & Dong, 2020).

2.2.3 Changing consumer behaviour

Like any other behaviour, consumption behaviour can become habitual and routinized (Knowles et al., 2020; Verplanken & Wood, 2006). There are several factors that can influence disruptions in consumption habits and ultimately elicit consumer behaviour change. These factors are often contextual in nature and external to the individual consumer, such as natural disasters or changes in social context, technology or laws and regulations (Sheth, 2020; Verplanken & Roy, 2016).

Verplanken and Wood (2006) argue that a disruption in consumption habits alone does not lead to actual, lasting behaviour change, and instead suggest that successful behavioural change occurs in interventions that can be divided into three phases: 1) changes in the contextual circumstances which prompt a previously routinized habit 2) creation of supportive incentives for the new actions 3) forming associations between actions and the surrounding environment by repetition of the new actions (Verplanken & Wood, 2006; Kaijalainen, 2021).

Additionally, Verplanken and Wood (2006) suggest that weak and strong consumption habits require different kinds of interventions for eliciting effective change. These interventions can be divided into downstream (e.g., education, self-help programs, information campaigns) and upstream (e.g., economic

incentives, legislation, structural changes in environment) interventions. Strong consumption habits are difficult to change with downstream interventions, and one should instead focus on upstream interventions, which aim at targeting the contextual circumstances that prompt previously routinized habits (Verplanken & Wood, 2006; Kaijalainen, 2021).

2.2.4 Climate change's impact on consumer behaviour

The interconnections between climate change and consumer behaviour are extremely complex. Although there exists an extensive amount of research regarding the most impactful and effective behavioural changes from a climate perspective, the majority of consumers have difficulties identifying what these behavioural changes are and which of them are really worth performing in order to most effectively help the climate. Current research indicates that convenience is a fundamental element when it comes to climate friendly behaviour, and that pro-environmental behaviour should be made as easy as possible in order to affect widespread change in the consumer base (Thøgersen, 2021).

A global survey conducted by Ipsos (2021) in the autumn of 2021 with 23,055 respondents aged 16 to 74 across 29 countries showed that on average, 56 percent of the respondents have changed their consumer behaviour due to concern about climate change over the past few years. More specifically, 17 percent of respondents have reported to have made a lot of changes in their consumption habits, 39 percent a few changes, and 31 percent said that they have made no changes at all to their consumption. While the global average was still over 50 percent in the latter half of the year 2021, the figure has decreased considerably during the COVID-19 pandemic. Indeed, when an identical question was asked in 27 countries in January 2020, as many as 69 percent of respondents reported to have modified their consumption habits due to climate change. In addition to the global average, the portion of people who have reported to have changed their consumption habits specifically out of concern for climate change has fallen in every country that participated in both of the studies (Ipsos, 2021).

Out of the individual consumer behaviour actions, recycling, sorting waste or composting was the most popular, with 46 percent of respondents reporting to do those activities more often than they used to due to concern regarding climate change. Other popular behavioural changes included energy savings at home (43 percent of respondents), avoiding food waste (41 percent) and reducing water usage at home (41 percent.) The least popular behavioural changes were flying less (14 percent), eating fewer dairy products (12 percent) and changing the size, fuel or energy type of one's vehicle, with only 10 percent of respondents reporting to have done that. In general, women are reportedly more likely to engage in climate concern-induced consumer behaviour change (Ipsos, 2021).

The effects of climate change - and even more specifically, eco-anxiety - on consumer behaviour have also been notified by e.g., Sainsbury's in the United Kingdom, whose 'Future of Food Report' (2019) noted that a growing number of consumers is "putting the planet first when writing our shopping list", and that

the supermarket chain in question alone had seen a 65 percent increase in the sale of plant-based products year-on-year.

Additionally, the most recent Ethical Consumer Markets Report (2021) showed that demand for ethical and sustainable consumer products in the United Kingdom is on the rise. Ethical consumer spending and finance reached a record high of £122bn at the end of 2020, and significant growth can be seen particularly in the low-carbon home and lifestyle spending, with considerable increases in eco-travel and transport (72.6 percent increase in 2020 compared to the previous year), green home (which includes energy-efficient appliances, energy-efficient boilers, ethical cleaning products and green electricity tariffs; 34.6 percent growth), and ethical food and drink (12.3 percent growth) categories.

The abovementioned figures are examples of changes in consumer behaviour specifically in the United Kingdom, which can at least partly be attributed to the concern about climate change and the impacts it has on consumers' mental health. In the following chapters, the author will describe the process through which the data for this Master's Thesis was gathered and present the results on how climate change - and more specifically *eco-anxiety* - has impacted the consumption habits of Finns below 30 years of age.

3 DATA AND METHODOLOGY

In this chapter, the author will explore and compare the two main categories of research methods – qualitative and quantitative – and assess their suitability for answering the two research questions of this Master’s Thesis. Additionally, the author will justify his choice of research method and define and examine the advantages and disadvantages of survey as a specific quantitative research method, and finally, present how the data collection for this Master’s Thesis was conducted and how the data was analysed.

3.1 Collection of data

The two main sources of research data are primary and secondary data. Primary data refers to raw data that has been collected by the researcher themselves and which has not yet been analysed or interpreted in any way. On the other hand, secondary data represents pre-existing information that can be accessed e.g., in public libraries, universities, company records or on the internet (Hair, Bush & Ortinau, 2006).

3.1.1 Qualitative and quantitative research

There are two distinct ways to approach a research study; qualitatively or quantitatively. The choice between using either qualitative or quantitative research methods depends on the objectives of the research. The focus in qualitative research is to acquire a deep and extensive understanding of the underlying reasons and motivations that guide and affect for example specific behaviour or phenomena. Qualitative research generally emphasizes in-depth information that is gathered by observing the behaviour or asking open-ended questions of a relatively small sample of participants. Qualitative research methods often allow for a relatively quick data collection process but translating the raw data into meaningful findings tends to take more time. Qualitative data

can be particularly useful when explaining e.g., consumer and marketplace behaviour and decision-making processes. However, due to the small sample sizes and the non-structured, open-ended nature of the questions used in qualitative research, it is mainly not generalizable to a large population (Hair et al., 2006).

