THE EFFECTS OF GENERATION ANXIETY ON POST-SECONDARY MENTAL HEALTH OUTCOMES: IMPLICATIONS FOR SERVICE PROVIDERS AND EDUCATORS

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DEDICATION

To my parents, whose unwavering love and sacrifices have shaped the person I am today. Your guidance and support have carried me through the toughest moments, and I am endlessly grateful for all you've given me. To my family and friends, thank you for your constant encouragement, understanding, and belief in me throughout this journey. This achievement is as much yours as it is mine.

ABSTRACT

Despite increased access to mental health services, Generation Z reports the highest rates of depression, anxiety, and stress. Guided by Life Course Theory, this study examined how environmental, technological, and socioeconomic conditions influence youth mental health, with a focus on generation-specific anxieties related to climate change, artificial intelligence, and financial concerns. A mixed-methods design was employed, drawing on quantitative data from 586 post-secondary students using standardized mental health and anxiety scales, along with qualitative responses to open-ended questions. Pearson correlations and stepwise linear regressions revealed that financial anxiety was the strongest predictor of depression, anxiety, and stress. Eco-anxiety and AI anxiety also contributed to mental health outcomes in nuanced ways. Although proposed moderators did not significantly alter these relationships, factors such as social isolation, social support, and daily internet use were independently associated with mental health outcomes. Qualitative data reinforced these findings, with students expressing concern about financial insecurity, environmental degradation, and the impact of AI on job security. These findings highlight the need for clinicians, educators, and policymakers to develop targeted supports and policy responses that address the broader structural pressures affecting the psychological well-being of Generation Z.

ETHICS STATEMENT

Work described in this thesis received research ethics approval from the University of Alberta Research Ethics Board, Project Name “THE EFFECTS OF GENERATION ANXIETY ON POST-SECONDARY MENTAL HEALTH OUTCOMES: IMPLICATIONS FOR SERVICE PROVIDERS AND EDUCATORS”, No. Pro00143744, JULY 21, 2024.

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LIST OF ABBREVIATIONS

DASS	Depression Anxiety and Stress Scale
CCAS	Climate Change Anxiety Scale
EXCC	Experience of Climate Change
EPEB	Engagement in Pro-Environmental Behaviours
AI	Artificial Intelligence
AIAS	Artificial Intelligence Anxiety Scale
FAS	Financial Anxiety Scale
TILS	Three-Item Loneliness Scale
SPS	Social Provisions Scale

GLOSSARY

Generation Anxiety: An overarching term referring to the unique set of anxieties experienced by members of a specific generation (e.g., Generation Z).
Generation Z (Gen Z): People born approximately between 1997 and 2012.
Eco-Anxiety: The psychological distress associated with worsening environmental conditions and ecological crises.
AI Anxiety: The fear around the impacts of artificial intelligence.
Financial Anxiety: Worry about the future of one's personal finances.

CHAPTER 1: INTRODUCTION

Overview of The Research

Each generation is marked by its own set of unprecedented anxieties. Generation anxiety refers to the shared apprehension that arises from the unique environmental, societal, technological, and economic uncertainties, challenges, and changes experienced by a specific generation (Cook, 2023). The youngest generation of adults today suffer from alarming rates of depression and anxiety alongside generation-specific stressors such as climate change, political polarization, social transformations, and job insecurity (APA, 2018; Beardsley, 2022; Cook, 2023). In particular, Generation Z (Gen Z; those born in and between 1997-2012) has grown up during economic instability, rapid changes in technology, and the COVID-19 pandemic. Unsurprisingly, the American Psychological Association has found that Gen Z faces unparalleled levels of uncertainty, with stress levels greater than the national average (APA, 2018, 2020). Hypothesized underlying causes of high stress in Gen Z are climate change, future work opportunities, and financial stress. Thus, this study explored generation-specific events inclusive of eco-anxiety, artificial intelligence (AI) anxiety, and financial anxiety. Eco-anxiety is the distress associated with worsening environmental conditions (Clayton & Karaszia, 2020). AI anxiety is the concern around automation in the workplace and its effects on job security and replacement (Wang & Wang, 2022). Financial anxiety is the worry about the future of one's personal finances (Archuleta et al., 2013).

Research Questions

In response to the above findings, the specific research objectives of this study explored the impact of eco-anxiety, AI anxiety, and financial anxiety in post-secondary students. Due to

the limited research on this topic, this study sought to understand the impact and strength of these stressors on the mental health outcomes of Gen Z.

The current study aimed to address the following questions:

1. What are the effects of generation anxiety on the mental health outcomes of post-secondary students?
2. What is the relative and collective impact of eco-anxiety, AI anxiety, and financial anxiety on the mental health of post-secondary students?
3. How do post-secondary students perceive climate change, AI, and financial concerns as contributing factors to the high rates of depression and anxiety in Gen Z?

Significance of The Research

Gen Z often reports poor mental well-being and high levels of psychological distress (APA, 2018, 2020). Despite these statistics, the mental well-being of Gen Z and the generation-specific events that may underlie this distress remain largely underexplored. With post-secondary institutions containing large populations of Gen Zs, examining the perceptions and beliefs of this demographic is valuable. Insight into the underlying causes of depression and anxiety from the results of this study can inform service providers, educators, institutions, and program developers, as well as help guide policy decisions regarding the mental health of this generation of young adults. Additionally, understanding these stressors is crucial not only for addressing Gen Z's immediate mental health needs but also for developing long-term strategies that foster resilience and well-being in future generations. As such, the following research investigated the prevalence of each generation-specific stressor and its effects on mental well-being.

CHAPTER 2: LITERATURE REVIEW

To gain a better understanding of the relationship between eco-anxiety, AI anxiety, financial anxiety, and mental health outcomes, a review of the relevant literature was conducted. Each concept will be defined and explored with a summary of current research.

Anxiety

Anxiety is a fundamental process that serves adaptive functions in humans and animals (Barlow et al., 2019). It involves a negative emotionality that is characterized by physiological symptoms and a worry about the future (Barlow, 2004). As anxiety is future-oriented, it can lead to appropriate and adaptative interventions to increase well-being and precaution against possible threats (Barlow, 2004). In aversive forms, anxiety can be maladaptive, leading to a dysregulation of emotion and a chronic state of worry (Barlow, 2004; Barlow et al., 2019).

Although this study uses the terms eco-anxiety, AI anxiety, and financial anxiety, it is important to note that 'anxiety' itself is not a formal diagnosis in the DSM-5-TR. Rather, anxiety is a symptom domain that spans several diagnostic categories (e.g., generalized anxiety disorder, panic disorder, social anxiety disorder), and the scales used here capture situational or thematic expressions of anxiety rather than clinical diagnoses.

Furthermore, is important to make the distinction between fear and anxiety. Fear is an emotional response to an immediate and identifiable threat, whereas anxiety is a future-oriented state characterized by apprehension about potential or uncertain threats. In other words, fear is present-focused and short-lived, while anxiety is anticipatory and often more prolonged. When fear becomes chronic or disproportionate to the actual threat, it can evolve into anxiety, potentially leading to anxiety disorders if left unaddressed (Daniel-Watanbe & Fletcher, 2021).

Uncertainty and Generation Anxiety

The current global scenario of political, social, environmental, and technological transformation is described by researchers as being characterized by systemic and deep-rooted uncertainties (Massazza et al., 2022). Modern changes and challenges in the recent decade are linked to high levels of uncertainty at the individual, communal, and societal levels, creating an age of hyper-uncertainty (Eichengreen, 2016). Research to date has found that there are two types of uncertainties in generation anxiety: micro- and macro-level (Massazza et al., 2022). Micro-level uncertainty is related to personal uncertainties such as one's future, livelihood, and safety; macro-level uncertainty is related to structural issues such as job insecurity, housing, and the security and future of one's safety (Massazza et al., 2022). Both forms of uncertainty can be found in one's life, and may impact multiple areas, such as family and career. For example, uncertainty experienced by workers can relate to workplace reorganization, job-related tasks, and the future of one's job (Massazza et al., 2022). Unsurprisingly, micro- and macro-level uncertainty often trigger several negative mental health outcomes, such as stress, depression, anxiety, and post-traumatic disorder (Grupe & Nitschke, 2013; Moreland & Santacroce, 2018; Sharkey et al., 2018). Additionally, these uncertainties have been linked to worsening psychosocial outcomes such as quality of life, psychological distress, and psychosocial adjustment (Massazza et al., 2022; Niv et al., 2017).

Despite the prevalence of uncertainty throughout life, little research exists in understanding it (Massazza et al., 2022). Furthermore, although fear and worry are normal responses when faced with uncertainty or the unknown, the link between uncertainty and mental health is largely neglected (Massazza et al., 2022). Uncertainty remains uninvestigated in relation to the types of uncertainty-generating events and their effects on different populations;

for example, the uncertainty around climate change and its effects on people (Massazza et al., 2022). Consequently, understanding the impact of uncertainty-generating events is essential because each generation is marked by its own set of uncertainties. *Generation anxiety* can thus be understood as the shared apprehension that arises from the unique environmental, societal, technological, and economic uncertainties, challenges, and changes experienced by a specific generation (Cook, 2023).

Depression and Anxiety

Depression is a common mental disorder; it involves a depressed mood or loss of pleasure or interest in activities for long periods of time (American Psychiatric Association, 2013; World Health Organization, 2023). Anxiety and depressive disorders are among the most common psychiatric illnesses; they are highly comorbid with each other and are considered to belong to the broader category of internalizing disorders (Kalin, 2020). A worldwide survey reported that 45.7% of individuals with lifetime major depressive disorder had a lifetime history of one or more anxiety disorders (Kalin, 2020). These disorders also commonly coexist during the same time frame, as 41.6% of individuals with 12-month major depression also had one or more anxiety disorders over the same 12-month period (Kalin, 2020).

Furthermore, Kalin (2020) states that depression and anxiety are influenced and developed from the same genetic and environmental risk factors, such as neglect, adverse childhood experiences, neural functions (specifically in the amygdala), and genetic neuroticism. In relation to the development of their comorbidity, studies demonstrate that anxiety disorders generally precede the presentation of major depressive disorder (Kalin, 2020). Simply put, anxiety can often lead to depression when chronic worry, stress, and fear become overwhelming, leading to feelings of hopelessness and a loss of control (Kalin, 2020). As anxiety persists, the

constant mental strain can deplete emotional energy, making it harder to cope, which may eventually trigger depressive symptoms such as sadness, fatigue, and a diminished sense of self-worth. As such, Kalin (2020) states that these disorders are highly comorbid and that their symptoms are frequently not separable.

Generation Z

Recent data indicates that the youngest generation of adults today, known as Gen Z (those born between 1997-2012), suffer from alarming rates of depression and anxiety (Beardsley, 2022; Cook, 2023; Talmon, 2019). When it comes to mental health conditions, Gen Zs are more likely than all other generations to report depression and anxiety diagnoses (APA, 2018). Cook (2023) explains that anxiety has biologically, socially, historically, and emotionally become a part of daily lives in this generation. A report by Gallup (2024) found that nearly half of Gen Z reports feeling anxious, with an average of 56% of those ages 18-26 experiencing anxiety. Similarly, about 29% of those ages 18-26 reported feeling depressed (Gallup, 2024). Gallup's (2024) data also found that happiness declining markedly with age; while 12-14-year-olds report feeling somewhat and very happy, this plummets to a much lower level after 21. However, it remains unclear whether high rates of depression and anxiety are a result of increasing incidence and prevalence or whether it is linked to a greater comfort in acknowledging mental distress and seeking support and diagnoses.

An infamous explanation for this rise in mental health conditions is the 'snowflake' thesis, which states that today's youth have been coddled and allowed to avoid the responsibility and independence that fosters mental resiliency (Cook, 2023; McMaster, 2020). In other words, the belief is that this young generation of adults is lazy and fragile (Cook, 2023). However, this perspective may undermine the unique challenges faced by Gen Z, as it can be argued that this

generation encounters significantly greater obstacles than previous ones. (Cook, 2023; McMaster, 2020). Although the expectation has been that generations will fare better than the ones before, recent global trends show that for Gen Z, this may not be true (McMaster, 2020). Generation-specific stressors such as climate change, political polarization, social transformations, and job insecurity have resulted in an increase in reported anxiety for many (Beardsley, 2022; Cook, 2023; Talmon, 2019). Specifically, Gen Z has faced significant challenges and changes growing up during economic instability, wartime, rapid changes in technology, and the COVID-19 pandemic (Beardsley, 2022; Cook, 2023; Talmon, 2019).

Many members of Gen Z are also entering a new phase of their lives, starting the process of establishing themselves socially, professionally, and financially (Beardsley, 2022; Tanner, 2018). Unsurprisingly, this life stage increases stress for many Gen Zs who no longer relate to adolescence but do not feel ready for adulthood (Tanner, 2018). The American Psychological Association (APA; 2018, 2020) has found that Gen Z faces unparalleled levels of uncertainty, with stress levels greater than the national average. An APA survey of Gen Z youth stress factors, 58% reported climate change and global warming, 77% indicated a lack of future work opportunities, and 81% reported financial concerns as substantial contributors (APA, 2018, 2020). Furthermore, among Gen Z adults, common symptoms of stress include feeling depressed, lack of interest or motivation, feeling nervous or anxious, lack of sleep, and unhealthy eating habits (APA, 2018). Despite high percentages, half of Gen Z report not dealing with their stress, ultimately exacerbating mental health conditions (APA, 2018). Evidently, the mental well-being of Gen Z remains under-explored, with research being in the early stages of exploration. Thus, the reported decline in the mental health of Gen Z has yet to be investigated in depth.

Furthermore, Stokols et al. (2009) found that high levels of stress in Gen Z could be attributed to an increased access to mass media that has exposed people worldwide to climate change-related, AI-related, and financial stressors on a regular basis (Beardsley, 2022). Gen Z, most of whom have not known a life without the internet or technology, experience significant amounts of unrest and disruption due to news that is released daily and updated hourly through various social media platforms (Stokols et al., 2009). This constant confrontation with stressors can result in feelings of anxiety and hopelessness (Stokols et al., 2009). Therefore, research is needed to understand how larger factors, such as global crises and changes, impact the mental health of Gen Z (Beardsley, 2022; Stokols et al., 2009). Consequently, researchers highlight that by applying a holistic approach to the understanding of the mental health of Gen Z, they can seek to understand the functioning of Gen Z in terms of their relationship with the broader community and the cultural and socioeconomic context in which they are located (Beardsley, 2022). Based on the above findings, hypothesized underlying causes of high stress in Gen Z are climate change, future work opportunities as impacted by AI, and financial stress (APA, 2018, 2020; Cook, 2023).

Life Course Theory

This thesis used life course theory (LCT) as a theoretical framework to guide understanding of the unique environmental, social, and financial circumstances of Gen Z. LCT is a sociological framework that examines individuals' lives within the context of historical and social events; it emphasizes how different life stages and transitions are influenced by a variety of social, economic, and cultural factors (Mortimer & Shanahan, 2003). The LCT examines the complex interplay of factors in human lives within context. As such, it provides researchers with

a framework for studying phenomena at the center of social pathways, developmental trajectories, and social change.

Mortimer and Shanahan (2003) explain that historical changes often have different implications for people of different ages. As such, people of different ages bring different experiences and resources to situations and consequently adapt in different ways to new conditions. Thus, LCT states that development does not end at age 18. Adults can and do experience fundamental biological, psychological, and social changes that are developmentally meaningful. For example, although young adults can prepare themselves and plan their futures accordingly, it depends on the context and its constraints. Suppose an individual graduates from a post-secondary institution and enters the labour market that soon becomes stagnant during a financial crisis; on the other hand, an individual studying during the financial crisis has the opportunity to pursue higher education and enter the labour market when the economy has improved (Mortimer & Shanahan, 2003). As such, LCT argues that the life course of individuals is embedded and shaped by the historical times and places they experience over their lifetime. Similarly, birth cohorts (all people born within a given time) are influenced by the historical context and place in which they are in (Mortimer & Shanahan, 2003).