Quantitative research focuses on exploring relationships between different numerically determined variables, which are analysed by utilizing a wide selection of statistical and graphical techniques (Saunders, Lewis & Thornhill, 2019). The quantification of data is one of the main purposes of quantitative research. It often focuses on presenting questionnaires or surveys with formalized questions and predetermined response options to large masses of research subjects, who are called respondents. The researcher is generally seen as independent from the respondents, and they must be skilled in questionnaire design as well as statistical data analysis and be able to construct coherent and meaningful narratives from numerical data. Because the data is collected in a standardised manner, the researcher must pay particularly close attention to ensure that the design and final wording of the questions are as clear as possible, so that their meaning is understood and interpreted in the same way by each research participant (Hair et al., 2006; Saunders et al., 2019).

The main concerns of quantitative research are related to the validity and reliability of data. A critical factor in ensuring the validity and reliability of data is the careful formulation of the questionnaire or survey questions and making sure that the researcher's own biases or expectations don't influence the tone of the questions. Quantitative research also tends to present complex and multidimensional concepts and phenomena in numerical form, which can run the risk of over-simplifying and misrepresenting reality (Hair et al., 2006; Zikmund et al., 2012; Bell & Bryman, 2018).

On the other hand, quantitative research is optimal for gathering large sets of data in a short period of time, and as the sample groups are more randomized, the results can often be generalized to a larger group than just the observed group of participants. Furthermore, quantitative research methods allow a higher degree of anonymity for the research participants. This can lead to more open and genuine answers, as the respondents might be less inclined to give answers they think are expected from them. Additionally, respondents might also be more open to giving answers that might be perceived as embarrassing or shameful in a more public setting. This reduces the risk of researcher-created bias, although it's still something that has to be taken carefully into account when formulating the questionnaire. In general, the results gained from quantitative research are considered to be more easily repeatable and reliable (Bell & Bryman, 2018; Saunders et al., 2019).

As the author wanted to study the prevalence of eco-anxiety and its effects on the consumption habits of a large group of people – in this case, Finns below 30 years of age – a research method which yields results that are generalizable to a large population was required. Therefore, the choice of research method for this Master's Thesis was easy, as quantitative research provides the researcher with

the right tools for gathering large amounts of generalizable data in a timely manner.

3.1.2 Survey

Survey refers to a research method that is generally used to gather large quantities of data from a sample group (Zikmund et al., 2012). There are several different data collection and measurement methods that are referred to as surveys, but in this chapter the author will focus on surveys which: aim to produce statistics, as in, quantitative or numerical descriptions of certain characteristics of the population that is being studied; collect data by asking questions and subsequently analyse that data; and, collect the data from only a fraction of the population rather than from every member of the population, that is, utilize a sample group for data gathering (Tashakkori & Teddlie, 2010).

A proper survey design includes three distinct methodologies: sampling, question design and data collection. Each of these three components have a major impact on the overall quality of the study, and all of them must be carefully planned and carried out in order to produce valid and accurate data. Sampling refers to selecting a small subset of a population that is representative of the whole population. Successful sampling gives all or nearly all members of a population a chance of being selected and utilizes probability methods for choosing the sample. Question design is another essential element of a successful survey, as it is crucial that the questions used in the survey are clear and easily understood by the respondents, so that the data is not tainted by answers from respondents who have misunderstood or misinterpreted the questions. Finally, the choice of data collection has significant impacts on the cost of the research as well as the quality of the data. Common data collection methods for surveys include telephone, mail, personal interview or internet surveys (Tashakkori & Teddlie, 2010).

Surveys provide a quick and convenient method for data gathering, particularly when the goal is to acquire a large sample size for producing the data in question. Although surveys have many advantages, they, too – as all research methods in all sciences – come with their unique challenges. A common challenge is selection bias, which refers to a situation where the sample group is not properly randomized in a way that would provide a truly representative sample of the group or population that the research is supposed to study and analyse (Tashakkori & Teddlie, 2010; Zikmund et al., 2012).

Small sample sizes are another common challenge, as they reduce the accuracy and representativity of the data. Furthermore, response bias or response error may also occur among the participants of the study either intentionally or unintentionally. Response bias refers to a situation in which the respondents might respond in a way that they think the researchers are expecting of them. Response errors may occur if the respondents are experiencing e.g., fatigue or boredom from an overwhelming set of questions. Another challenge is the uncertainty of whether or not the participants have understood the questions correctly or interpreted them in the same way. Additionally, language barriers or

issues with translations can lead to misunderstandings which affect the validity and accuracy of the data (Zikmund et al., 2012; Laitinen, 2020).

In the following chapter, the author will describe in detail how he designed and implemented a survey as a quantitative research method for collecting the data for this Master's Thesis.

3.2 Research design and implementation

The idea for the research topic was conceived in late 2018, when the ever-increasing mentions of environmental anxiety both in Finnish and international media brought the author to the realization that 1) the phenomenon was already widespread 2) it had an impact on people's behaviour (see e.g., the Fridays for Future climate movement), and 3) the incidence of eco-anxiety in Finland was largely unknown. The author proposed a new project idea at his workplace at the Finnish Innovation Fund Sitra, with the main objective in the early phases of the project being to gather data regarding eco-anxiety in Finland and analyze how it has impacted the energy consumption of Finns. After the author was given permission to proceed with the project, a more detailed research design phase followed.

Due to the awareness that anxiety is not the only emotion evoked by climate change, and the fact that the emotional impacts of climate change in general had been largely unresearched in Finland prior to this study, the scope of the project was decided to be broadened to include a much more wide-ranging set of emotions. Additionally, the effects of these emotions were analyzed not only in reference to energy consumption, but to other types of behaviour as well. Ultimately, the objective of the study was updated so that the goal was to find out what kinds of feelings and emotions Finnish people have regarding climate change, and what kind of effects do these feelings and emotions have on their life.

The study was designed by the author with the help of specialists from Sitra as well as leading experts in the field of eco-anxiety, namely Dr. Panu Pihkala from the University of Helsinki and Kirsti M. Jylhä, PhD, from the Institute for Future Studies (Stockholm, Sweden). The responses to the survey were collected by the market research company Kantar TNS Oy. The project lead from Kantar TNS Oy provided valuable assistance particularly in the wording and formulation of the questionnaire.

The questions were designed so that they would provide the author with an accurate and extensive view at the wide range of feelings and emotions related to climate change and how they impact the lives and behaviour of the respondents. This was done by firstly mapping out different possible feelings in as much detail as possible. The first set of questions asked the participants if they had perceived any of the listed emotions or feelings in people they are familiar with, as opposed to starting by asking whether they had experienced these emotions or feelings themselves. This was done at the recommendation of the project lead from Kantar TNS Oy, who suggested that recognizing emotions or

states of mind in other people might sometimes be easier for respondents than recognizing them in themselves, and as such, asking the questions in this order could make it easier for the respondents to answer more personal inquiries later on in the questionnaire.

After asking what kind of different emotions and feelings the respondents have perceived in both themselves and people they are familiar with, the respondents were asked how often and how strongly they have personally felt these emotions. These questions were added to get a more detailed understanding of not only what kinds of emotions the respondents have felt about climate change, but how common and serious they are. Further, the questionnaire asked what kinds of impacts these emotions have had on the respondents, whether it be e.g., depression, anger, guilt, empowerment, insomnia, nausea, etc. The respondents then answered various questions on which factors have caused the various kinds of climate emotions, and further, which actions have helped with controlling such emotions, particularly in reference to the so-called “difficult climate emotions.” Please see Chapter 2.1.3. for a definition of difficult emotions. Next, the respondents were asked to answer a series of propositions based on how much they agree or disagree with them. Finally, the respondents answered whether or not they have actively worked towards climate change mitigation in their own personal lives, and further elaborated what kind of actions they had performed.

The data was gathered by random sampling from the TNS Gallup Forum internet panel, which is maintained to represent the Finnish population over 15 years of age. The panel hosts 40,000 respondents available for research sampling, of which 7495 were invited to participate in the study. The invitation was sent out with the following message: “Welcome to respond to a study on climate change”, which was worded with the goal of presenting a sufficiently neutral expression which succeeds in expressing the central subject of the research without influencing the selection of the respondents. Additionally, careful consideration was given to not influence the selection of the respondents based on time, either, which is why the invitation was sent out in three batches: on the 3rd, 6th, and 10th of May 2019. The survey was filled out using an online questionnaire which took around 12 minutes to complete. The questionnaire also collected socio-demographic background data of the respondents. The respondents were sent one reminder to complete the query in time. In the end, 2070 people responded to the survey in total, resulting in a 27.6 percent response rate. Out of the 2070 respondents, 343 or 16.6 percent were below 30 years of age, who form the sample size that this Master’s Thesis is focusing on. A detailed breakdown of the distribution of the respondents can be seen below in Figure 4.

Distribution of respondents (N=2070)

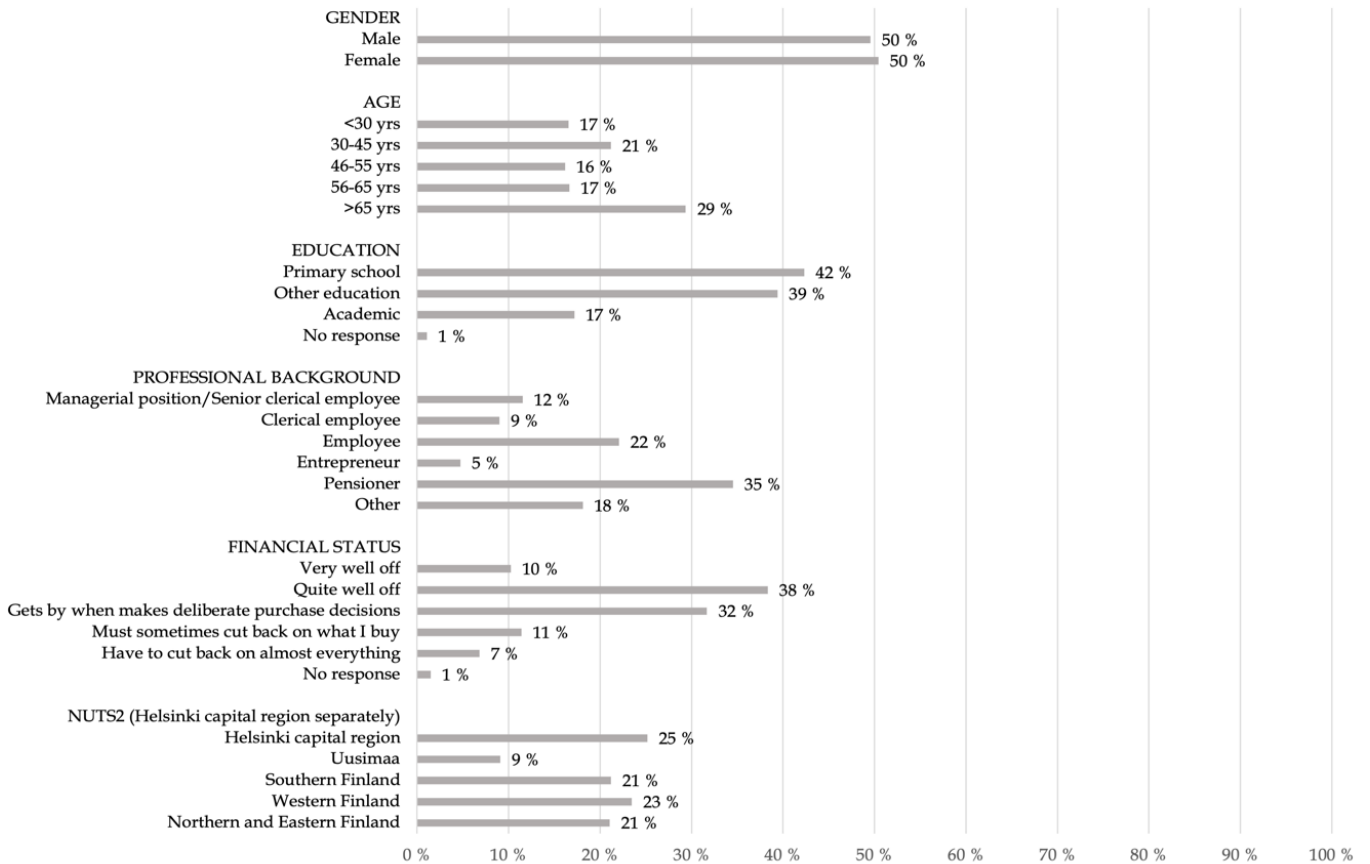


Figure 4. Distribution of respondents.