LCT also posits that the developmental experiences and consequences of life transitions, events, and behavioural patterns vary according to their timing in a person's life. In fact, the same events may affect individuals differently depending on when they occur in the life course. Mortimer and Shanahan (2003) state that the very meaning of the event can change at different developmental stages. For example, Harley and Mortimer (2000) found that very early transitions to adult statuses, like leaving the parental home at a relatively young age, entering marriage or becoming a parent, have detrimental effects on mental health. Moreover, the young

people in their study who experienced a "pile up" of transitions (multiple transitions in the same year) experienced poorer mental health (Harley & Mortimer, 2000). In the case of Gen Z, a significant event in their lives was the COVID-19 pandemic, which, at its time, affected many of this generation's social skills and interactions. Thus, Mortimer and Shanahan (2003) state that these differential experiences in the transition to adulthood can help to explain some of the differences in mental health. Similarly, the social and developmental implications of LCT help to explain why two different generations can be affected so differently by major life events.

Furthermore, because lives are interconnected, individuals are affected by larger social changes through the impact that such changes have on their interpersonal contexts within more micro-level settings (Mortimer & Shanahan, 2003). For example, economic hardship can affect child development in negative ways largely because it can increase the depressed feelings of parents. Moreover, transitions in one person's life often entail transitions for others. For example, a daughter's early transition to motherhood and her own mother's early transition to grandparenthood can have repercussions on their roles, responsibilities, and social identities (Mortimer & Shanahan, 2003).

Additionally, according to this theoretical perspective, how people think about the social world around them can depend largely on what is happening in the world. This 'generational' phenomenon is derived from the assumption that historical influences shape the development of all or most people growing up at a particular time and that there is nearly always a shared cultural identity that sets them apart from the parental generation (Mortimer & Shanahan, 2003). As such, Mortimer and Shanahan (2003) state that unique historical events that happen during youth are no doubt powerful. For example, some social movements or the emergence of new ideologies provide distinctive experiences for youth during particular times.

Simply put, Mortimer and Shanahan (2003) state that when times change, lives change. As such, this study used LCT as a theoretical framework to investigate the experiences of Gen Z within the larger social context. Through LCT, this present research better understood the trajectory of life patterns in Gen Z that differ greatly in social, environmental, and financial contexts. When applied to Gen Z, LCT helps understand how the unique experiences of this cohort shape their behaviours, attitudes, and life outcomes. Lastly, due to the lack of studies on contextual changes over time (Mortimer & Shanahan, 2003), this study used LCT to examine varying contexts and how they impact the mental health outcomes of Gen Z.

Eco-Anxiety

Climate change is the human-induced change in the atmosphere resulting in the depletion of natural systems (Nurse et al., 2010). It is widely recognized as one of the most serious global health threats of the 21st century, threatening public health worldwide (Baudon & Jachens, 2021; Coffey et al., 2021; Usher, 2019). Aside from the slow and gradual impacts of climate change, it has substantial impacts on mental health, known primarily as eco-anxiety (Coffey et al., 2021; Usher, 2019). Research has found that the potential threat of climate change has caused collective apprehension, taking a significant toll on the mental health of people globally (Baudon & Jachens, 2021; Clayton & Karazia, 2020). In the past few years, researchers have been increasingly trying to understand the emotions we experience in response to ecological crises like climate change and how these emotional responses affect our physical and psychological well-being (Kurth & Pihkala, 2022). Research suggests that *eco-anxiety* is defined as the ecological emotions that result from emotional responses to environmental threats (Kurth & Pihkala, 2022). In other words, eco-anxiety is the psychological distress associated with

worsening environmental conditions and ecological crises (Baudon & Jachens, 2021; Coffey et al., 2021; Usher, 2019).

Eco-Anxiety and Well-Being

Although eco-anxiety can help individuals advance towards pro-environmental beliefs and behaviours, it is also a significant contributor to stress (Kurth & Pihkala, 2022). When anxious about climate change, individuals report high levels of the following seven emotions: feeling afraid, nervous, scared, upset, guilty, ashamed, and distressed when thinking about global warming (Kurth & Pihkala, 2022). Adverse emotional reactions such as irritability, weakness, sadness, sleeplessness, numbness, helplessness, hopelessness, guilt, frustration, or anger, and feeling scared or uncertain are common among those experiencing eco-anxiety (Baudon & Jachens, 2021; Clayton et al., 2017; Coffey et al., 2021; Usher, 2019). For example, many affected by eco-anxiety report feeling a sense of frustration due to the reality that the ecological impacts of climate change cannot be stopped or reversed (Wray, 2023). Powerlessness resulting from the inability to prevent a predicted catastrophic event is also a commonly reported emotion (Wray, 2023). Furthermore, feelings of injustice related to eco-anxiety also exist. Marginalized groups with no significant contributions to the worsening environmental conditions are disproportionately harmed by climate change, whose consequences are ultimately unequal and unknown (Wray, 2023). Scholars in climate change research have also coined eco-anxiety as a form of pre-traumatic stress disorder in which the traumatic consequences of an event are felt before it takes place (Baudon & Jachens, 2021; Kaplan, 2020). The traumatizing power of uncertainty can result in symptoms similar to the ones in post-traumatic stress disorder, such as flash-forwards, fear-induced disassociation, and nightmares (Clayton et al., 2017; Kaplan, 2020).

In a similar fashion to general anxiety, eco-anxiety is characterized by physiological symptoms and a heightened concern for the future (Coffey et al., 2021; Usher, 2019). Many affected by eco-anxiety report fearing for themselves, their children, and future generations with deep feelings of loss, hopelessness, and anger as they witness the effects of climate change (Coffey et al., 2021; Usher, 2019). The lack of ecological stability in the future erodes many individuals' sense of security, resulting in the grief and mourning of a lost future (Wray, 2023). In addition to the emotional responses to climate change, individuals often report negative physical behaviours such as sickness and panic attacks (Clayton et al., 2017; Coffey et al., 2021). Increases in asthma, cardiovascular disease, heart-related illnesses, viruses, and malnutrition have also been cited as negative physical impacts of climate change (Clayton et al., 2017). Chronic distress around climate change was also found to result in lowered immune system response, sleep disorders, hormonal changes, and memory loss (Clayton et al., 2017). Consequently, compromised physical health was also reported as a significant contributor to poor mental well-being (Clayton et al., 2017).

The Spectrum of Emotions Associated with Eco-Anxiety

Due to the complexity of feelings associated with eco-anxiety, Wray (2023) suggests that eco-anxiety is not monolithic but rather occurs along a spectrum from mild to severe, with different symptoms at each level. In the mild stage, individuals can experience feelings of upset, but these are not constant, and people can easily be distracted from them. People in the mild stage also reassure themselves that there is a solution and avoid negative feelings by practicing pro-environmental habits. In the medium stage, individuals report some form of psychological distress and hesitate to rely on experts to find answers to ecological crises. By practicing eco-friendly habits, people in this stage are not preoccupied with eco-anxiety. In the significant stage,

individuals have daily feelings of distress that come from an increasing awareness of the crisis. This stage is characterized by little reassurance, and people begin to feel hopeless for future generations and in finding a solution. Consequently, many make significant changes to their lifestyles and partake in climate change activism. Lastly, in the severe stage, individuals report significant changes in their cognition with heightened emotional and behavioural responses to the climate emergency. At this stage, people begin to experience negative individual, social, communal, occupational, and familial impacts due to thoughts about environmental doom and potential social collapse (Wray, 2023).

Furthermore, solastalgia, a term coined by Albrecht (2005), refers to the emotional distress individuals experience when their home environment is altered or destroyed, particularly due to environmental changes like climate change. Unlike nostalgia, which involves longing for a lost past, solastalgia is the sadness and anxiety felt in response to the degradation of one's present environment. This phenomenon has gained increasing attention as climate change related problems increase, affecting individuals who feel a deep connection to their local landscapes. Solastalgia emphasizes the psychological impact environmental loss has, highlighting the key role environmental factors play in mental health outcomes.

Sociocultural Impacts of Eco-Anxiety

Literature on eco-anxiety has also found that because eco-anxiety is complex and multifaceted, it can be affected by social pressures and manifest as different combinations of distress (Pihkala, 2020). As such, there can be silenced and socially denied forms of eco-anxiety in which communities are aware of ecological crises but refuse to acknowledge or act on them (Pihkala, 2020). Eco-anxiety was also found to be a component of a person’s anxieties, such as the anxiety of having children in a rapidly declining world (Pihkala, 2020). The decreasing

childbirth rate is a predominant social issue in industrialized countries (Pihkala, 2020). A large number of young adults cite eco-anxiety as a fundamental explanation for their reluctance to have children (Kelly, 2017; Nairn, 2019; Pihkala, 2020). In a recent survey by Hickman et al. (2021), 39% of youth said they were hesitant to have children. As such, many are faced with the decision of not having a child or being anxious about how their child will deal with a planetary condition that is becoming deadlier and devoid of nature (Wray, 2023). Alongside eco-anxiety, many young adults report job insecurity, social conflict, and lack of work opportunities as critical factors creating this hesitancy to reproduce (Wray, 2023). As a result, 60% of young adults report being concerned about the carbon footprint of procreation, and 97% report being concerned about the future well-being of their child, hypothetical or existing (Wray, 2023). Some young adults even go as far as undergoing vasectomies and tubal ligations out of worry for the planet (Wray, 2023). Thus, two central concerns about reproduction in relation to climate change are: a) the environmental impacts of having a child; and, b) what a warming world will do to the health and safety of a child (Wray, 2023).

Moreover, social norms in relation to environmental behaviour have generated social kinds of eco-anxiety. For example, it was socially acceptable for people to fly in the previous decade. However, many countries have been facing discussions about 'flight shame,' in which those who fly are viewed as being inconsiderate of the ecological damage of flights (Mkono, 2020). Social changes such as recycling programs, organic waste programs, electric cars, reduced energy consumption, and dietary restrictions to combat climate change have also become the norm in many households across North America (Mkono, 2020; Wray, 2023).

Eco-anxiety also impacts social relationships as stressors can strain interpersonal interactions (Clayton et al., 2017). The aftermath of natural disasters has shown an increase in

problems with family and interpersonal relations, social disruptions, concerns about the wider community, and feelings of obligation to provide support to others (Norris et al., 2001). Loss of homes and migration can lead to poor psychosocial outcomes such as a decreased sense of safety, poor social relationships, lack of consistent education, changes in family dynamics, and, in some cases, an increase in domestic abuse (Clayton et al., 2017). Furthermore, increases in aggression and interpersonal violence associated with high temperatures have also been found (Clayton et al., 2017). As access to natural stress-reducing areas rapidly decreases, in combination with a lack of supportive social networks, aggression is exacerbated (Clayton et al., 2017). Rising levels of frustration in society ultimately lead to interpersonal aggression (Clayton et al., 2017). In fact, research predicts that climate change will cause significant increases in murder, rape, and theft (Clayton et al., 2017).

Worldwide, doctors report that patients diagnosed with depression and anxiety often cite climate change as something they are having difficulty with (Searle & Gow, 2010). Similarly, mental health services saw a considerable increase in the demand for therapeutic support for climate change concerns (Baudon & Jachens, 2021). As a result of these negative effects, healthcare institutions around the world have declared climate change to have severe health consequences for vulnerable populations (Coffey et al., 2021). Many health professionals have started to call for an increase in awareness and training for eco-anxiety (Baudon & Jachens, 2021; Clayton et al., 2017). An abundance of self-help tools, self-care guides, and climate-conscious care have emerged to help people grapple with ecological uncertainty, find community support, and focus on pro-environmental practices (Wray, 2023). Nonetheless, research on therapeutic interventions to deal with eco-anxiety and make informed treatment plans is limited and inaccessible to those who need them (Baudon & Jachens, 2021; Wray, 2023).

Eco-Anxiety in Vulnerable Populations

Mere perceptions of climate change (the awareness of the problem not linked to personal experiences) are enough to create psychological distress (Clayton & Karazia, 2020). However, specific populations remain increasingly more vulnerable to eco-anxiety. Vulnerable populations are listed as those with greater exposure to and care for the environment, have extensive knowledge, are located in geographically vulnerable areas, and are connected to nature for cultural or spiritual reasons (Clayton & Karazia, 2020). Similarly, those who have experienced challenges and changes as a direct result of climate change, such as injury or stress from extreme weather events, homelessness or being displaced due to unpredictable weather, are also more likely to experience a greater vulnerability to developing eco-anxiety (Coffey et al., 2021). For example, among a sample of those affected by Hurricane Katrina in 2005, suicide and suicidal ideation more than doubled; one in six people met the diagnostic criteria for PTSD, and 48% developed anxiety and mood disorders such as depression (Clayton et al., 2017). Additionally, following natural disasters, increased psychological distress can make individuals engage in behaviour that has a negative impact on their health, such as smoking and risky behaviours (Clayton et al., 2017).

Furthermore, younger adults (ages 18-35) report significantly higher scores than older adults when discussing the degree to which eco-anxiety impacts their ability to function (Clayton & Karazia, 2020). Searle and Gow (2010) found that among younger generations, young females who held pro-environmental beliefs were more fearful and worried about the remote future (Searle & Gow, 2010). Because younger age groups are more likely to be educated about climate change at schools and universities, they are highly exposed to environmental messages and thus more vulnerable to intense eco-anxiety than older age groups (Searle & Gow, 2009, 2010).

Pihkala (2020) found that there has been significant growth in newspaper articles, documentaries, blogs, and social media posts addressing the anxiety related to ecological crises. Hashtags around climate change action and movement have become popularized among social media. Thus, the rapid development of news around climate change, environmental degradation, and the future of youth and subsequent generations has resulted in increased levels of anxiety (Pihkala, 2020). Similarly, it has been found that an increase in public awareness of climate change due to media coverage has amplified feelings of anxiety in students (Baudon & Jachens, 2021). Because youth often do not have direct experiences with climate change, the media largely constructs the narratives of climate change, ultimately affecting their interpretations of the threat (Clayton & Karazia, 2020). With growing awareness and concern, eco-anxiety seems to be significantly correlated to depression, anxiety, and stress in younger groups (Searle & Gow, 2010).

In a global survey by Hickman et al. (2021) on eco-anxiety in youth, researchers found that 45% of respondents reported that their feelings about climate change negatively impacted their daily life and functioning. Eating, concentrating, working, school, sleeping, spending time in nature, playing, having fun, and developing relationships were all areas that were found to be negatively affected (Hickman et al., 2021). Over half of the youth in this survey thought that humanity was doomed, that they would never have the same opportunities as their parents, and that the things they most valued would be destroyed (Hickman et al., 2021).

Similarly, recent research has highlighted the growing psychological burden of climate change on young people. A large-scale cross-sectional survey by Lewandowski et al. (2024) found that 85% of U.S. adolescents and young adults aged 16–25 reported at least moderate concern about climate change, with nearly 58% indicating they were very or extremely worried.

Participants frequently reported experiencing emotions such as anxiety, fear, powerlessness, and sadness in response to the climate crisis. Over 40% of participants acknowledged that climate change negatively impacts their mental health and daily functioning. Notably, individuals who had experienced more frequent severe weather events in the past year such as wildfires, floods, or extreme heat were significantly more likely to report heightened distress and a stronger intention to engage in climate-positive actions, such as voting for environmentally supportive policies. Many participants also expressed a sense of betrayal by older generations, criticizing their inaction and failure to prevent or address the climate crisis. This generational frustration often intensified their emotional responses and stressed a desire for intergenerational dialogue and accountability. These findings demonstrate the pervasive impact of climate-related emotions on youth and emphasize the importance of addressing both the psychological and behavioural dimensions of climate change engagement in this demographic.

Eco-Anxiety and Anxiety Theory

According to Pihkala (2020), eco-anxiety is grounded in anxiety theory. The climate crisis, which causes difficult feelings of uncertainty, unpredictability, uncontrollability, and uncertainty generates classic ingredients of anxiety (Pihkala, 2020). Specifically, uncertainty, which plays a crucial role in anxiety theory, creates feelings of threat despite the uncertainty about its exact nature or time (Barlow, 2004). Other aspects, such as unpredictability and uncontrollability, generate strong feelings of helplessness and powerlessness, significantly altering an individual's locus of control (Grupe & Nitschke, 2013). As mentioned in the research on people's experiences of eco-anxiety, these factors play a central role in the well-being of those who experience eco-anxiety (Pihkla, 2020). There is profound uncertainty and unpredictability in relation to the disastrous consequences of climate change (Pihkala, 2020). Grupe and Nitschke

(2013) emphasize that uncontrollability is an essential component of eco-anxiety because the belief that an individual has the power to influence the aversiveness of an event is diminished. In other words, people often feel defenceless against the changing environment. Climate change activists are also privy to this feeling of powerlessness, as many report feeling helpless because they simply do not have the political power to do what needs to be done (Pihkala, 2020).

Furthermore, researchers found that anxiety contributed to negative perceptions of current ecological concerns in a more threatening and fearful manner (Searle & Gow, 2009, 2010). As such, 'future uncertainty,' 'increased unpredictability,' and 'not knowing the long-term consequences' were the greatest concerns in a survey about climate change distress (Searle & Gow, 2009, 2010). Thus, climate change's uncertain and unpredictable nature was identified as a substantial contributor to psychological distress. With climate change intensifying daily life inconveniences, people have begun to experience psychological impacts on their sense of autonomy and control (Clayton et al., 2017). Perceptions of uncontrollability thus have substantial negative impacts on mental health as individuals (Clayton et al., 2017). Another frequently reported phenomenon in eco-anxiety is overstimulation. Overstimulation is a major theme in anxiety theories and is defined as the frantic feeling of being overwhelmed and bombarded with stimulation (Pihkala, 2020). Overstimulation fits well with the experiences of many people who are affected by eco-anxiety and report burnout associated with constant reminders of climate change in the media (Pihkala, 2020).

Positive Side to Eco-Anxiety

Although eco-anxiety can lead to dysfunction and negative mental well-being, it is important to acknowledge the positive side of eco-anxiety. An essential aspect of anxiety theory is the positive role of anxiety, which serves as a functional emotion that inspires individuals to

seek out information and problem-solve (Pihkala, 2020). This anxiety, which theorists have referred to as 'practical or functional anxiety,' can also be seen in eco-anxiety (Kurth, 2018). Viewing anxiety with a positive outlook shows that it has served as a tool to accomplish and establish pro-environmental habits and practices (Pihkala, 2020). For example, many people report that in addition to psychological distress, their eco-anxiety has caused them to reflect on their ecological behaviour and build more sustainable and eco-friendly lifestyles at the individual and communal level (Pihkala, 2020). Furthermore, research has found that the surge in eco-anxiety has inspired youth and young adults globally to become climate change activists (Pihkala, 2020). Kurth (2018) also highlights that anxiety is often rooted in moral emotion; it demonstrates that a person cares about important problems and uncertainties. In terms of eco-anxiety, it shows that a person cares about threatening ecological crises (Pihkala, 2020).

Artificial Intelligence Anxiety

Artificial Intelligence

Artificial intelligence (AI) is defined as "the ability of a machine to perform cognitive functions that we associate with human minds, such as perceiving, reasoning, learning, interacting with the environment, problem-solving, decision-making, and even demonstrating creativity" (Rai et al., 2019, p. 3). Over the past few decades, AI has steadily evolved, transitioning from an agent capable of forming mechanical tasks that require minimal learning to an agent capable of performing increasingly complex thinking tasks with a great ability to analyze and make autonomous decisions (Vorobeva et al., 2022). In the 21st century, AI has become increasingly normalized, widespread, and easily accessible, influencing how we buy, entertain, work, play and even eat (Rai et al., 2019; Vorobeva et al., 2022).

Concerns about AI

The domination of technology in the modern world is filled with promises and challenges (Manyika et al., 2017). Machines that read X-rays and algorithms, such as chatbots and virtual assistants, that respond to customer service inquiries are powerful new forms of automation (Manyika et al., 2017). With the rapid development of artificial intelligence, such as ChatGPT, Chatbot, and OpenAI software, individuals have begun to express anxiety about AI implementation and use (Li & Huang, 2020; Wang & Wang, 2022). *AI anxiety* is defined as the irrational fear about the social impact of AI (Wang & Wang, 2022). This fear ultimately inhibits an individual from interacting with AI (Wang & Wang, 2022). Scholars in AI research have stated that AI anxiety has become a universal phenomenon that will significantly impact the future of study, work, social structure, and life paths (Clarke, 2019; Johnson & Verdicchio, 2017; Li & Huang, 2020; Scherer, 2015). Therefore, because AI has the potential to create life-altering changes, make autonomous decisions, and operate independently of humans, many fear that AI will end up being catastrophic for society (Li & Huang, 2020; Wang & Wang, 2022; Wang et al., 2022). Although some fears around the implementation of AI, such as the enslavement of humans, may be baseless, research shows that there are several valid concerns around the normalization of AI.

Over the past decade, there has also been an increase in concern about the confidential and ethical implications of AI (Li & Huang, 2020; Stahl & Wright, 2018). People have begun to show concern for the ethical use of AI in relation to privacy, security, and data protection (Stahl & Wright, 2018). Anxiety around the ethical implications of accountability if AI creates adverse consequences has also risen (Stahl & Wright, 2018). Due to the complex nature of AI, researchers have found that the general public has started to develop a broad range of anxieties

around AI, such as job replacement, privacy violation, learning, and safety anxiety (Li & Huang, 2020; Manyika et al., 2017; Scherer, 2015). This negative phenomenon is often referred to as the dark side of AI, concerning the potential risks of AI for individuals, organizations, and society (Mirbabaie et al., 2021). With prompt advancements in AI, research predicts that AI anxiety will become more widespread among the public (Li & Huang, 2020). For the purposes of this study, AI anxiety will be explored in relation to future work opportunities and the changing dynamics in the workplace (Stahl & Wright, 2018).

AI and Job Replacement Anxiety

The adoption of AI in the workplace will change daily work activities worldwide as automation begins to outperform human workers on physical and cognitive tasks (Manyika et al., 2017). Today, AI is increasingly integrated into the workplace to foster collaboration within human-machine teams and assist employees with work-related tasks (Mirbabaie et al., 2021). Widespread use of AI has already been integrated into a few workforces. For example, Siri in Apple devices, Alexa for Amazon, and Pepper in hospitals and airports are globally adopted forms of AI assistant technology (Wang et al., 2022). Despite the increase in productivity and quality of life, the substitution of AI for human workers has sparked great concern (Manyika et al., 2017). Job replacement anxiety is defined as the apprehension of being replaced by AI resulting from the belief that AI will replace humans in a wide range of occupations (Li & Huang, 2020).

Fear around job replacement is not impractical as recent trends in the workforce show that although AI has not replaced human labour on a large scale, substitution is readily occurring (Li & Huang, 2020). Economic studies on automation have already found that the adoption of AI increases inequality, reduces wages, results in job replacement by technology, and increases

unemployment (Vorobeva et al., 2022). A widespread example of job replacement today is demonstrated by the large number of workers in the agriculture and manufacturing industries who have already been displaced (Li & Huang, 2020; Manyika et al., 2017). Manyika et al. (2017) found that changes in work after the year 2030 will create significant challenges for many. In about 60% of occupations, at least one-third of tasks can be automated, implying substantial workplace transformations and changes worldwide (Manyika et al., 2017). Furthermore, research estimates that by 2030, about 15% of hours worked globally could be automated (Manyika et al., 2017). Thus, upcoming workforce transitions could be huge as about 375 million people will be mandated to shift occupational categories and learn new skills (Manyika et al., 2017). Researchers at the McKinsey Institute estimate that if AI continues to be rapidly applied, between 400 to 800 million individuals could be displaced by automation and required to find new jobs (Manyika et al., 2017). Beyond job replacement, research predicts that the rise in AI will also lead to career insecurity as entire careers and industries could be changed (Lee et al., 2018). This predicted workforce shift could be on a scale not seen since the labour force transition out of agriculture in the early 1900s across North America, Europe, and China (Manyika et al., 2017).

Examples of job replacement are readily emerging; for example, among the jobs replaced by AI, the introduction and maturation of self-driving cars will likely replace human drivers on ride-share apps (Li & Huang, 2020). In the past couple of years, many factory workers have also reported losing their jobs to automation in the workplace (Li & Huang, 2020). The use of AI in healthcare also has the potential to displace many healthcare practitioners, with researchers estimating that around 80% of doctors will be replaced by AI in the future (Li & Huang, 2020). AI will also replace language interpretation and administration jobs as employers increasingly

value efficiency and efficacy (Li & Huang, 2020). Overall, experts predict that AI is highly likely to replace retail salespeople, market research analysts, couriers, receptionists, bookkeepers, and telemarketers in the near future (Wang & Wang, 2022). Consequently, Manyika et al. (2017) found that about half of the activities that people are paid to do globally could be automated by technology in the future. Naturally, these disruptive effects impact work and, ultimately, income, contributing to anxiety.

Furthermore, replacement by automation and computerization can also lead to a significant loss of meaning for workers (Wang & Wang, 2022). Therefore, the uncertainty of the future, prospective unemployment, and poor job prospects significantly contribute to the anxiety around AI (Li & Huang, 2020; Manyika et al., 2017). In addition to the loss of status position, now more than ever, employees are facing new forms of work that decrease personal interactions and increase interactions with AI (Mirbabaie et al., 2021). Loss of interpersonal interactions can also result in poor mental health outcomes for workers (Mirbabaie et al., 2021).
Moreover, AI will create new ways of work in which individuals will no longer be able to do their jobs with the same values and convictions as they used (Mirbabaie et al., 2021). Because employees generally like to be perceived as accountable for their work and enjoy appreciation for it, the replacement of work activities by AI generates a sense of danger to one's status position (Mirbabaie et al., 2021). Ultimately, with AI, there are constant changes that impact the perception of one's role in the workplace, which is perceived by workers as a threat to their professional identity (Mirbabaie et al., 2021). AI identity threat is defined as the direct threat of AI to the social position of an employee (Mirbabaie et al., 2021). Workers who fear a loss of their competencies and independence at the hands of AI are much more likely to perceive a high AI identity threat, resulting in higher levels of AI anxiety (Mirbabaie et al., 2021).

However, technical feasibility is only one factor that influences the pace and extent of automation in the workplace (Manyika et al., 2017). Other factors such as costs of developing automation, labour-market dynamics, benefits of automation over labour substation, and social acceptance are important considerations for AI in the workplace (Manyika et al., 2017). Despite the growing public concern about whether there will be enough jobs for workers, history suggests that over time, labour markets adjust to changes in demand for workers (Manyika et al., 2017). Additionally, automation in the workplace also has the potential to create new occupational categories for which workers will be required (Manyika et al., 2017; Mirbabaie et al., 2021; Wang & Wang, 2022). For example, possible new areas of work within engineering, programming, and social domains could emerge (Acemoglu & Restrepo, 2018). Nonetheless, the fear of AI eliminating jobs outweighs the possible opportunities for human-AI collaboration (Acemoglu & Restrepo, 2018; Mirbabaie et al., 2021). Additionally, Lu et al. (2020) state that AI can improve occupational well-being because it performs mechanical and repetitive tasks, allowing workers to focus more on creative and intuitive ones (Vorobeva et al., 2022).

AI, Job Tasks, and Job Performance

Despite the progression of technology, AI still underperforms humans in a multitude of tasks, such as decoding, emulating, and responding to human feelings and interpersonal cues (Vorobeva et al., 2022). In research, these tasks are referred to as feeling tasks and mechanical activities are referred to as thinking tasks (Vorobeva et al., 2022). Because AI is likely to replace many thinking tasks, it has fueled a gradual increase in the demand for employees who can perform feeling tasks, giving rise to a new socioeconomic paradigm coined as the Feeling Economy (Rust & Huang, 2021; Vorobeva et al., 2022). In the literature on Feeling Economy, the replacement of human labour by AI examines how potential substitution might depend on the

skills required by specific tasks (Rust & Huang, 2021). Recent trends show that the relative importance of executing complex thinking tasks - such as communicating with others and establishing and maintaining relationships - is growing across industries as workers with these abilities will become more valuable (Rust & Huang, 2021; Vorobeva et al., 2022).

Furthermore, AI research finds that job performance is inversely correlated to AI anxiety and fear of replacement (Vorobeva et al., 2022). Ultimately, the presence of AI in the workplace has harmful effects on employees' feelings and thus produces lower expected and intended performance (Vorobeva et al., 2022). Vorobeva et al. (2022) found that because AI is limited in its ability to perform interpersonal tasks, workers who are engaged in mechanical tasks are adversely affected by AI. When AI is present, workers who are assigned thinking tasks have a lower perceived ability, increasing their fear of being replaced and decreasing their job performance (Li et al., 2019; Vorobeva et al., 2022). Perceived ability is critical as low perceived ability predicts worse future performance, poor commitment to achieving performance outcomes, and less energy in performing tasks (Li et al., 2019; Vorobeva et al., 2022). Moreover, as employees increasingly experience the fear of labour displacement at the hands of AI, intentions to leave their jobs increase (Vorobeva et al., 2022). Applying social comparison theory, researchers find that employees who compare their abilities to those of AIs perceive it as a higher threat to job security (Vorobeva et al., 2022). Therefore, an individual's perceived ability, in comparison to AI, impacts their performance (Vorobeva et al., 2022).

AI and Learning Anxiety

With the ability of AI to increase productivity and economic growth, millions of people around the world may need to upgrade and learn new skills or switch occupations altogether (Manyika et al., 2017; Wang & Wang, 2022). Among the people displaced by automation, 75 to

375 million people may need to switch job categories and learn new skills (Manyika et al., 2017). Researchers thus estimate that all workers will be required to adapt to working with increasingly powerful technologies, which will force individuals to readily prepare to meet these employment needs (Wang & Wang, 2022). Learning in-demand skills and readjusting expectations about work will be essential to help workers remain relevant and achieve their career goals (Wang & Wang, 2022). However, expertise with AI is closely related to feelings around loss of autonomy and controllability (Mirbabaie et al., 2021). Because AI can perform work activities independently of humans, many begin to feel as though they have lost control in the workplace (Mirbabaie et al., 2021). This loss of controllability has called for workers to advocate for employees to remain the central element in the workplace, with AI being supplementary (Mirbabaie et al., 2021).

In any change process, employees' perceptions of change and readiness are critical (Suseno et al., 2020). Suseno et al. (2020) recognize that individuals are ready for change when they understand, believe, and intend to change because of a perceived need. Therefore, examining the readiness of employees to embrace the change associated with AI adoption in the workplace is necessary, as a lack of perceived competence with AI can cause learning anxiety (Suseno et al., 2020). Learning anxiety is the concern caused by an individual's lack of self-confidence in learning AI (Li & Huang, 2020; Wang et al., 2022). AI is an algorithmic technology, and it can be challenging to learn (Li & Huang, 2020). In fact, AI is often seen as superior to human learning due to its ability to outperform highly skilled individuals in thinking tasks (Li & Huang, 2020). Because AI is perceived as complex and thus challenging, the perceived difficulty of learning this technology generates anxiety (Li & Huang, 2020). The perceived threat of AI to human learning is also a substantial contributor to stress and anxiety (Li

& Huang, 2020). This feeling of anxiety can be a major force in creating apprehension and distress, which influence employees' readiness to adopt AI technology (Suseno et al., 2020). Therefore, Suseno et al. (2020) emphasize the need for workplace organizations to build employee trust in AI, understand employee AI anxiety, and address their concerns about how AI might affect work tasks and employment in order to encourage workers to upgrade their skills. Although individuals will be highly anxious about keeping up with changes, Wang and Wang (2022) note that this may not be as destructive as people think. Researchers describe that although employees will be required to change careers and improve their skills, AI anxiety could affect professional skill development positively, as individuals, especially those with higher degrees of anxiety, will become more motivated to engage in learning behaviours (Wang & Wang, 2022).