3.3 Data analysis

The research material was analysed with the IBM SPSS Statistics v. 28.0.1.1. software by conducting a contingency table analysis of the data. A contingency table analysis, or cross-tabulation, is needed when one wants to compare the results for one or more variables with the results of another variable. Cross-tabulation provides information about the relationship between different variables via a two- (or more) dimensional table and is often used in statistical analysis to find trends, patterns and probabilities within raw data sets. Cross-tabulation is usually used on data that can be divided into mutually exclusive groups, also known as categorical data, and is particularly useful for assessing categorical variables in e.g., survey responses, as it allows for the discovery of relationships that might not be apparent when examining the total survey responses (Byrne, 2007; Pallant, 2010; Wildemuth, 2009).

This study aims to answer the following research questions: 1) what percentage of Finns below 30 years of age have experienced the feeling of eco-anxiety, and how common and strong are the symptoms, and 2) how does the

perceived eco-anxiety impact the consumption habits of Finns below 30 years of age. To find an answer to these research questions, the author needed to first examine what percentage of respondents below 30 years old have reported to have experienced eco-anxiety, as well as how often they report experiencing it and how strong the experienced emotions have been. Additionally, the author needed to study what percentage of those respondents below 30 years of age who reported to have experienced eco-anxiety have changed their consumption habits. As described in Chapter 1.2., the author has determined that in this Master's Thesis, "consumption" particularly refers to food consumption, household utility (primarily heat, water and electricity) consumption, and general consumption.

The prevalence of eco-anxiety was measured with two questions. The first question was "What emotions has climate change evoked in you?", with multiple answer options, one of which being "anxiety." The second question measuring eco-anxiety was: "How well does the word 'anxiety' describe your feelings towards climate change?" The response was given on a scale of 1 to 5, where 1="Not at all", 2="Not really well", 3="Quite well", 4="Very well", and 5="Cannot say." Those respondents who reported to have experienced anxiety about climate change in the first question were followed up with two new questions, which asked to estimate how strong the experienced anxiety was and how often it was experienced. The answer was given on a scale of 1 to 5, with the response options being 1="Minor", 2="Moderate", 3="Strong", 4="Very strong", and 5="Cannot say", and 1="Every day", 2="A few times per week", 3="A few times per month", 4="Less than monthly", and 5="Cannot say" for the questions regarding the strength of the experienced anxiety and how often it was experienced, respectively.

Change in consumption habits was measured with the question: "Have you taken active steps to mitigate climate change in your own everyday life?" with three response options: 1="Yes", 2="No", and 3="Cannot say." Those respondents who answered "Yes" were given this multiple-choice follow-up question: "What kinds of active steps have you taken to mitigate climate change in your own everyday life? You may choose one or more option(s)." The response options were: "I have changed my consumption habits", "I have changed my mobility habits", "I have changed my dietary habits", "I have changed the way I live (for example, changed the way I use electricity or hot water)", "I have practiced civic activism", "I have influenced organisational activities", "I have compensated for some of my emissions", "I have made donations to climate action", "Cannot say." All of the questions were given two response options: 0="No", and 1="Yes", with the exception of the open-ended question "Other, please specify." Out of these response options, the author used "I have changed my consumption habits", "I have changed my dietary habits", and "I have changed the way I live" for the data analysis to measure overall changes in consumption habits.

The data analysis was conducted by first performing a contingency table analysis or cross-tabulation on respondents below 30 years of age and

respondents who have experienced eco-anxiety. Further analysis was performed on those respondents below 30 years of age who had experienced eco-anxiety to first see how often and how strongly they have experienced eco-anxiety, and finally what percentage of them had taken active steps to mitigate climate change in their own life, and how had those actions impacted their consumption. Finally, the results were compared to those respondents below 30 years of age who had not reported to have experienced eco-anxiety to see whether or not the experience of eco-anxiety had a noticeable impact on the respondent's consumption habits. In the next chapter, the author will present the results of the contingency table analysis and explore them in relation to the two research questions of this study.

4 RESEARCH RESULTS

4.1 Cross-tabulation

4.1.1 What percentage of Finns below 30 years of age have experienced the feeling of eco-anxiety, and how common and strong are the symptoms?

In order to answer the first research question, the respondents must first be grouped by their age to determine how big of a percentage of Finns below 30 years of age have experienced the feeling of eco-anxiety (See Table 1). Furthermore, we can discover how common and strong the feelings of eco-anxiety are by examining the responses from participants who are both below 30 years of age and reported to have experienced eco-anxiety (See Tables 2 & 3). Finally, these results are compared to the rest of the population in order to see whether or not there are noticeable differences in the responses of different age groups.

TABLE 1 Respondents who have experienced eco-anxiety

			Anxiety : What emotions has climate change evoked in you?			
			Yes	No	Cannot say	Total
Age	< 30 yrs	Count	123	172	48	343
		% within Age	35.9%	50.1%	14.0%	100.0%
	30-45 yrs	Count	132	277	30	439
		% within Age	30.1%	63.1%	6.8%	100.0%
	46-55 yrs	Count	91	234	10	335
		% within Age	27.2%	69.9%	3.0%	100.0%
	56-65 yrs	Count	72	256	17	345
		% within Age	20.9%	74.2%	4.9%	100.0%
	> 65 yrs	Count	104	469	35	608
		% within Age	17.1%	77.1%	5.8%	100.0%
Total		Count	522	1408	140	2070
		% within Age	25.2%	68.0%	6.8%	100.0%

There were 343 respondents below 30 years of age out of the total 2070 respondents in the survey. Out of these 343 respondents, 35.9 percent reported to have experienced eco-anxiety. 50.1 percent said that they had not experienced eco-anxiety, while 14 percent could not give a definitive answer. Compared to other age groups, we can see that anxiety relating to climate change is most commonly felt among people below 30 years of age. The age group with the second biggest portion of eco-anxiety was 30- to 45-year-olds, with 30.1 percent out of 439 respondents reported to have experienced eco-anxiety. The portion of people experiencing eco-anxiety decreased consistently in every subsequent age group. In total, 522 (25.2 percent) of the respondents reported to have experienced eco-anxiety, 1408 (68 percent) said that they had not experienced eco-anxiety, and 140 (6.8 percent) of respondents could not give a definitive answer. All in all, the data shows that eco-anxiety is most commonly experienced in people below 30 years of age, with a rate of 10.7 percentage higher than the average.