AI in Post-Secondary Contexts

Global adoptions of AI present new challenges for students who are beginning to enter the workforce (Dai et al., 2020). As AI technology is rapidly deployed, students need to increasingly understand and learn AI-related skills for future employment (Wang et al., 2022). For current students, job replacement by AI will lead to a significant increase in the possibility of unemployment after graduation (Wang et al., 2022). As such, AI has started redefining the knowledge and skills students require to live well and work productively (Dai et al., 2020).

A primary focus of education is to prepare students to be ready to enter the workforce by equipping them with knowledge and skills to tackle future events (Dai et al., 2020). Research on AI in educational contexts reveals that immediate investigations into these issues are needed as students begin to enter the job market, where skills for working with, developing, and managing AI will be needed for many jobs (Wang et al., 2022). As a result, researchers maintain that

students need resources that increase the learning of AI-related skills to improve their competitiveness in the workplace and avoid being made redundant by AI (Dai et al., 2020; Wang et al., 2022). Thus, studying and implementing AI-related courses is a necessary movement that will hold significant benefits for students' future career development (Gati & Kulcsár, 2021; Wang et al., 2022). Nonetheless, AI education in institutions is still in the early stages of development (Dai et al., 2020). In the current context, many educators have voiced the need to foster student readiness to enter workplaces transformed by AI (Dai et al., 2020; Gherheș & Obrad, 2018). Therefore, if educational institutions want to prepare their students to meet the demand of an AI-infused future, they must integrate AI as a topic of academic curriculum to equip students with the necessary skills in AI technology (Dai et al., 2020).

A recent survey by the Walton Family Foundation (2024) found that while Gen Z actively engages with AI tools, many feel unprepared and anxious due to insufficient guidance in educational and workplace settings. The study found that 79% of Gen Z respondents have used generative AI products, and nearly half utilize them weekly. Despite recognizing benefits such as easier information access, increased work speed, and enhanced learning, 41% reported feeling anxious about AI, and 49% expressed concerns that AI might impair their critical thinking abilities. The survey also highlighted a lack of clear AI policies in schools and workplaces. Only about half of middle and high schools have explicit AI guidelines, many of which restrict AI use, leaving students uncertain about how to engage with the technology. In the workplace, 59% of Gen Z adults use AI at least monthly, yet only 30% do so for their jobs, with just 39% reporting that AI tools are available and permitted in their workplaces. This ambiguity contributes to Gen Z's anxiety and emphasizes the need for structured support to help them navigate AI's growing role in their academic and professional lives.

As such, due to the novelty of AI, education systems must build student confidence and reduce anxiety around AI (Dai et al., 2020). Students' well-being considerably depends on their ability to adapt to technological changes in the socio-economic landscape (Dai et al., 2020). Thus, Dai et al. (2020) emphasize the need for post-secondary institutions to empower students to participate and embrace AI technology in the workplace. Recent studies on online learning have found that student readiness to adopt technology is significantly influenced by self-efficacy and motivation (Dai et al., 2020; Wang et al., 2022). When students have decreased motivation to learn AI technology, it affects their adoption and use behaviour (Wang et al., 2022).

Gaps in AI knowledge and skills tend to generate AI anxiety (Wang et al., 2022). AI anxiety results in low motivation levels, reduced perceptions of ability, and learning anxiety, which causes students to avoid technological tools and applications (Wang et al., 2022). Learning anxiety is further exacerbated by specialized and complex algorithms, which are exceedingly difficult for students to comprehend (Wang et al., 2022). Although negative feelings around AI can result in avoidance, Wang et al. (2022) argue that there is still a facilitating aspect of AI anxiety. Wang et al. (2022) found that when students fear that AI will replace their jobs, it motivates them to learn AI technology. These results suggest that students who have greater anxiety around AI substituting human labour have higher learning motivation (Wang et al., 2022). Thus, to avoid hypothetical unemployment in the future, students begin to learn new competencies and gain additional knowledge (Wang et al., 2022). Researchers point out that this facilitating anxiety serves as an important source of motivation for students to learn AI and enhance employment competitiveness and contemporary job markets (Wang et al., 2022). Furthermore, Wang et al. (2022) also found that including creative and fun elements in learning AI-related skills significantly increases intrinsic motivation to learn as it counteracts the effects

of learning anxiety. Lastly, researchers also found that if students have self-efficacy in their learning abilities, then their intention to learn AI technology increases (Wang et al., 2022).

Financial Anxiety

Post-secondary students face distinctive financial circumstances, often leading to financial stress and anxiety (Potter et al., 2020). Today, students encounter tuition costs that are rising faster than general inflation, high levels of debt, and uncertain job prospects during a period of young adulthood (Potter et al., 2020). For many students, finances are a newfound responsibility. By the end of the semester, many experience a considerable depletion in money and little to no success in reducing expenses or generating income (Potter et al., 2020). Worldwide, students report a lack of savings, high credit card debt, insufficient income to cover expenses, and delays in making monthly payments (Potter et al., 2020). Naturally, these circumstances create high levels of anxiety and have negative impacts on financial behaviour, academic progress, and general health (Bennett et al., 2015; Potter et al., 2020). Although financial anxiety is not an unusual phenomenon, this paper aims to investigate the unique financial anxiety experienced by Gen Z.

Financial Satisfaction

Financial satisfaction is defined as the perceived satisfaction of one's income, perceived ability to handle financial emergencies, ability to meet basic necessities, debt level, amount of savings, and money for future financial needs and life goals (Archuleta et al., 2013). Financial satisfaction is an integral component of overall life satisfaction and well-being (Archuleta et al., 2013). The Government of Canada has also declared financial status and income as social determinants of health (Government of Canada, 2023). Thus, research in the past decade has demonstrated that financial well-being is significantly correlated to one's overall psychological

well-being (Archuleta et al., 2013; Plagnol, 2011). Financial well-being is also measured by ones overall level of satisfaction with their financial situation (Archuleta et al., 2013). Naturally, financial satisfaction is a major predictor of financial anxiety (Archuleta et al., 2013).

In students, financial satisfaction is also found to be the most significant predictor of financial anxiety regardless of the type or amount of debt held (Archuleta et al., 2013). Total debt, including student loans, credit cards, and installment debt, were found to be moderately important in predicting financial anxiety (Archuleta et al., 2013). The significant association between financial satisfaction and financial anxiety is feasible as low perceived ability to meet financial demands is a substantial contributor to financial stress (Archuleta et al., 2013).

Financial Stress in Canada

Financial stress is the stress from the inability to meet financial demands, afford the necessities of life, and have enough funds to make ends meet (Davis & Mantler, 2004). On the other hand, financial resilience is defined as one's ability to get through financial hardship (Financial Resilience Institute [FRI], 2023).

As of June 2022, the FRI (2023) found that around 78% of Canada's population is unable to overcome financial hardship. Around 88% of those in extreme financial vulnerability report experiencing significant financial adversity (FRI, 2023). Survey trends show that Canadians are increasingly reporting high levels of financial vulnerability every year (FRI, 2023). Additionally, around 35% of adults in Canada report experiencing some form of financial stress (FRI, 2023). Furthermore, a survey by Financial Planner Canada (FPC; 2023) found that for the consecutive sixth year, Canadians reported money as their top source of stress due to elevated inflation, higher gas prices, higher costs of groceries, and interest rates causing significant stress. Specifically, the rising cost of groceries in Canada was reported by 68% of Canadians as the top

external factor contributing to financial stress (FPC, 2023). As a result, 44% of Canadians feel less hopeful about their financial future (FPC, 2023). The FPC also found that anxiety, depression, and mental health challenges were the leading negative impacts on the lives of Canadians due to financial stress. Loss of sleep due to financial stress is also increasing as 1-in-2 Canadians report lost sleep due to financial worries in 2023 (FPC, 2023). Almost one-third of those experiencing financial hardship reported a mental health problem caused by stress (FPC, 2023).

Similarly, a Statistics Canada (2024) report revealed widespread financial strain across Canada, with nearly half of respondents stating that rising prices greatly affect their ability to meet daily expenses. Housing affordability emerged as a major concern, particularly among renters and lower-income households, with up to 61% of low-income renters expressing high levels of worry. Notably, younger adults, many of whom are part of Gen Z, reported some of the highest levels of financial stress. For Gen Z specifically, this aligns with their broader struggle to establish financial stability amid soaring housing costs, stagnant wages, and inflation. Among the lowest-income group, 45% described their financial situation as extremely or quite stressful on most days. The report also highlighted that individuals facing financial strain are significantly less likely to feel hopeful about the future.

Due to the current financial crisis, financial challenges and stress experienced by Canadians are at an all-time high (FPC, 2023; Statistics Canada, 2024). As post-secondary students face financial responsibility and are readily entering the workforce, examining financial anxiety as a result of perceived financial resilience and hardship is necessary.

Financial Anxiety in Post-Secondary Students

Financial anxiety is characterized by unhealthy responses to negative financial stimuli (Shapiro & Burchell, 2012). It is the feeling of being anxious or worried about one's financial situation (Archuleta et al., 2013). Financial anxiety is especially prevalent in modern society as individuals experience fluctuating food and fuel prices, higher mortgage foreclosure and bankruptcy rates, high-interest loans, and declines in savings (Potter et al., 2020). The period of young adulthood is commonly associated with an increased risk of mental health problems (Archuleta et al., 2013). It is also a period marked by a significant life transition as many youth experience an increase in financial responsibility (Archuleta et al., 2013). Young adults often mention financial stress as a stressor compared to their older counterparts (Archuleta et al., 2013). Research on financial anxiety in students found that 71% of students experience stress from personal financial issues (Heckman et al., 2014). In a survey by Liu et al. (2019), researchers found that students identified finances as the second most traumatic or significant challenge they encountered, following academics. The APA (2018) also found that financial stress was a major contributor to depression and anxiety in youth. Based on these statistics, it is no surprise that financial anxiety in students has been linked with poor academic performance, social adjustment, and mental and physical health (Potter et al., 2020; Shapiro & Burchell, 2012).

Similarly, a survey conducted by Potts (2025) explored the impact of financial stress on Gen Z and how this generation is reframing its relationship with money as a form of self-care. Gen Z reports the highest financial anxiety of any generation, driven by rising living costs, student debt, and ongoing economic uncertainty. In this survey, 43% of Gen Z participants reported feeling financially insecure or "behind" in their financial lives, and nearly half admitted to being "obsessed with the idea of being wealthy," often influenced by constant comparisons on

social media. Brigham (2025) introduces the term “money dysmorphia” to describe a distorted view of one’s financial situation, largely shaped by social comparison. Notably, nearly 45% of Gen Z and young adults experience money dysmorphia despite being financially stable (Potts, 2025).

Psychosocial Impacts

Practitioners have long encountered clients with financial problems that impact their cognitive, emotional, and relational well-being (Archuleta et al., 2013). Students suffering from financial anxiety experience numerous negative mental health outcomes, such as lower self-esteem, anxiety disorder, depression, and suicidality (Potter et al., 2020). Literature on the financial stress of students reveals that it is positively associated with an increase in depression and anxiety levels (Archuleta et al., 2013). Financial stress is often accompanied by feelings of dread, anxiety, fear, anger, and frustration (Davis & Mantler, 2004). Research by Davis and Mantler (2004) found that financial stress makes people vulnerable to serious psychological illnesses that carry considerable emotional, motivational, cognitive, and neurological changes. Furthermore, unlike the many other stressors students experience over the course of their adult life, financial stress is unique due to its private nature (Davis & Mantler, 2004). Students under financial stress are often ashamed to admit their problem, and ultimately delay seeking assistance and support (Davis & Mantler, 2004). In a society that measures worth in financial terms, being unable to meet one’s financial needs may imply that one has failed at a central responsibility in life (Davis & Mantler, 2004). Consequently, many avoid dealing with financial pressures and put efforts into maintaining an outward appearance of financial well-being (Davis & Mantler, 2004). This can create negative self-perceptions in which people feel they have no self-respect or value, resulting in low self-esteem and confidence (Davis & Mantler, 2004).

Financial anxiety is also a key determinant of students' self-concepts (Potter et al., 2020). In a study by Potter et al. (2020), researchers found that when students compared their financial position to their peers, they experienced an increase in anxiety as they felt they were worse off than their counterparts. Those with financial anxiety also appear to have lower perceived levels of control over their lives (Heckman et al., 2014; Potter et al., 2020). Potter et al. (2020) also found that a heightened awareness of one's financial position was a significant contributor to financial stress. Students experienced heightened anxiety when they perceived their income as inadequate and felt that they would not be able to meet basic financial needs such as food, housing, medical care, clothing, and transportation (Potter et al., 2020). Financial anxiety also has several social consequences. Financially strained students are less likely to live on campus and more likely to experience negative social integration issues. These issues are directly linked to feelings of social isolation, unfamiliarity with the campus, and conflict between academic and social demands (Adams et al., 2016).

Behavioural Impacts

Financial crises and uncertainty about one's financial future can trigger a variety of mental health conditions and impact an individual's decision-making abilities (Quirico, 2023). Financial anxiety is also correlated to several negative financial behaviours, such as avoidance of financial topics, spending that exceeds income, difficulty paying bills on time, and maxing out credit cards (Shapiro & Burchell, 2012; Potter et al., 2020). Students suffering from financial anxiety experience a multitude of negative consequences in the academic space (Potter et al., 2020). Financially anxious students have been found to take on more student loan debt and have a higher likelihood of failing to pay bills (Archuleta et al., 2013). Furthermore, financial anxiety can also alter student priorities as those experiencing financial hardship are more likely to work

and work longer hours in addition to their schooling in comparison to their peers (Bennett et al., 2015). The burden of work explains why many students who experience financial issues show a decrease in their academic performance (Potter et al., 2020). Financial anxiety has been tied to reduced course loads, temporary or permanent school dropouts, and delays in graduation (Letkiewicz et al., 2014). Students who consider leaving their academic programs prior to completion due to financial strain report poorer psychological health (Archuleta et al., 2013). Peltz et al. (2020) also found that more work led to less sleep and more depression. However, this phenomenon was only present for students who identified as low socioeconomic status and experienced substantial financial strain.

Nonetheless, a study by Intuit revealed that many Gen Z individuals incorporate financial management into their wellness routines, treating budgeting, saving, and financial education as coping strategies rather than burdens. The survey found that Gen Zs adopt a holistic view of financial well-being, recognizing its strong connection to mental health. Self-care trends included Gen Z's willingness to engage in financial literacy via social media, openness to side hustles, and prioritization of debt avoidance and financial independence. These behaviours reflected a desire to regain control and reduce anxiety. As such, while Gen Z faces significant financial stress, amplified by economic conditions and social pressures, they actively cope by normalizing financial conversations, using digital tools, and aligning financial practices with values like sustainability and emotional well-being (Brigham, 2025; Potts, 2025).

Financial Anxiety and COVID-19

Surges in financial anxiety can be explained by the spread of the coronavirus, which brought considerable economic shocks and downturns (Mann et al., 2020; Fetzer, 2021). With significant drops in the stock markets, lay-offs, and loss of income, COVID-19 became a

significant contributor to financial stress worldwide (Mann et al., 2020). Thus, financial hardship as a result of COVID-19 created in financial anxiety for many individuals (Mann et al., 2020). For example, Fetzer et al. (2021) found that during the global spreading of coronavirus in January and February 2020, Google search intensity for topics on financial anxiety rapidly increased. This period of recession and economic hardship is associated with a higher prevalence of common mental health disorders, such as anxiety and depression, suicidal behaviour, and poor physical health (Mann et al., 2020). Reports from APA (2021) found that 67% of individuals experienced more stress during the pandemic, and around 50% said this stress negatively affected their behaviour and emotions. The FRI (2023) also found a 17% increase in reports of financial hardship in Canada as a result of the pandemic. Similar trends can also be seen in students who experienced considerably greater concern over finances with the onset of the pandemic (Quirico, 2023).