TABLE 2 How strong the emotion of eco-anxiety has been

			Anxiety : Estimate how strong those emotions have been.				
			Minor	Moderate	Strong	Very strong	Total
Age	< 30 yrs	Count	19	47	32	24	122
		% within Age	15.6%	38.5%	26.2%	19.7%	100.0%
	30-45 yrs	Count	28	60	29	14	131
		% within Age	21.4%	45.8%	22.1%	10.7%	100.0%
	46-55 yrs	Count	19	49	17	5	90
		% within Age	21.1%	54.4%	18.9%	5.6%	100.0%
	56-65 yrs	Count	15	40	12	4	71
		% within Age	21.1%	56.3%	16.9%	5.6%	100.0%
	> 65 yrs	Count	30	50	15	4	99
		% within Age	30.3%	50.5%	15.2%	4.0%	100.0%
Total		Count	111	246	105	51	513
		% within Age	21.6%	48.0%	20.5%	9.9%	100.0%

Out of those respondents below 30 years of age who reported to have experienced eco-anxiety, 19.7 percent answered 'Very strong' when asked how strong the emotions have been, 26.2 percent answered 'Strong', 38.5 percent answered 'Moderate', and 15.6 percent answered 'Minor.' The response option 'Cannot say' was excluded from the contingency table analysis. Compared to the rest of age groups, we can see that the strongest emotions are most commonly experienced in respondents below 30 years of age. The rate of respondents experiencing 'Very strong' eco-anxiety is particularly high among below 30-year-old respondents, being 9.8 percent higher than the average.

TABLE 3 How often eco-anxiety is experienced

			Anxiety : Estimate how often you feel those emotions					
			Every day	A few times per week	A few times per month	Less than monthly	Cannot say	Total
Age	< 30 yrs	Count	8	32	51	29	3	123
		% within Age	6.5%	26.0%	41.5%	23.6%	2.4%	100.0%
	30-45 yrs	Count	14	28	41	42	7	132
		% within Age	10.6%	21.2%	31.1%	31.8%	5.3%	100.0%
	46-55 yrs	Count	8	17	39	23	4	91
		% within Age	8.8%	18.7%	42.9%	25.3%	4.4%	100.0%
	56-65 yrs	Count	7	20	21	13	11	72
		% within Age	9.7%	27.8%	29.2%	18.1%	15.3%	100.0%
	> 65 yrs	Count	10	25	31	26	12	104
		% within Age	9.6%	24.0%	29.8%	25.0%	11.5%	100.0%
Total		Count	47	122	183	133	37	522
		% within Age	9.0%	23.4%	35.1%	25.5%	7.1%	100.0%

When asked how often the respondents have experienced eco-anxiety, 6.5 percent out of total of below 30-year-olds replied, 'Every day', 26 percent replied 'A few times per week', 41.5 percent replied 'A few times per month', 23.6 percent replied 'Less than monthly', and 2.4 percent replied, 'Cannot say.' If we consider the first two response options 'Every day' and 'A few times per week' together signifying an often-occurring experience of eco-anxiety, we can say that in total, 32.5 percent of respondents below 30 years of age experience eco-anxiety often. This figure is very close to the average rate of all respondents who reported to have experienced eco-anxiety, out of which 32.4 percent have experienced the emotion often. The age group with most respondents experiencing eco-anxiety often is 56-to-65-year-olds, with 37.5 percent respondents replying, 'Every day' or 'A few times a week.'

4.1.2 How does the perceived eco-anxiety impact the consumption habits of Finns below 30 years of age?

In this chapter, the author will first examine how big of a percentage of the respondents below 30 years of age who have experienced eco-anxiety reported to have taken active steps in their own everyday life to mitigate climate change (see Table 4) and compare those figures to respondents who have not experienced eco-anxiety. Further, the author will examine the responses of below 30-year-olds who have experienced eco-anxiety to questions regarding whether or not they have changed their consumption, dietary or living habits, (see Tables 5, 6, and 7, respectively) and compare the results to those respondents who have not reported to have experienced eco-anxiety, in order to find an answer to the second research question. Finally, these results are compared to the rest of the respondents to see if any major differences between age groups exist.

TABLE 4 Respondents who have taken active steps to mitigate climate change

Anxiety : What emotions has climate change evoked in you?				Have you taken active steps in your own everyday life to mitigate climate change ?			
				Yes	No	Cannot say	Total
Yes	Age	< 30 yrs	Count	73	31	19	123
			% within Age	59.3%	25.2%	15.4%	100.0%
		30-45 yrs	Count	92	26	14	132
			% within Age	69.7%	19.7%	10.6%	100.0%
		46-55 yrs	Count	65	19	7	91
			% within Age	71.4%	20.9%	7.7%	100.0%
		56-65 yrs	Count	51	14	7	72
			% within Age	70.8%	19.4%	9.7%	100.0%
		> 65 yrs	Count	68	19	17	104
			% within Age	65.4%	18.3%	16.3%	100.0%
Total			Count	349	109	64	522
			% within Age	66.9%	20.9%	12.3%	100.0%
No	Age	< 30 yrs	Count	68	83	21	172
			% within Age	39.5%	48.3%	12.2%	100.0%
		30-45 yrs	Count	94	155	28	277
			% within Age	33.9%	56.0%	10.1%	100.0%
		46-55 yrs	Count	97	112	25	234
			% within Age	41.5%	47.9%	10.7%	100.0%
		56-65 yrs	Count	127	97	32	256
			% within Age	49.6%	37.9%	12.5%	100.0%
		> 65 yrs	Count	226	172	71	469
			% within Age	48.2%	36.7%	15.1%	100.0%
Total			Count	612	619	177	1408
			% within Age	43.5%	44.0%	12.6%	100.0%

A significant difference between the responses of respondents who reported to have experienced eco-anxiety and those who did not can be seen in the results to the question whether or not the respondents have taken active steps in their own everyday life to mitigate climate change. Out of those below 30-year-olds who have experienced anxiety, 59.3 percent had taken active measures to mitigate climate change, whereas the figure for those who had not experienced eco-anxiety was nearly 20 percent lower at 39.5 percent. The response option 'Cannot say' regarding whether the respondent had experienced anxiety was excluded from the contingency table analysis.

Out of all the different age groups who had experienced eco-anxiety, the ones below 30 years of age had the lowest percentage of respondents who had taken active steps to mitigate climate change. The average rate was 66,9 percent with the highest percentage of people taking active steps found in the respondents between 46 to 55 years of age, out of which 71.4 percent had taken active steps to mitigate climate change. In all age groups, those respondents who had experienced eco-anxiety reported significantly higher number of people who had taken active steps to mitigate climate change than those who had not experienced eco-anxiety.

TABLE 5 Respondents who have changed their consumption habits

Anxiety : What emotions has climate change evoked in you?			I have changed my consumption habits				
				No	Yes	Total	
Yes	Age	< 30 yrs	Count	11	62	73	
			% within Age	15.1%	84.9%	100.0%	
		30-45 yrs	Count	6	86	92	
			% within Age	6.5%	93.5%	100.0%	
		46-55 yrs	Count	9	56	65	
			% within Age	13.8%	86.2%	100.0%	
		56-65 yrs	Count	11	40	51	
			% within Age	21.6%	78.4%	100.0%	
		> 65 yrs	Count	16	52	68	
			% within Age	23.5%	76.5%	100.0%	
		Total	Count	53	296	349	
			% within Age	15.2%	84.8%	100.0%	
	No	Age	< 30 yrs	Count	23	45	68
				% within Age	33.8%	66.2%	100.0%
		30-45 yrs	Count	20	74	94	
			% within Age	21.3%	78.7%	100.0%	
		46-55 yrs	Count	24	73	97	
			% within Age	24.7%	75.3%	100.0%	
		56-65 yrs	Count	43	84	127	
			% within Age	33.9%	66.1%	100.0%	
		> 65 yrs	Count	69	157	226	
			% within Age	30.5%	69.5%	100.0%	
		Total	Count	179	433	612	
			% within Age	29.2%	70.8%	100.0%	

Out of those below 30-year-olds who had experienced eco-anxiety, 84.9 percent had changed their consumption habits, compared to 66.2 percent of those in the same age group who had not experienced eco-anxiety. The response option 'Cannot say' regarding whether the respondent had experienced anxiety was excluded from the contingency table analysis. A similar difference between anxiety-experiencing and non-anxiety-experiencing respondents could be seen in all age groups, although the contrast was sharpest in below 30-year-old respondents (18.7 percent difference).

TABLE 6 Respondents who have changed their dietary habits

Anxiety : What emotions has climate change evoked in you?				I have changed my dietary habits		
				No	Yes	Total
Yes	Age	< 30 yrs	Count	25	48	73
			% within Age	34.2%	65.8%	100.0%
		30-45 yrs	Count	26	66	92
			% within Age	28.3%	71.7%	100.0%
		46-55 yrs	Count	25	40	65
			% within Age	38.5%	61.5%	100.0%
		56-65 yrs	Count	22	29	51
			% within Age	43.1%	56.9%	100.0%
		> 65 yrs	Count	25	43	68
			% within Age	36.8%	63.2%	100.0%
Total			Count	123	226	349
			% within Age	35.2%	64.8%	100.0%
No	Age	< 30 yrs	Count	28	40	68
			% within Age	41.2%	58.8%	100.0%
		30-45 yrs	Count	49	45	94
			% within Age	52.1%	47.9%	100.0%
		46-55 yrs	Count	57	40	97
			% within Age	58.8%	41.2%	100.0%
		56-65 yrs	Count	68	59	127
			% within Age	53.5%	46.5%	100.0%
		> 65 yrs	Count	119	107	226
			% within Age	52.7%	47.3%	100.0%
Total			Count	321	291	612
			% within Age	52.5%	47.5%	100.0%

Similarly, those respondents below 30 years of age who had experienced eco-anxiety were more active in changing their dietary habits (65.8 percent) compared to those who had not experienced eco-anxiety (58.8 percent). The response option 'Cannot say' regarding whether the respondent had experienced anxiety was excluded from the contingency table analysis.

However, the difference between anxiety-experiencing and non-anxiety-experiencing respondents was not as high as in the previous two categories. Additionally, the difference between anxiety-experiencing and non-anxiety-experiencing respondents in the age group of below 30-year-olds was significantly smaller (7 percent) than the average difference of all age groups (17.3 percent).

TABLE 7 Respondents who have changed the way they live

Anxiety : What emotions has climate change evoked in you?				I have changed the way I live (e.g., changed the way I use electricity or hot water)		
				No	Yes	Total
Yes	Age	< 30 yrs	Count	39	34	73
			% within Age	53.4%	46.6%	100.0%
		30-45 yrs	Count	44	48	92
			% within Age	47.8%	52.2%	100.0%
		46-55 yrs	Count	36	29	65
			% within Age	55.4%	44.6%	100.0%
		56-65 yrs	Count	24	27	51
			% within Age	47.1%	52.9%	100.0%
		> 65 yrs	Count	37	31	68
			% within Age	54.4%	45.6%	100.0%
Total			Count	180	169	349
			% within Age	51.6%	48.4%	100.0%
No	Age	< 30 yrs	Count	38	30	68
			% within Age	55.9%	44.1%	100.0%
		30-45 yrs	Count	58	36	94
			% within Age	61.7%	38.3%	100.0%
		46-55 yrs	Count	54	43	97
			% within Age	55.7%	44.3%	100.0%
		56-65 yrs	Count	69	58	127
			% within Age	54.3%	45.7%	100.0%
		> 65 yrs	Count	130	96	226
			% within Age	57.5%	42.5%	100.0%
Total			Count	349	263	612
			% within Age	57.0%	43.0%	100.0%