Media Consumption, Fear, and Anxiety

Mass media and popular culture influence social life in various ways (Altheide, 1997). Media content, in particular, includes a relatively large amount of information and images pertaining to fear. In the 20th century, many scholars have claimed the public to be fearful, with the majority of these fears caused by media exposure (Best, 2021). Evidently, mass media competes for the attention of the mass audience and thus capitalizes on content that is dramatic and sensational to draw audiences and invoke emotional arousal (Best, 2021). Currently, with immediate access to media platforms where any claim is made available, where anyone or anything can become a source of information, and where like-minded content reinforces one another, media has powerful influences on shaping the public's perspective (Best, 2021).

With increased access to sensationalized and fear-orientated media online, many information sources, such as Instagram and TikTok, have adopted and capitalized off the 'if it bleeds, it leads' approach (Best, 2021). Gerbner (1969) thus proposed a cultivation hypothesis which suggests that the frequency and intensity of media consumption, which overemphasizes problems and other extreme events, has led the public to a distorted worldview reflective of media rather than reality. Given that the media largely influences the public perceptions of problems (Altheide, 1997), it was essential this thesis examined the impact of media consumption on climate change, AI, and finances (e.g., inflation, housing crisis) on the rates of anxiety and depression in Gen Z.

Furthermore, Best (2021) explains that many people turn to the media for answers and reassurance when faced with a global change or crisis. However, a majority of the topics covered and explored in the media are framed as problems with negative connotations of suffering, misfortune, distress, and inconvenience (Altheide, 1997). Additionally, many information sources in the media tend to be tight and closed, emphasizing dramatic aspects, prohibiting the essential context and significant background needed to understand the event (Altheide, 1997). These media fear frames highlight that something undesirable exists and that many people are affected or will be affected by this problem (Altheide, 1997). Therefore, because mass media operates upon this fear frame, many news reports and information resources cover global problems in exaggerated and polarized ways to elicit fear.

Ultimately, exposure to this type of media without any social contextualization can serve to enhance fear in Gen Z, eliciting a 'fight or flight' response that results in anxiety and, over time, into a 'freeze' response that results in depression. This issue is further exacerbated by social media platforms with algorithms designed to funnel fear-laden material to people (Best,

2021). For example, if an individual starts to watch videos on the dangers of AI, their social media feed will likely be filled with these messages. As such, although there has always been a lot on uncertainty, increased communication of arising and current challenges that extend beyond our immediate world, creates a sense of hyper-uncertainty and hyper-anxiety.

Lastly, a report by Gallup (2024) found that 68% of Gen Z's felt unhappy, and around 30% of those ages 18-26 reported feeling depressed. Of this sample, those who spent more than 20 hours per week on social media reported significantly higher levels of anxiety, sadness, and stress compared to those who spent less than 20 hours per week (Gallup, 2024). Similarly, research by Riehm et al. (2020) indicated that youth who spend over three hours daily on social media are at higher risk for mental health issues, including depression and anxiety. Therefore, due to the debate surrounding the nature and direction of the connection between media, fear, and anxiety (Altheide, 1997), this thesis examined the impacts of media, as an information source, on eco-, AI, and financial anxiety.

Social Isolation in Gen Z

Gen Z is different from other generations in terms of their needs, preferences, attitudes, and behaviours (Lyngdoh et al., 2022). In particular, Gen Z grew up in the age of smartphones and internet access, often using these as tools for communication. A trending term in the literature for Gen Z is iGen, which refers to the fact that Gen Z is the first generation to reach adolescence after smartphones became widespread (Twenge, 2017). Consequently, social media technologies have completely altered the dynamics of social interaction in Gen Z (Lyngdoh et al., 2022). Due to the significant role of technology in the lives of Gen Z, a majority of Gen Z connections have been facilitated online through physically separated means. Additionally, activities in the lives of Gen Zs are mediated through technology, whether that be work,

education, dating, and more. As such, Twenge (2017) explains that iGen (Gen Z) is characterized by a decline in developing mature adults, increased time spent on the internet, a decline in personal interaction, and a rise in mental health problems.

While technology and the internet can be powerful in facilitating communication (Umoh et al., 2023), a sense of social isolation, perpetuated by internet usage, can influence and worsen the rates of depression and anxiety in Gen Z. Social isolation is defined by the level and frequency of one's social interactions (Hwang et al., 2020). Additionally, social isolation is often used in conjunction with loneliness in the literature as both explore the lack of interpersonal connection and the subjective feeling of being alone (Lyngdoh et al., 2022). Research on social isolation and loneliness shows that social isolation results in increased depressive symptomatology, poor self-rated health, and a poor self-reported quality of life (Hwang et al., 2020; Pietrabissa & Simpson, 2020). A survey by APA (2023) found that 74% of those ages 18 to 34 say it's harder to connect with people today than in the past. Furthermore, Gallup (2024) found that the percentage of which Gen Z feels loved and supported by others decreases about 25% from the age of 12-26-years-old. Similarly, a survey by Cigna (2020) found that among workers aged 18-22, 73% report sometimes or always feeling alone. Additionally, they found that there is a greater feeling of loneliness among people who use social media (Cigna, 2020).

Recent research, published in 2024-205, revealed a concerning rise in social isolation among Gen Z, despite their constant digital connectivity. A 2024 global survey by GWI (2024) found that 80% of Gen Z respondents reported feeling lonely in the past year, significantly more than older generations, highlighting the paradox in which increased digital connection does not necessarily translate to emotional connection. High levels of social media use appear to be a significant predictor of social isolation and loneliness. Recent study by Riehm et al. (2020) found

that spending more than three hours daily on social platforms is associated with increased risk of depression, anxiety, and perceived social isolation. Although social media offers superficial forms of engagement, researchers have found that it may displace meaningful in-person interactions, contributing to emotional withdrawal and mental distress. Reports also indicate that many Gen Z individuals feel trapped by their reliance on smartphones, expressing a strong desire for deeper, face-to-face relationships. Some experts argue that today's youth are socializing less in real life than previous generations, a trend linked to declining mental health. This growing reliance on online spaces highlights the need for balance between digital engagement and real-world connection. Together, these findings highlighted the complex role media consumption plays in exacerbating loneliness among Gen Z, reinforcing the importance of intentional offline interactions and community-based solutions as key coping mechanisms (Kamal, 2024; OnSide Youth, 2024; Primack et al., 2024; Riehm et al., 2020).

As such, it is no surprise that the literature describes Gen Z as the loneliest generation the world has seen, with isolation rates higher than both millennials and members of Gen X (Bowler, 2023). Moreover, research suggests that because high engagement with social connections online is the norm for Gen Z, this has led to an increase in social anxiety and social isolation (Lyngdoh et al., 2022). As a result, young adults with high social media usage are more likely to be lonely than their counterparts who spend less time on social media (Bowler, 2023; Sikorska et al., 2021). Lyngdoh et al. (2022) describe this phenomenon as a cycle in which the idea of social isolation heightens anxiety in Gen Z, prompting a constant desire for social engagement, ultimately resulting in further social isolation when such social gratification is not possible.

Another aspect of social isolation is rumination thinking. Rumination thinking is defined by obsessive thoughts, which revolve around a common theme that persists in the absence of

social environments (Lyngdoh et al., 2022). Individuals ruminate as a response to problems or triggers, leading to repeated, negative thoughts that directly impact an individual's well-being (Lyngdoh et al., 2022). When ruminating, individuals also tend to become stuck in their negative emotions because they pay more attention to them. Additionally, past research in the online context finds rumination thinking to be associated with poor social connection (Lyngdoh et al., 2022). Researchers also suggest that individuals often ruminate when encountering self-threat (Lyngdoh et al., 2022). Therefore, rumination thinking, as a side effect of social isolation, is an important consideration when examining the rates of depression and anxiety in Gen Z as it can influence the ways in which Gen Zs think about eco-, AI, and financial anxiety. As a result, it was essential that this thesis examined the moderating effects of social isolation on the rates of depression and anxiety in Gen Z. Furthermore, similar to the concept that eco-anxiety and AI anxiety push individuals to improve and pursue self-growth, prior research identifies that rumination can increase self-evaluation, thereby influencing individuals to reflect, correct their behaviours, and engage in active problem-solving (Lyngdoh et al., 2022).

Moreover, crisis situations significantly influence young adults' psychological, emotional, and social well-being (Sikorska et al., 2021). The COVID-19 pandemic, a significant global event in the lives of Gen Zs, led to a significant increase in online means of communication and social isolation. Social isolation during the pandemic further amplified the conditions of those with pre-existing mental illnesses (Das et al., 2021; Hwang et al., 2020). COVID-19 also resulted in the emergence of psychological disorders such as anxiety, panic, depression, and post-traumatic stress (Pietrabissa & Simpson, 2020). Pietrabissa and Simpson (2020) state that these increased rates of diagnoses are direct consequences of the prolonged social isolation brought on by the pandemic. As such, Pietrabissa and Simpson (2020) found that prolonged social isolation,

characterized by reduced social connections and contact, increases the likelihood of developing symptoms consistent with depression and anxiety.

Lastly, based on Erikson's (1998) stages of development, the primary task during the ages of 18 to 25 is establishing intimacy and avoiding feelings of loneliness. The major conflict at this stage of life centers on forming intimate and loving relationships with other people. Success at this stage leads to fulfilling relationships. Struggling at this stage, on the other hand, can result in feelings of loneliness and isolation (Erikson, 1998). As such, it is crucial to examine the extent to which Gen Zs, which largely fall within this stage of development, experience social isolation to determine its impacts on the rates of depression and anxiety in this generation of young adults.

Purpose

In response to the above findings, this study explored generation-specific events inclusive of eco-anxiety, artificial intelligence (AI) anxiety, and financial anxiety to better understand the impact of these stressors on the mental health outcomes of Gen Zs. Although Gen Z demonstrates the highest rates of help-seeking behaviours and access to mental health services, they often report poor mental well-being and high levels of psychological distress (APA, 2018; Beardsley, 2022; Cook, 2023). Thus, understanding the effects of modern stressors on this generation's mental health is critical. With post-secondary institutions holding large populations of Gen Zs, examining the perceptions and beliefs of this demographic becomes essential. Insight into the underlying causes of depression and anxiety from the results of this study can inform service providers, educators, institutions, and program developers, as well as help guide policy decisions regarding the mental health of this generation that holds a large number of young adults. Lastly, this research can help inform therapeutic interventions to deal with generation

anxiety as such informed treatments plans do not currently exist and are not accessible to those who need them (Baudon & Jachens, 2021; Wray, 2023).

Research Questions

The current study aimed to address the following questions:

1. What are the effects of generation anxiety on the mental health outcomes of post-secondary students?
2. What is the relative and collective impact of eco-anxiety, AI anxiety, and financial anxiety on the mental health of post-secondary students?
3. How do post-secondary students perceive climate change, AI, and financial concerns as contributing factors to the high rates of depression and anxiety in Gen Z?

CHAPTER 3: METHODS

The present study recruited of total of 586 participants to measure their eco-anxiety, AI anxiety, and financial anxiety to gain a greater understanding of how this affects their mental well-being and determine any significant relationships. In this chapter, the participants, measures, procedures, and methods of analysis are further explored.

Participants

The present study used convenience sampling to recruit participants through the University of Lethbridge's SONA system. The SONA system is designed to survey undergraduate psychology students. Participation in studies on the system earned students a bonus mark towards their overall grade in a psychology course. Additionally, the survey was shared online through social media platforms specific and non-specific to post-secondary universities across Canada (the primary platforms are Reddit and Facebook). A link to the online Qualtrics survey was shared on the social media post for participants to access and complete.

Inclusion and Exclusion Criteria

Participants included undergraduate and graduate students of all genders and socioeconomic backgrounds attending post-secondary institutions in Canada. Only participants born between 1997 and 2006 were invited to participate in the study as the researcher wanted to capture an authentic representation of the unique experiences of Gen Z. There was no limit on the number of individuals allowed to participate. Inclusion criteria specified that participants were required to be enrolled in a post-secondary program. Therefore, students who were not working towards earning a post-secondary degree were excluded from the study.

Measures

This section will explore eco-anxiety, AI anxiety, financial anxiety, and mental well-being measures in the literature. An explanation of the scales, construction, evidence of reliability and validity, and reasoning for use will be examined.

Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995)

To measure undergraduate students' mental well-being, the Depression Anxiety Stress Scales (DASS; Appendix A) was used. The DASS is a set of three self-report scales consisting of 21 questions that aim to measure an individual's levels of depression, anxiety, and stress (Lovibond & Lovibond, 1995). There are 7 questions for each negative emotional state. The depression subscale assesses hopelessness, dysphoric mood, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety subscale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress subscale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient.

Reflecting on the past week, the subscales ask participants to indicate how much a statement applies to them using a 4-point frequency and severity Likert scale. Lovibond and Lovibond (1995) highlight that there are no right or wrong answers, as participants are encouraged to answer with the one they believe reflects them the best. Scores for depression, anxiety, and stress are calculated by summing the scores for the relevant items (Lovibond & Lovibond, 1995).

Test Construction

In constructing the DASS, researchers aimed to determine the main features of each condition and removed any items that overlapped between depression and anxiety. Lovibond and

Lovibond (1995) did this as there was previously no clear distinction between depression and anxiety self-report measures. As researchers collected data and refined the scales, a new factor known as stress emerged and was thus added to the scales after 1990.

The DASS was not constructed with the mere purpose of being another set of scales to measure commonly defined emotional states but to further the process of defining, understanding, and measuring the ubiquitous and clinically significant emotional states of depression, anxiety and stress (Lovibond & Lovibond, 1995). Thus, the DASS was constructed to meet the requirements of both researchers and scientist-professional clinicians.

Evidence of Reliability and Validity

Researchers reported the Cronbach's alpha value for each of the subscales of the DASS. The alpha value for each subscale is as follows: depression (0.91), anxiety (0.84), and stress (0.90; Lovibond & Lovibond, 1995b). Thus, researchers suggest that the DASS is a reliable and valid measure of the constructs it was intended to assess (Crawford & Henry, 2003; Lovibond & Lovibond, 1995). Furthermore, results from Kia-Keating et al. (2017) support the use of the DASS as a universal monitoring assessment of university students' mental health and well-being. Researchers classify DASS as a robust measure with strong psychometric properties that can help to quickly assess mental health in post-secondary campuses, emphasizing its ability to empirically assess quality of care and develop and monitor the effects of campus wellness programs (Kia-Keating et al., 2017).

A two-factor model was also conducted to assess the validity of the distinction between depression and the other two DASS subscales. The model yielded an improved fit [X^2 (818) = 3942, $p < .05$; adjusted goodness of fit ≈ 0.74] and differed significantly from the one-factor model [X^2 (1) = 1471, $p < .05$]. Lastly, three factors were defined that corresponded to three

DASS scales. The phi coefficients, which assess the strength of the links between the three factors, were Depression 0.61; Anxiety-Stress 0.76; Depression-Stress 0.62 (Lovibond & Lovibond, 1995b).

Reasoning for Use

This study used the DASS as it allows data to be collected from several participants efficiently and swiftly. The scales can be administered using online platforms, making them easily accessible to participants. In addition, the DASS allows participants to remain anonymous while completing the measure, increasing the likelihood that they will provide honest answers to their experiences of depression, anxiety, and stress. However, it is important to acknowledge that the DASS is a self-report measure; therefore, reported frequencies and severities can be unreliable as participants inaccurately perceive or disguise their symptoms.