In Table 7 above we can see that the difference between anxiety-experiencing and non-anxiety-experiencing respondents regarding whether or not they had changed their living habits was on average smaller than in the other categories presented in Tables 4, 5, and 6. However, differences between age groups are in some cases significant. In the group of respondents below 30 years of age, 46.6 percent of those who had experienced eco-anxiety had changed the way the live, while for those who had not experienced eco-anxiety, the figure was 44.1 percent. In contrast, 52.2 percent of respondents between 30 to 45 years of age who had experienced anxiety had changed their living habits, whereas only 38.3 percent of those who had not experienced anxiety had done so.

In the following final chapter of this Master’s Thesis, the author will discuss the findings in the research data, evaluate the validity and reliability of the research as well as its limitations, and finally, discuss possible avenues for future research.

5 DISCUSSION AND CONCLUSIONS

The main objective of this Master's Thesis was to study the prevalence of eco-anxiety in Finland and how it influences the consumption habits of below 30-year-old Finns. This was done by answering the two main research questions of the Master's Thesis. The prevalence of eco-anxiety was measured by utilizing a survey to find out how big of a percentage of Finns have experienced anxiety about climate change, how strong that feeling of anxiety has been and how often that feeling is experienced. Further, eco-anxiety's impact on consumption habits was measured by first asking the respondents of the survey whether or not they had taken active measures in their own everyday life to mitigate climate change. Next, those respondents who replied 'Yes' were asked whether they had changed their consumption habits, dietary habits or the way they live, the latter referring primarily to e.g., heat and electricity consumption.

Out of all of the 2070 respondents surveyed, 25.2 percent reported to have experienced anxiety about climate change (Table 1). Anxiety was most commonly felt in below 30-year-old respondents, out of which 35.9 percent had reported it. Looking at the data from Table 1, we can see that the older the age of the respondents, the fewer have reported experiencing anxiety about climate change. This suggests that eco-anxiety in Finland is most prevalent among young people, particularly in people below 30 years of age. However, it is important to note that the difference between the age groups is not particularly high, especially between below 30-year-olds and 30-45-year-olds.

In addition to being most common among respondents below 30 years of age, anxiety was also felt most strongly in that same age group (Table 2). Almost one in five below 30-year-old had felt 'Very strong' anxiety about climate change, whereas that same degree of anxiety was reported only by 4-10 percent of respondents in the other age groups. The same trend can be seen in the other response options: 'Strong' eco-anxiety was felt most commonly among respondents below 30 years of age, and the rate decreased the older the age groups got. Inversely, the milder degrees of eco-anxiety, measured in the survey with the response options 'Moderate' and 'Minor', saw a stable increase the older the age groups got. This suggests that on average, young people in Finland feel eco-

anxiety most intensely. It is important to keep in mind, however, that the sample sizes are rather small: only 24 respondents below 30 years of age had reported 'Very strong' eco-anxiety, for instance. Therefore, the results cannot be generalized to all Finns below 30 years of age.

When examining how often the feeling of eco-anxiety is experienced, the differences between age groups are not as clearly defined (Table 3). 6.5 percent of below 30-year-old respondents reported to have experienced eco-anxiety daily, while the average response rate was 9 percent. Further, 26 percent of below 30-year-olds reported to experience eco-anxiety 'A few times per week', while the average rate was 23.4 percent. The most common response in all age groups was 'A few times per month' with an average response rate of 35.1 percent, with the exception of the age group 30- to 45-year-olds, for whom the most common response was 'Less than monthly' (31.8 percent) compared to 31.1 percent response rate for the response option 'A few times per month.' All in all, 74 percent of below 30-year-old respondents reported to experience eco-anxiety at least a few times per month, with the average figure for all age groups being 67.5 percent. This suggests that the experience of eco-anxiety is on average quite common, as over two thirds of the respondents who have experienced eco-anxiety report to experience it at least a few times per month.

There is a clear distinction between respondents who have experienced eco-anxiety and those who have not when examining how big of a percentage of respondents have taken active steps in their own everyday life to mitigate climate change (Table 4). On average, 66.9 percent of respondents who have experienced eco-anxiety have taken active climate change mitigation action in their own life, while the rate of non-anxiety-experiencing respondents taking climate action was on average 43.5 percent. Looking at different age groups, we can see that below 30-year-old respondents in fact have the lowest degree of anxiety-experiencing respondents who have taken climate action in their own life (59.3 percent) compared to e.g., the age group of 46- to 55-year-olds, in which 71.4 percent of respondents have reported to have done so. The data suggests that experiencing eco-anxiety predicts climate action, as there is a clear correlation between the experience of eco-anxiety and taking active steps towards climate change mitigation. Perhaps surprisingly, young Finns (below 30-year-olds) have reported to have taken climate action the least.

The distinction between anxiety-experiencing and non-anxiety-experiencing respondents is even clearer when looking at how eco-anxiety affects consumption habits among those who had reported to have taken active steps in their everyday life towards climate change mitigation (Table 5). Of those below 30-year-old respondents who had experienced eco-anxiety, 84.9 percent had changed their consumption habits, whereas out of non-anxiety-experiencing respondents in the same age group, 66.2 percent had done so. These figures are quite close to the average of all age groups, with 84.8 percent of anxiety-experiencing respondents having changed their consumption habits, and 70.8 percent of non-anxiety-experiencing respondents doing so. These findings suggest that those young Finns that have experienced eco-anxiety are on average a lot more

likely to have changed their consumption habits compared to those who have not experienced eco-anxiety.