Climate Change Anxiety Scale (Clayton & Karazsia, 2020)

To measure eco-anxiety in undergraduate students, the Climate Change Anxiety Scale was used (CCAS; Appendix B). The CCAS is a single self-report scale comprising 22 questions that aim to measure an individual's levels of climate change anxiety (Clayton & Karazsia, 2020). Within this scale, there are four subsets aimed to measure the cognitive-emotional impairment, functional impairment, experience of climate change, and behavioural engagement associated with climate change anxiety. Cognitive-emotional impairment is measured through items 1-8 and was included to assess whether people were thinking about climate change to an unhealthy extent. Functional impairment is measured through items 9-13 and was included to assess whether the emotions associated with climate change interfered with people's ability to function. Experience of climate change is measured through items 14-16 and was included to assess the extent to which individuals have been directly impacted by climate change Lastly, behavioural

engagement is measured through items 17-22 and was included to see whether engaging in pro-environmental behaviours was associated with climate change anxiety. In this study, experience of climate change and engagement in pro-environmental behaviours were treated as separate constructs from climate change anxiety. The scale asked participants to indicate how much a statement applies to them using a 5-point frequency Likert scale (Clayton & Karazsia, 2020).

Test Construction

Clayton and Karazsia (2020) found that previous measures of emotional response to climate change showed internal reliability and validity. However, none focused on examining the relationship between climate anxiety and personal well-being. Therefore, to examine the effects of climate change anxiety, Clayton and Karazsia (2020) conducted research on the existing psychological literature and a variety of blogs addressing emotional responses to climate change. Grounding questionnaire items in existing measures, researchers wanted to see whether climate change anxiety could be considered clinically relevant if it impaired functioning. The CCAS was thus constructed to measure climate change anxiety and its effects on well-being.

Evidence of Reliability and Validity

To assess concurrent and discriminant validity, Clayton and Karazsia (2020) included three other measures. Researchers assessed a general tendency toward anxiety with a four-item measure of general anxiety and depression, which obtained a Cronbach's alpha of 0.92 in the first analysis and 0.93 in the second analysis. To look for connections with personal engagement in environmental issues, an 11-item measure of environmental identity was also included, which yielded a Cronbach's alpha of 0.92 in the first analysis and 0.90 in the second analysis. The model resulting from the first analysis demonstrated good to acceptable or reasonable fit with the observed data [X^2 (246) = 553.03, $p < .001$]. Lastly, the internal reliability for emotions was 0.93

in the first analysis and 0.92 in the second analysis, which suggests a high level of consistency in participant responses (Clayton & Karazsia, 2020).

Reasoning for Use

The CCAS scale indicates that climate change anxiety can be identified and reliably measured and that the psychological response to climate change is complex (Clayton & Karazsia, 2020). Researchers highlight that the CCAS is most useful in assessing the prevalence of climate-related anxiety in specific populations, as well as the changes over time in response to specific events or to changing understandings of climate change. Thus, the CCAS served as a valuable tool to understand the prevalence of eco-anxiety in undergraduate students. Nevertheless, it is essential to acknowledge that the CCAS is a self-report measure; therefore, reported frequencies can be unreliable as participants inaccurately perceive or disguise their symptoms.

Artificial Intelligence Anxiety Scale (Wang & Wang, 2022)

To measure artificial intelligence anxiety in undergraduate students, the Artificial Intelligence Anxiety Scale was used (AIAS; Appendix C). The AIAS is a single self-report scale consisting of 21 questions that aim to measure an individual's levels of artificial intelligence anxiety (Wang & Wang, 2022). Within this scale, there are four subsets aimed at measuring learning anxiety, job replacement anxiety, sociotechnical blindness, and AI configuration associated with AI anxiety. Learning anxiety is measured through items 1-8 and was included to assess whether people were anxious about learning new AI technology. Job replacement anxiety is measured through items 9-14 and was included to assess whether people were anxious about jobs being replaced by AI. Sociotechnical blindness is measured through items 15-18 and was included to assess the extent to which individuals fail to recognize that AI is a system and always

and only operates in combination with people and social institutions (Johnson & Verdicchio, 2017). Lastly, AI configuration is measured through items 19-21 and was included to see whether humanoid robots contributed to AI anxiety. The scale asked participants to indicate how much a statement applies to them using a 7-point frequency Likert scale (Wang & Wang, 2022).

Test Construction

Wang and Wang's (2022) study adopted 59 items to represent the various dimensions of the AIA construct to generate a preliminary item pool for the AIAS. To ensure all key attributes and items were included, the item pool was reviewed by two IS professors, two AI experts, and four AI technology/product users. The review resulted in the recommended deletion of nine items due to redundancy. The items were subsequently revised to ensure the proper conduct of a comprehensive assessment of the proposed scale. Wang and Wang (2022) emphasize that, given the limited utility of existing self-report instruments in measuring AIA, the aim of this study was to develop a standard measurement tool with ideal psychometric characteristics to evaluate AIA.

Evidence of Reliability and Validity

The remaining instruments had high reliability [coefficient alpha = 0.986]. Researchers performed a Bartlett's sphericity test that produced significant results [$X^2 = 19774.6$; $p < .001$], showing there was enough common variance to make the factor analysis valuable. Wang and Wang (2022) also describe that reliability was estimated using the coefficient alpha that measured the internal consistency of each instrument; the study obtained a coefficient alpha of 0.96. The reliability of each of the four factors was: learning = 0.97, job replacement = 0.92, sociotechnical blindness = 0.92, and AI configuration = 0.96. All subsets supported acceptable internal consistency. Furthermore, Wang and Wang (2022) state that the content validity of the AIAS was established through a rigorous procedure of conceptualizing the AIA construct,

creating the AIA items, and purifying the AIA scale. Overall, the results show a criterion-related validity of 0.86 for the 21-item instrument and a significance level of 0.001, indicating acceptable criterion-related validity (Wang & Wang, 2022)

Reasoning for Use

The AIAS was used in this study to compare individual perceptions of anxiety toward using specific AI technologies in terms of its four factors. Because the AIAS was designed to accommodate a wide range of AI technologies, it can be adapted or adopted for use in specific contexts (Wang & Wang, 2022). Furthermore, the acceptable reliability and validity of the AIAS supports the use of this measure to provide AI technology developers and practitioners with a better understanding of the context and composition of AI anxiety. For educators, understanding the interaction between students' AIA and learning behaviours is essential in creating interventions. Based on the different dimensions of AIAS, educators can understand how to apply more effective teaching strategies to stimulate students' interest in learning AI-related knowledge and skills (Wang & Wang, 2022). Thus, the AIAS skill is helpful in understanding AI anxiety in undergraduate students.

Financial Anxiety Scale (Archuleta et al., 2013)

To measure financial anxiety in undergraduate students, the Financial Anxiety Scale was used (FAS; Appendix D). The FAS is a single self-report scale consisting of 7 questions that aim to measure an individual's levels of financial anxiety (Archuleta et al., 2013). The scale asked participants to indicate how much a statement applies to them using a 7-point frequency Likert scale that ranges from never to always. Once items are summed, scores on the FAS can range from 7 to 49 (Archuleta et al., 2013).

Test Construction

Archuleta et al. (2013) developed the FAS by adapting the generalized anxiety disorder diagnostic criteria set forth by DSM-IV-TR (APA, 2000) to one's financial situation. Generalized anxiety disorder is conceptualized as excessive anxiety or worry about events or activities that occur for six months or longer. To be diagnosed with generalized anxiety disorder, one must have difficulty controlling worry, and it must be associated with three or more of the following symptoms: a) restlessness or on edge, b) easily fatigued, c) difficulty concentrating, d) irritability, e) muscle tension, and f) sleep disturbances, such as trouble falling asleep or staying asleep. The individual must also display symptoms severe enough to impair social, occupational, or other important areas of functioning (APA, 2000; Archuleta et al., 2013).

Evidence of Reliability and Validity

To analyze the validity of the scale, Archuleta et al. (2013) performed a maximum likelihood factor analysis using direct oblimin rotation. Because a factor analysis identifies commonalities among groups of variables, a direct oblimin rotation was useful to examine if factors are correlated. Thus, researchers assumed that the factors were correlated because the items were borrowed from a set of established criteria in the DSM-IV-TR (APA, 2000). Factor loadings for the scale achieved 0.72-0.90, which supported the construct validity of the scale. Internal reliability, using Cronbach's alpha, was found to be high [$\alpha = 0.94$].

Reasoning for Use

Although the FAS cannot be used as a diagnostic tool, it can be helpful in assessing one's current self-reported level of financial anxiety (Archuleta et al., 2013). The FAS is useful for practitioners and researchers to explore individuals' anxiety concerning money. Practitioners can use the FAS to gain understanding and insight into students' poor financial decision-making,

identify reasons as to why clients have become inactive in the counselling process, or identify barriers to clients' successful achievement of goals. Thus, this study used this scale to explore aspects of financial and mental health further. However, it is essential to acknowledge that the FAS is a self-report measure; therefore, reported frequencies can be unreliable as participants inaccurately perceive or disguise their symptoms.

Awareness, Media Consumption, Social Isolation, and Social Connection Moderators

To measure undergraduate students' current awareness of climate change, AI, and their financial future, participants were asked to indicate their awareness on a 5-point Likert scale ranging from not at all aware [1] to extremely aware [5]; the scale was used as a skeleton to examine awareness of all three variables (see Appendix E). Assessing awareness is essential in examining whether increased awareness is positively correlated with eco-, AI, and financial anxiety. Thus, awareness functioned as a moderator in this study to examine if varying levels of awareness impact the relationship between eco-, AI, and financial anxiety and mental health outcomes in post-secondary students.

To measure undergraduate students' media consumption, participants were asked to indicate how much of their knowledge on climate change, AI, and finances (e.g., inflation, housing crisis) comes from online media. On a 4-point Likert scale, ranging from 0-25% [1] to 76-100% [4], participants categorized what percentage of their information comes from social media sources such as TikTok, Instagram, Facebook, and Twitter (see Appendix F). The scale was used as a skeleton to examine media consumption of all three variables. Assessing media consumption is essential in examining whether sensationalized media information sources impact the rates of eco-, AI, and financial anxiety. Thus, media consumption functioned as a moderator

in this study to examine if varying levels of consumption impact the relationship between eco-, AI, and financial anxiety and mental health outcomes in post-secondary students.

Lastly, to measure undergraduate students' social isolation and social support, participants were given the Three-Item Loneliness Scale (TILS; Hughes et al., 2004; see Appendix G) and the Social Provisions Scale (SPS; Cutrona & Russel, 1987; Appendix H) to complete. The SPS is a shortened version of the scale adapted by Orpana et al. (2019). Assessing social isolation and connection is essential in examining whether social isolation and loneliness impact the rates of eco-, AI, and financial anxiety. Thus, social isolation and support functioned as moderators in this study to examine if varying levels of social isolation impact the relationship between eco-, AI, and financial anxiety and mental health outcomes in post-secondary students.

Eco-anxiety, AI Anxiety, and Financial Anxiety in Gen Z

To further examine eco-anxiety, AI anxiety, and financial anxiety in Gen Z, this study included four open-ended questions aimed at investigating their associations with mental well-being in Gen Zs. The questions were also used to gain an in-depth understanding of the nuances around these generation-specific stressors. Please see Appendix I for the full list of questions.

Procedures

Following approval from the University of Alberta Research Ethics Board, a pilot survey was deployed. A small sample of 15 volunteers, ages 18–27, were willing to complete the survey on Qualtrics to ascertain whether the questions were easy to understand and if the survey was error-free. This step helped to ensure that the data collected by study participants was not affected by survey wording or format issues. After the survey passed the quality check, a link to the Qualtrics survey was shared online through social media platforms such as Facebook and Instagram. Permission to post and pin the Qualtrics survey invitation on a

post or page was addressed with the moderators of the accounts if needed. The survey included demographic questions (see Appendix J), the DASS, the CCAS, the AIAS, the FAS, awareness, media consumption, social isolation, and social provisions scales, and open-ended questions. The post that was shared on social media platforms outlined voluntary participation, anonymity, estimated time of survey completion, inclusion and exclusion criteria, approval for ethics, and a link to the study. Refer to Appendix K for the social media advertisement. A similar process was also used to share the survey on the SONA platform at the University of Lethbridge. The survey was open between two to three months. For data collection, the data was downloaded into the Statistical Package for the Social Sciences Version 28 (SPSS 28) and MAXQDA from Qualtrics. Electronic copies of the survey were encrypted and stored on a password-protected computer in the Faculty of Education at the University of Lethbridge.

After these data were collected, the researcher cleaned the data. Any participants who left more than 30% of the DASS, CCAS, AIAS, and/or FAS questions blank were removed from the study. After the process of cleaning the data, data analyses were completed using SPSS 28 and MAXQDA for the open-ended question responses. Lastly, the study's discussion, limitations, implications, and future directions sections were interpreted and written with the support of relevant literature.

Methods of Analysis

Descriptive Statistics

Descriptive statistics were used to explore participants' demographic information. These statistics examined the distribution of participants' demographic variables such as age, gender, ethnicity, socioeconomic status, relationship status, year of study, program of study, and work status. Demographic information was also collected to examine any relationships with eco-, AI,

and financial anxiety and its impact on the well-being of undergraduate students. For example, recent research found that students of colour are more vulnerable to financial anxiety than their counterparts (Archuleta et al., 2013). Thus, descriptive statistics were used to summarize the sample characteristics, while inferential analyses explored any existing associations between demographic information and eco-, AI, and financial anxiety to understand their impact on the well-being of post-secondary students.

Test of Normality

To determine the suitability of parametric analyses, normality was assessed using skewness statistics, *z*-scores, histograms, Q–Q plots, and effect sizes. The majority of variables, including the moderators, met the recommended thresholds (skewness < |0.40|, $z < |3.29|$), supporting the assumption of normality (Field, 2018; Williams & Awosoga, 2016). However, some variables exhibited slight deviations from these criteria, particularly Depression, Anxiety, CCAS, Experience of Climate Change (EXCC), Engagement in Pro-Environmental Behaviours (EPEB), FAS, and SPS (see Table 1).

To determine normality, visual inspections of histograms and Q–Q plots suggested approximate normality, justifying the inclusion of these variables in parametric analyses (Ghasemi & Zahediasl, 2012). Additionally, although these variables showed significant deviations from normality on a D'Agostino–Pearson test, the corresponding effect sizes were small to medium (see Table 1), suggesting that these deviations were unlikely to substantially impact the results (Field, 2018). Furthermore, given the large sample size ($N = 586$), the Central Limit Theorem supports the assumption that the sampling distribution of the mean approximates normality even when some individual variables deviate (Lumley et al., 2002). To further mitigate potential deviations, the analysis was bootstrapped at 1,000 iterations, ensuring robust and

reliable estimates. Collectively, these considerations support the use of parametric statistical methods.

Table 1

Skewness, Z-scores, and Effect Sizes for Variables with Deviations from Normality

Variable	Skewness	z-score	Effect size (φ)
1. Depression	0.63	6.23	0.28
2. Anxiety	0.62	6.15	0.27
3. CCAS	1.94	19.20	0.63
4. EXCC	0.77	7.62	0.30
5. EPEB	-0.43	4.25	0.18
4. FAS	0.41	4.08	0.43
5. SPS	−0.97	9.58	0.36

Note. Skewness values exceeding |0.40| and z-scores exceeding |3.29| indicate deviations from normality. Effect sizes (φ) between 0.10–0.29 are considered small, 0.30–0.49 medium, and ≥0.50 large (Cohen, 1988). CCAS = Climate Change Anxiety Scale; EXCC = Experience of Climate Change; EPEB = Engagement in Pro-Environmental Behaviours; FAS = Financial Anxiety Scale; SPS = Social Provisions Scale.

Pearson Correlations

Assuming normality and a relationship that approximates linearity, Pearson's correlations were conducted to explore research question one, "What are the effects of generation anxiety on the mental health outcomes of post-secondary students?" A Pearson correlation is a statistical test which measures the strength and direction of association between two variables that must be either ordinal, interval, or ratio (Mukaka, 2012). More specifically, it determines the strength and direction of a linear relationship, which means that when the value of one variable increases, so

does the other, or as one variable increases, the other decreases (Mukaka, 2012). A correlation of 0 indicates no relationship between variables, and a correlation of ± 1 is a perfect positive or negative correlation (Mukaka, 2012). Furthermore, relationships identified using correlation coefficients are associations, not causal relationships (Mukaka, 2012). Thus, this study conducted Pearson correlations for eco-, AI, and financial anxiety, and their relationships with mental well-being in undergraduate students.

Stepwise Linear Regressions

A stepwise linear regression was conducted to explore research question two, "What is the relative and collective impact of eco-anxiety, AI anxiety, and financial anxiety on the mental health of post-secondary students?" A stepwise linear regression allowed the researcher to assess which generation-specific stressor is the strongest contributor to poor mental well-being (Harell, 2015). Starting with testing each anxiety's contribution to mental well-being and retesting until there is a single strongest predictor (Harell, 2015) provided this study with a model to understand which anxiety has the most impact on the mental health of post-secondary students.

Hierarchal Linear Regressions

As mentioned, assessing awareness, media consumption, social isolation, and social support is essential in examining whether varying levels of these variables impact the relationship between eco-, AI-, and financial anxiety and the rates of depression and anxiety in Gen Z. Thus, this study performed hierarchical linear regressions to examine any associations. Moderators are variables that can alter the strength or direction of the relationship between the independent and dependent variables (Baron & Kenny, 1986). Therefore, interaction terms between each independent variable and the moderators (awareness, media consumption, social isolation, and social support) were entered in successive steps of the regression models to assess

whether these factors significantly moderated the associations with depression, anxiety, and stress outcomes.

Qualitative Description

Open-ended questions in the study's survey were used to explore research question three, "How do post-secondary students perceive climate change, AI, and financial concerns as contributing factors to the high rates of depression and anxiety in Gen Z?"

The qualitative data were analyzed using qualitative description (QD), a method well-suited for providing straightforward summaries of participants' responses in everyday terms. QD prioritizes staying close to the data and the surface of words and events, offering a straightforward depiction of the experiences as described by the participants themselves (Sandelowski, 2000, 2010; Hall & Rosser, 2024). As such, QD emphasizes staying close to participants' language and experiences, presenting events and views as described rather than interpreted (Sandelowski, 2000, 2010; Hall & Rosser, 2024). This approach is especially suitable for brief, written responses, as it prioritizes staying close to participants' language and intended meanings without imposing theoretical interpretations.

All responses to the open-ended question were first read multiple times to gain a general sense of the content. The initial phase focused on identifying and capturing surface-level meanings expressed directly by participants, consistent with the low-inference nature of QD (Sandelowski, 2000, 2010; Hall & Rosser, 2024). Coding was conducted inductively, with descriptive labels assigned to units of text that reflected participants' wording as closely as possible. The coding process involved systematically organizing and reviewing each response, giving equal attention to all entries. MAXQDA software was used to support data management, allowing for the organization and tracking of codes, frequencies, and quotes.

After coding, related codes were grouped into broader descriptive categories that reflected shared concerns across responses. For instance, responses referencing issues such as "fear of not being able to afford things," "financial insecurity," and "economic uncertainty" were initially coded and then synthesized into the category of *Financial Security*. Similarly, codes related to extinction and concerns about environmental degradation were organized under the category *Loss of Wildlife*. Some initial codes, such as *Housing Insecurity*, went on to form a main category, whereas other codes were combined to create a single category. In keeping with QD, these groupings were primarily treated as descriptive categories rather than interpretive themes, designed to summarize patterns in the data without imposing deeper, reflexive meaning.

This process was iterative, involving ongoing review and refinement to ensure that each category was clearly defined, distinct, and representative of the data. Final categories were kept concise and transparent, aiming to convey the central idea in clear, straightforward language. Final categories were paired with illustrative quotes from the results section to support the interpretation. This method allowed for a balance between capturing the prevalence of concerns and honouring the depth and nuance within participants' brief responses. Three criteria were considered in selecting quotes: the quote was representative of the category, it was reasonably succinct, and it captured a common pattern in the data (Lingard, 2019).

Although techniques such as coding and category development were adapted from thematic analysis, they were applied with the aim of producing a descriptive, not interpretive, account, consistent with qualitative description (Sandelowski, 2010).

The results of this descriptive analysis are presented in Chapter 4, with illustrative quotes provided for each category. Connections to existing literature and broader implications are explored in Chapter 5.

CHAPTER 4: RESULTS

The purpose of the current study was to explore the influence of eco-, AI, and financial anxiety on post-secondary students' levels of depression and anxiety. The following research questions were addressed:

1. What are the effects of generation anxiety on the mental health outcomes of post-secondary students?
2. What is the relative and collective impact of eco-anxiety, AI anxiety, and financial anxiety on the mental health of post-secondary students?
3. How do post-secondary students perceive climate change, AI, and financial concerns as contributing factors to the high rates of depression and anxiety in Gen Z?

This chapter presents the results for each of the three questions. Parametric tests were used to analyze the quantitative data which included descriptive statistics, Pearson's correlation, stepwise linear regressions, and hierarchical linear regressions. To identify descriptive categories in the open-ended questions, qualitative description was used.

Descriptive Statistics

Descriptive statistics, such as frequencies, were calculated for variables related to the purpose of the current study.

Demographics

Age, Gender, Ethnicity, Socioeconomic, Work Status, and Relationship Status. Of the 591 people who submitted responses, 586 participants were included in the study, with the majority identifying as women (n = 400, 68.3%). The age of participants ranged from 18 to 27 years old, with most participants reporting being born between the years 2004 and 2006 (n = 319). Most participants identified as White (n = 321, 54.8%) and the socioeconomic status of participants

ranged from less than $25,000 a year to more than $250,000 a year (*n* = 447, 76.3%). Many participants were either working part-time (*n* = 277, 47.3%) or were not working at all (*n* = 273, 46.7%). When asked about their relationship status, over half of the participants reported that they were single (*n* = 329, 56.1%). Descriptive variables related to participants' demographics are listed below in Table 2.

Year of University, Program, and Financial Support. Participants in this study were at various stages of their university education, with 113 participants in their first year (*n* = 113, 19.3%), 130 in their second year (*n* = 130, 22.2%), and the remaining participants spread across later years of study. Participants were enrolled in a range of degree programs, with the most common being Bachelor of Science (BSc) (*n* = 187, 31.9%), Bachelor of Arts (BA) (*n* = 156, 26.6%), and Bachelor of Arts and Science (BASc) (*n* = 85, 14.5%). Regarding financial support, 191 participants (32.6%) reported receiving financial assistance from sources other than loans and grants, while 394 participants (67.4%) indicated that they were not receiving any additional financial support. Refer to Table 2 for demographics.

Diagnosis, Pharmaceutical Treatment, and Media Consumption. A significant proportion of participants reported experiencing mental health challenges, with 215 individuals (*n* = 215, 36.7%) indicating that they had been diagnosed with depression and/or anxiety disorder in the past two years, while 371 (*n* = 371, 63.3%) reported no such diagnosis. Additionally, 165 participants (*n* = 165, 28.2%) reported currently or previously receiving pharmaceutical treatment for depression and/or anxiety disorder, whereas 421 (*n* = 421, 71.8%) had not. In terms of media consumption, participants reported spending varying amounts of time on the internet, with the majority (*n* = 266, 45.4%) spending three to five hours daily, followed by 221 participants (37.7%) who spent more than five hours online. Refer to Table 2 for demographics.

Table 2

Demographic Variables

Demographic Variable	*n*	%
Are you currently diagnosed, or have been diagnosed (within the past two years), with depression and/or anxiety?		
Yes	215	36.7
No	371	63.3
Are you currently, or have you (within the past two years), received pharmaceutical treatment for depression and/or anxiety?		
Yes	165	28.2
No	421	71.8
Year Born		
1997	9	1.5
1998	19	3.3
1999	25	4.3
2000	32	5.5
2001	41	7.0
2002	53	9.0
2003	86	14.7
2004	105	17.9
2005	106	18.1
2006	108	18.4
Gender		
Man	132	22.5
Woman	400	68.3
Transgender	14	2.4
Non-binary	31	5.3
Other	3	0.5
Prefer not to say	6	1.0
Ethnicity		
White	321	54.8
Black	36	6.1
Indigenous	23	3.9
South Asian	97	16.6
East Asian	20	3.4
Southeast Asian	39	6.7
West Asian	2	0.3
Latin American	11	1.9
Arab	10	1.7
Prefer not to say	4	0.7
Other	23	3.9
Relationship Status		

Single	329	56.1
In a relationship	250	42.7
Prefer not to say	7	1.2
Daily Internet Use		
Less than 1 hour	4	0.7
1-2 hours	95	16.2
3-5 hours	266	45.4
More than 5 hours	221	37.7
Socioeconomic status		
Less than $25,000 a year	56	9.6
$25,000 to $49,999 a year	68	11.6
$50,000 to $74,999 a year	71	12.1
$75,000 to $99,999 a year	69	11.8
$100,000 to $149,999 a year	93	15.9
$150,000 to $249,999 a year	60	10.2
More than $250,000 a year	30	5.1
I do not know	110	18.8
Prefer not to say	29	4.9
Financial Support		
Yes	191	32.6
No	394	67.4
Work Status		
Full-time	35	6.0
Part-time	277	47.4
I am not working	273	46.7
Years at University		
0	102	17.5
1	113	19.4
2	130	22.3
3	116	19.9
4	60	10.3
5	26	4.5
6	20	3.4
7	5	0.9
8	9	1.5
10	2	0.3
Program		
Bachelor of Arts (BA)	156	26.7
Bachelor of Arts and Science (BAS)	85	14.5
Bachelor of Business Administration (BBA)	9	1.5
Bachelor of Commerce (BComm)	21	3.6
Bachelor of Education (BEd)	20	3.4
Bachelor of Engineering (BEng)	11	1.9
Bachelor of Environmental Design Studies (BEDS)	1	0.2
Bachelor of Health Science (BHSc)	11	1.9
Bachelor of Management (BMgmt)	4	0.7

Bachelor of Music (BMus)	1	0.2
Bachelor of Science Nursing (BScN)	9	1.5
Bachelor of Science (BSc)	187	31.9
Bachelor of Social Work (BSW)	3	0.5
Master of Arts (MA)	3	0.5
Master of Education (MEd)	1	0.2
Master of Counselling (MC)	1	0.2
Master of Engineering (MEng)	2	0.3
Master of Management (MMgmt)	1	0.2
Master of Science	13	2.2
Other	46	7.9

Participant Self-Reported Levels of Depression, Anxiety, and Stress from the DASS

Nearly three-quarters of participants reported elevated levels of anxiety (n = 419, 71.5%) with severity ranging from mild to extremely severe. Similarly, approximately two-thirds of participants experienced elevated levels of depression (n = 377, 64.3%) and over half reported elevated levels of stress (n = 300, 51.3%), ranging from mild to extremely severe. Refer to Table 3 for frequencies of severity levels.

Table 3

Participant Self-Reported Levels of Depression, Anxiety, and Stress

	n	%
Depression		
Normal	209	35.7
Mild	81	13.8
Moderate	129	22.0
Severe	69	11.8
Extremely Severe	98	16.7
Anxiety		
Normal	131	28.5
Mild	45	10.2
Moderate	63	22.5
Severe	46	10.8
Extremely Severe	50	28.0
Stress		
Normal	138	41.8
Mild	47	14.0
Moderate	69	20.3
Severe	57	17.4
Extremely Severe	24	6.3

Research Question One

Pearson Correlations

Pearson correlation analyses revealed statistically significant positive associations between all three forms of anxiety (eco-anxiety, artificial intelligence anxiety, and financial anxiety) and the mental health outcomes of depression, anxiety, and stress. Depression was positively correlated with eco-anxiety ($r = .26$, $p < .001$), AI anxiety ($r = .17$, $p < .001$), and financial anxiety ($r = .36$, $p < .001$). Similarly, anxiety symptoms were significantly correlated with eco-anxiety ($r = .34$, $p < .001$), AI anxiety ($r = .30$, $p < .001$), and financial anxiety ($r = .46$, $p < .001$). Finally, stress also demonstrated significant positive correlations with eco-anxiety ($r = .30$, $p < .001$), AI anxiety ($r = .33$, $p < .001$), and financial anxiety ($r = .48$, $p < .001$).

All correlations were statistically significant, with p-values less than the significance level ($\alpha = .05$).These findings suggest that higher levels of eco-anxiety, AI anxiety, and financial anxiety are associated with increased symptoms of depression, anxiety, and stress among post-secondary students, with financial anxiety showing the strongest relationship with depression, anxiety, and stress.

Table 4

Pearson Correlations for Generation Anxiety and Mental Health Outcomes

Variable	*M*	*SD*	1	2	3	4	5
1. CCAS	18.3	7.40					
2. EXCC	6.42	3.37					
3. EPEB	20.34	4.38					
4. AIAS	63.07	21.49					
5. FAS	23.98	12.13					
6. Depression	15.31	10.95	0.25***	0.09*	0.12**	0.17***	0.36***
7. Anxiety	13.94	9.77	0.33***	0.22***	0.18***	0.30***	0.45***
8. Stress	17.76	9.43	0.31***	0.20***	0.22***	0.33***	0.48***

Note. Depression, anxiety, and stress scores (items 6–8) represent subtotals derived from the DASS-21 subscales. CCAS = Climate Change Anxiety Scale; EXCC = Experience of Climate Change; EPEB Engagement in Pro-Environmental Behaviours; AIAS = Artificial Intelligence Anxiety Scale; FAS = Financial Anxiety Scale.

* p < .05, ** p < .01, *** p < .001

Research Question Two

Stepwise Linear Regression Results

Stepwise linear regression analyses were conducted to identify the strongest predictors of depression, anxiety, and stress. Each model included the three primary independent variables, proposed moderators, and demographic variables such as current or recent diagnosis of depression or anxiety, use of pharmaceutical treatment for depression or anxiety, gender, ethnicity, relationship status, socio-economic status, employment status, and daily internet use. In addition to climate change anxiety, direct experience with climate change and pro-environmental behaviours were included as separate predictors, as they represent distinct constructs in the literature and demonstrated intercorrelations below the multicollinearity threshold (i.e., $r < .80$; Tabachnick & Fidell, 2013). Across the three models, a total of ten unique predictors were retained. Each model explained a moderate to substantial proportion of variance in its respective mental health outcome.

Predictors of Depression

A stepwise linear regression was conducted to examine predictors of depression. Significant predictors included social isolation, financial anxiety, social support, gender identity (coded as 1 = cis-gendered), eco-anxiety, experience with climate change, employment status (coded as 1 = employed), and daily internet use. The final model was significant and accounted for 37% of the model's variance ($R^2 = .37$, $F(8, 567) = 42.40$, $p < .001$).

Higher depression scores were significantly predicted by increased social isolation ($\beta = .29$, $p < .001$), financial anxiety ($\beta = .23$, $p < .001$), eco-anxiety ($\beta = .17$, $p < .001$), and daily internet use ($\beta = .07$, $p < .05$). Lower depression scores were significantly predicted by greater

social support (β = -.20, $p < .001$), cis-gender identity (β = -10., $p < .01$), more experience with climate change (β = -.10, $p < .05$), and employment status (β = -.08, $p < .05$).

Each predictor added in the stepwise regression explained a unique portion of variance in depression scores, with social isolation ($f^2 = 0.38$) contributing the largest effect, followed by financial anxiety ($f^2 = 0.09$) and social support ($f^2 = 0.05$). The remaining predictors had small or negligible effect sizes.