When it comes to changes in dietary habits, the difference between anxiety-experiencing and non-anxiety experiencing respondents is not that distinct (Table 6). 65.8 percent of below 30-year-old respondents who had experienced anxiety had changed their dietary habits to more climate friendly ones, while the rate for non-anxiety-experiencing respondents was quite alike at 58.8 percent. The difference in other age groups was a bit more pronounced, with the average rate of anxiety-experiencing respondents changing their dietary habits being 64.8 percent, and 47.5 percent for non-anxiety-experiencing respondents. This suggests that, particularly among young respondents, the experience of eco-anxiety is not a strong predictor of climate friendly change in dietary habits, i.e., eco-anxiety does not have a significant impact on young Finn's food consumption.

Furthermore, the impact of eco-anxiety on respondents' living habits (i.e., primarily water and electricity consumption) is even more trivial, especially among respondents below 30 years of age. 46.6 percent of those young Finns who had experienced eco-anxiety had changed the way they live, while 44.1 percent of non-anxiety-experiencing respondents in the same age group had done the same. On average, 48.4 percent of anxiety-experiencing respondents had changed their living habits while 43 percent of those not experiencing anxiety had done so. The minor difference between these different respondent groups suggests that eco-anxiety does not significantly influence the way people live and consume e.g., water and electricity.

Looking at the results in total, we can argue that: eco-anxiety is most prevalent and most strongly felt among Finns below 30 years of age, and the feeling of eco-anxiety is rather common, with close to three quarters of below 30-year-olds experiencing it at least a few times per month.

Furthermore, there is a noticeable correlation between experiencing eco-anxiety and taking active steps in one's everyday life to mitigate climate change. The correlation is strongest between eco-anxiety and changes in consumption habits: the rate of below 30-year-old eco-anxiety-experiencing respondents who had changed their consumption habits was close to 20 percent higher than for those who had not experienced eco-anxiety. Regarding dietary habits, the difference between anxiety-experiencing and non-anxiety-experiencing respondents below 30 years of age was noticeably smaller at only seven percent. For changes in living habits the difference in the same age group was smaller still, at two and a half percent.

In conclusion, the findings of this study suggest that eco-anxiety does indeed have an impact on the consumption behaviour of young Finns. Those Finns below 30 years of age who have experienced eco-anxiety are more likely to have taken active steps towards climate change mitigation, particularly when it comes to general consumption such as clothes or other consumer goods. The same correlation applies for consumer behaviour changes in dietary and living habits as well, although considerably weaker. These findings are in line with

the ones presented by e.g., Ipsos (2021), whose survey saw 56 percent of respondents reporting to have changed their consumption behaviour due to concerns about climate change.

5.1 Evaluation of the research and its limitations

The measuring instrument used in a quantitative study must have two essential qualities - reliability and validity - without which it will not yield beneficial or generalizable results. Reliability refers to the stability of the measured values when repeatedly gathered in the same circumstances with the same measuring instrument. Validity is concerned with how well the measuring instrument performs its intended function - i.e., whether or not the instrument measures the quality that it is intended to measure (Sürücü & Maslakçı, 2020).

Regarding the reliability of the study, the sampling for the research was done randomly from a pool of 40000 respondents available in the TNS Gallup Forum internet panel, which is maintained to represent the Finnish population over 15 years of age. With careful consideration given to the wording of the invitation as well as sending the invitation out in three different batches, the author believes that the selection of the respondents was truly random and was not influenced by the author. However, as the invitation referred to 'a study on climate change', the topic itself might have influenced the selection of respondents in the sense that it might have attracted people who are on average more interested in climate change.

The survey's overall sample size of 2070 is quite high and yields generalizable results that represent the population of Finland. However, as the focus of this Master's Thesis is on under 30-year-old Finns, we must examine the sample size of respondents that fit that age group. In total, there were 343 respondents below 30 years of age. This sample size is considerably smaller and cannot be generalized to represent all below 30-year-old Finns.

The author believes that the research is more limited in its validity, especially regarding the interpretation of the two main themes in the research questions: eco-anxiety and consumption. The author cannot be sure that the respondents have interpreted anxiety in the context of climate change emotions in the same way that it is defined in this study, as the term was not clearly defined in the questionnaire. Different respondents might give different meanings to the word 'anxiety', making it difficult to accurately compare and analyze their responses.

Furthermore, the usage of the term 'consumption habits' in the questionnaire is vague, and it cannot be determined for certain that the respondents have interpreted 'consumption habits' to refer to general consumer goods such as clothing, as it was intended by the author. Regarding the other two dimensions of consumption used in this research - dietary habits and living habits - the author believes that there is less room for different interpretations. Firstly, 'dietary habits' seems to be quite clear in its definition as in referring to

what one eats and drinks, and secondly, the question regarding living habits was specifically described to refer to e.g., water and electricity consumption. However, the clear uncertainties regarding the interpretation of 'consumption habits' limit the validity of the research.

Finally, it is important to note that the data analysis in this research is limited to only contingency table analyses. As contingency table analyses or cross-tabulations display only values and percentages, there is no way to directly assess whether the differences in the distribution are statistically significant (Byrne, 2007), which represents a significant limitation of the overall quality of the study.

5.2 Directions for future research

There exist several potential avenues for future research regarding the topics studied in this Master's Thesis. As eco-anxiety is still a rather under-researched topic - especially in Finland - future studies measuring its prevalence in Finland and abroad are needed. Particular attention could be placed on e.g., the drivers behind eco-anxiety - those factors that create anxiety relating to climate change. Additionally, factors which reduce and help cope with eco-anxiety could be also studied in future research.

Further research should also be directed towards studying eco-anxiety's impacts and influences on different types of behaviour (e.g., climate action in general or more specific forms of behaviour, such as mobility, electoral behaviour or activism) in more detail.

The relationships between eco-anxiety and other emotions evoked by climate change are also compelling areas for research. For instance, it could be interesting to compare how other climate emotions, such as hope or anger, affect behaviour compared to anxiety.

Additionally, future research could focus on studying eco-anxiety's prevalence among particular population groups based e.g., on their age, occupation or place of residence with larger, representative sample sizes. The comparison of these results from different population groups could provide interesting data for several different disciplines of the social sciences.

Repeating the abovementioned studies in regular and consistent time intervals would provide interesting data about how or if these emotions and behaviours develop over time. In all future research, particular attention should be paid not only on careful sampling of the respondents, but on the extensive data analysis and testing as well.

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