No statistically significant results were found for all other predictor variables ($p > .05$). An overview of the regression coefficients can be found in Table 5.

Table 5

Stepwise Linear Regression for Predictors of Depression

Predictors	B	SE	Standardized β	*t* value	Cohens f^2
TILS	1.67	0.23	0.29	7.25***	0.38
FAS	0.20	0.03	0.23	6.18***	0.10
SPS	-0.53	0.10	-0.20	-5.23***	0.05
Gender	-3.73	1.33	-0.10	-2.81**	0.03
CCAS	0.25	0.06	0.17	3.99***	0.02
EXCC	-0.33	0.13	-0.10	-2.49*	0.01
Employment Status	-1.64	0.75	-0.08	-2.19*	0.01
Internet Use	1.04	0.52	0.07	2.01*	0.01

Note. $R^2 = .37$. Effect sizes (f^2) between 0.02–0.14. are considered small, 0.15–0.34 medium, and ≥0.35 large (Cohen, 1988). TILS = Three-Item Loneliness Scale; FAS = Financial Anxiety Scale; SPS = Social Provisions Scale; CCAS = Climate Change Anxiety Scale; EXCC = Experience of Climate Change.

* p < .05, ** p < .01, *** p < .001

Predictors of Anxiety

A stepwise linear regression was conducted to examine predictors of anxiety. Significant predictors included financial anxiety, social isolation, diagnosis status (coded as 1 = diagnosed), eco-anxiety, and AI anxiety. The final model was significant and accounted for 34% of the model's variance ($R^2 = .34$, $F(5, 570) = 61.31$, $p < .001$).

Higher anxiety scores were significantly predicted by increased financial anxiety ($\beta = .26$, $p < .001$), social isolation ($\beta = .28$, $p < .001$), eco-anxiety ($\beta = .14$, $p < .001$), and AI anxiety ($\beta = .09$, $p < .05$). Lower anxiety scores were significantly predicted by a current or recent diagnosis of depression or anxiety ($\beta = -.16$, $p < .001$).

Each predictor added in the stepwise regression explained a unique portion of variance in anxiety scores, with financial anxiety ($f^2 = 0.25$) contributing the largest effect, followed by social isolation ($f^2 = 0.12$), a current or recent diagnosis of depression or anxiety diagnosis ($f^2 = 0.05$), and eco-anxiety ($f^2 = 0.04$). The remaining predictors had small or negligible effect sizes.

No statistically significant results were found for all other predictor variables ($p > .05$). An overview of the regression coefficients can be found in Table 6.

Table 6

Stepwise Linear Regression for Predictors of Anxiety

Predictors	B	SE	Standardized β	*t* value	Cohens f^2
FAS	0.21	0.03	0.26	6.90***	0.25
TILS	1.40	0.18	0.28	7.80***	0.12
Diagnosis	-3.19	0.72	-0.16	-4.43***	0.05
CCAS	0.19	0.05	0.14	3.76***	0.04
AIAS	0.04	0.02	0.09	2.27*	0.01

Note. . $R^2 = .34$. Effect sizes (f^2) between 0.02–0.14. are considered small, 0.15–0.34 medium, and ≥0.35 large (Cohen, 1988). FAS = Financial Anxiety Scale; TILS = Three-Item Loneliness Scale; CCAS = Climate Change Anxiety Scale; AIAS = Artificial Intelligence Anxiety Scale.

* p < .05, ** p < .01, *** p < .001

Predictors of Stress

A stepwise linear regression was conducted to examine predictors of stress. Significant predictors included financial anxiety, social isolation, AI anxiety, diagnosis status (coded as 1 = diagnosed), and eco-anxiety. The final model was significant and accounted for 36% of the model's variance ($R^2 = .36$, $F(5, 569) = 65.64$, $p < .001$).

Higher stress scores were significantly predicted by increased financial anxiety (β = .24, $p < .001$), social isolation (β = .29, $p < .001$), AI anxiety (β = .13, $p < .001$), and eco-anxiety (β = .10, $p < .01$). Lower stress scores were significantly predicted by a current or recent diagnosis of depression or anxiety (β = -.10, $p < .01$).

Each predictor added in the stepwise regression explained a unique portion of variance in stress scores, with financial anxiety ($f^2 = 0.25$) contributing the largest effect, followed by social

isolation ($f^2 = 0.12$), AI anxiety ($f^2 = 0.04$), and a current or recent diagnosis of depression or anxiety diagnosis ($f^2 = 0.02$). The remaining predictors had small or negligible effect sizes.

No statistically significant results were found for all other predictor variables ($p > .05$). An overview of the regression coefficients can be found in Table 7.

Table 7

Stepwise Linear Regression for Predictors of Stress

Predictors	B	SE	Standardized β	*t* value	Cohens f^2
FAS	0.24	0.03	0.31	8.11***	0.30
TILS	1.42	0.17	0.29	8.31***	0.14
AIAS	0.06	0.02	0.13	3.37***	0.04
Diagnosis	-2.03	0.69	-0.10	-2.95**	0.02
CCAS	0.13	0.05	0.10	2.66**	0.01

Note. $R^2 = .36$. Effect sizes (f^2) between 0.02–0.14. are considered small, 0.15–0.34 medium, and ≥0.35 large (Cohen, 1988). FAS = Financial Anxiety Scale; TILS = Three-Item Loneliness Scale; AIAS = Artificial Intelligence Anxiety Scale; CCAS = Climate Change Anxiety Scale.

* p < .05, ** p < .01, *** p < .001

Hierarchal Linear Regression for Moderators Results

A series of hierarchical linear regressions were conducted to examine whether the relationships between the independent variables and the dependent variables were moderated by awareness, media consumption, social isolation, and social support. In each model, the relevant independent variable and proposed moderator were entered in Block 1, followed by their interaction term in Block 2. All predictors were mean-centered prior to creating interaction terms. Bootstrapping at 1,000 iterations was used to generate bias-corrected confidence intervals.

Across all models, moderation was not supported - none of the tested moderators significantly altered the strength or direction of the relationships between the independent and dependent variables. These findings suggest that the independent variables contributed to the outcomes independently of levels of awareness, media use, social isolation, or perceived social support.

Research Question Three

Qualitative Description Results

An inductive approach to qualitative description was used to identify descriptive categories in participants' responses to four short open-ended questions:

1. What concerns you the most about climate change?
2. What concerns you the most about AI?
3. What concerns you the most about your financial future?
4. Which one of these stressors do you think mainly contributes to the high rates of depression and anxiety in Generation Z?

After reading through each response set three times to become familiar with the data, descriptive categories based on the responses participants provided were identified. This analysis aligns with the principles of qualitative description (Sandelowski, 2000), which emphasizes staying close to participants' language while offering a structured thematic summary of their responses. Once the categories were identified, the researcher counted how many times each category appeared, and recorded a frequency count.

Concerns About Climate Change

Participant responses revealed a wide range of concerns, organized into several descriptive categories. These categories, frequencies, and representative participant quotes are summarized below. A total of 529 responses were recorded for each question.

Table 8

Categories, Frequencies and Quotes for Participants' Concerns About Climate Change

Category	n	Example Quote
Extreme Weather Change and Instability	110	"The weather will tip more into the extremes, and nature that once was, will not exist in the future. Like islands getting flooded, forests burning down, glacier melting, etc."
Impact on Future Generations	102	"Bringing children into a world that can't sustain them [and] them suffering as a result of climate change."
Lack of Action from Powerful Entities	62	"That governments and corporations refuse to take serious action. Greenwashing is rampant. Drastic change is needed and those able to make those changes refuse to do so for the sake of profit."
Loss of Wildlife	60	"I'm concerned about how climate change disrupts animal ecosystems. For instance, sea lions and polar bears are struggling because their colder habitats are vanishing."
Irreversible Damage	58	"The possibility that it is irreversible and that as a society we are doomed. I've seen so much about how we can't go back and that the earth is going to keep getting warmer, environmental conditions are getting worse, etc."
Loss of Resources	50	"Losing access to basic needs like food and water."
Lack of Power to Effect Change	48	"The fact that the individual is told to change but in reality has no ability to fix the climate crisis."
Denial	42	"Nobody cares about it, nobody will ever fix it. There's a solution, but nobody is working towards it."

Uninhabitable Earth	41	“The earth may not be able to sustain life.”
Impacts on Health	40	“The earth's health is connected to our individual health.”
Catastrophic Outcomes	28	“The threat of [climate change] possibly ending the world.”
Lack of Individual Action	20	“I don't want to see people keep dismissing things and keeping complacent because they feel that they cannot make changes. It makes me angry when people follow herd mentalities and dismiss my efforts even when I try to do everything I can.”
Misinformation	13	“The general lack of awareness of the real reasoning for climate change. Specifically with people who believe everything they see on the internet.”
Economic Impacts	13	“The economic costs of mitigating [climate change].”

Note. The categories are not mutually exclusive. The frequencies represent the number of participants that mentioned the category. Most participants were counted towards the frequencies of several categories.

Many participants expressed heightened concern about the increasing severity, unpredictability, and destructiveness of weather events linked to climate change. Participants expressed worries about the weather, such as “The increase in temperature is rising rapidly, which has led to scorching weather, floods and fires.” and “The weather will tip more into the extremes, and nature that once was, will not exist in the future. Like islands getting flooded, forests burning down, glacier melting, etc.” These comments reflect participant’s perceptions that climate change would drastically disrupt life, with more frequent heatwaves, wildfires, flooding, rising sea levels, and other natural disasters threatening human safety, health,

and well-being. Fears around the effects of the increasing rates of natural disasters were also voiced, with one participant commenting, “Look at how climate change is affecting major weather events such as the recent hurricanes in Florida. They keep getting worse and worse each year, millions of people have lost their homes and everything they own, and yet people still seem to not care.”

Equally prominent was participants' concern about the world they would leave behind for future generations. Many highlighted deep worries about the overall quality of life for those yet to come. Participants expressed fears like "my kids having to deal with the repercussions [of climate change]." and "That it will only get worse. That the future children of the world will not have the same world as we do." Participants also expressed a hesitation to have children due to the uncertainty surrounding climate change and the environment in which their children would be raised. They commented on "The ethics of raising a child with the state of the world regarding climate change." and "The future, particularly the planet's future. I'm young and I haven't though[t] about settling down at all but I'm on the fence about having children. I don't think I could have a child in good conscience with how things are headed with climate change." There was a strong sense of responsibility and guilt, paired with frustration that previous generations had failed to act. One participant commented, "The future and impact of what generations before us did. Why do we need to solve it."

Several participants also described feelings of helplessness, rooted in frustration at the inaction of powerful entities such as corporations and governments, and the lack of personal power to enact meaningful change. Many expressed anger that large-scale systemic action was being delayed or obstructed by those with the greatest capacity to intervene. Participants commented, "The people who can do anything about it benefit from continuing to dig us deeper

into an inescapable disaster." and "That governments will continue to parade individual, flashy and useless solutions rather than attacking companies that are causing the vast majority of climate change. Eventually it will be too late, and most won't realize as vulnerable areas outside Canada will be most notably affected first." These comments revealed a broader sense of discouragement, with many participants feeling that their personal efforts were insignificant in the face of institutional neglect and corporate greenwashing.

The loss of wildlife emerged as another central category. Participants mourned the extinction of species and the rapid destruction of natural ecosystems, viewing this as both a loss of global heritage and a warning sign of larger environmental collapse. The language used to describe these losses suggested that the disappearance of wildlife resulted in ecological harm as well as psychological grief, a term in the literature known as solastalgia (Albrecht, 2005). Participants highlighted, "I have a deep love for nature and all of the creatures who live in the world; I fear for what will happen to them if human beings continue to destroy the environment." and "How it could negatively impact all living beings around me. Both humans and animals alike. I already see the effect it's having on the world and I always worry about those who are already being harmed by the changes in weather."

Concerns about the loss of essential resources such as food, water, and shelter were also frequently mentioned. Many expressed fears that climate change would lead to widespread scarcity, making it increasingly difficult to meet basic needs. Participants highlighted issues such as uninhabitable places, food shortages, and water scarcity as tangible threats that could destabilize countries and lead to greater conflict. As one participant described, "The world being destroyed, lack of adequate food/shelter/medicine as a result." This category reflected not only anxieties about survival in the face of climate change but also broader concerns about socio-

political-economic consequences such as war, as resource shortages were expected to disproportionately affect vulnerable populations.

Misinformation and denial of climate change were also identified as barriers to meaningful progress. Participants described feeling discouraged by the persistence of misinformation, disinformation, and denial about climate change, which they believed undermined collective efforts. They stated, "Regarding climate change, I feel that a lack of scientific literacy concerns me. For example, the way some conspiracy minded people are reacting to the water main break here in Calgary showcases that many don't understand basic science." and "What concerns me most about climate change is the way the people in charge twist it, ignore it, and blame average people." Participants expressed frustration with climate denialism, stating that "…so many people not only deny it, but actively fight and vote against issues that would help reduce climate change." Others noted that denial and misinformation not only stalled climate action but also contributed to public apathy and political polarization. One participant commented on “rising anti-science sentiments and politicization of the issue leading to apathy from the public and inaction from the government.”

Finally, many participants expressed fears around irreversible environmental damage and long-term catastrophes. Concerns about the world becoming uninhabitable and no longer able to support human life were prominent. For some, these fears resulted in despair, hopelessness, and questioning the point of pursuing personal goals in the face of an uncertain future. Participants questioned whether investing in long-term aspirations such as education, career advancement, or starting families is meaningful given the existential threats. One participant expressed, “The possibility that it is irreversible…I’ve seen so much about how we can’t go back and that the earth is going to keep getting warmer, environmental conditions are getting worse, etc. It makes

me feel hopeless and not wanting to pursue my goals because it makes me have the mindset of 'what's the point of learning and getting a job/saving for a house/having kids, if I am [going to] potentially die at 50.'"

Concerns About AI

Participant responses revealed a wide range of concerns, organized into several overarching descriptive categories. These categories, frequencies, and representative participant quotes are summarized below. A total of 533 responses were recorded for each question.

Table 9

Categories, Frequencies, and Quotes Participants' Concerns Around AI

Category	n	Example Quote
Job Security and Replacement	176	"AI replacing humans. AI is already prevalent in several jobs. As AI develops, it will continue to take over jobs. It is already difficult enough to compete with other humans for a job."
Unethical Use of AI	108	"There's so much misuse already—revenge porn, fake videos, scams—it's terrifying."
Dependency on AI and Loss of Human Skills	106	"I'm worried we will become reliant on it and lose critical thinking skills and traits that make us human."
Loss of Control and Takeover Anxiety	62	"That because AI is constantly evolving, humans will not be able to keep up with it. Or even though AI is a human creation, there may come a point when even humans may not be able to control it."
Artistic and Creative Impacts	48	"I prefer things done by people. People are creative. AI can't create anything new, it takes from things that already exist. I'm afraid we'll…lose creativity, originality, authenticity."

Inability to Differentiate	44	“It’s getting harder and harder to tell what’s real and what’s AI-generated.”
Misinformation	39	“I have concerns that the LLMs are learning off of each other making information become less and less reliable and more muddled. People, are then relying on that information to be true and disseminating it to others. So mass spread of misinformation.”
Fast Growth and Lack of Regulation	34	“Laws not picking up pace with technology.”
Inequality	22	“Increase in inequality based off of peoples access to possible future AI products like Neural link. Imagine the disadvantage someone has in modern society if they have no phone or internet access, it could be like that but worse.”
Safety and Privacy	21	“Pushing AI into everything, especially situations where customers or clients are vulnerable or the AI (and really, "artificial intelligence" is a marketing term, there's no real intelligence involved here) is working with sensitive information is a trainwreck waiting to happen.”
Learning Challenges	21	“I am concerned about how to navigate learning [and] using AI at my future job.”
Environmental Impacts	10	“The detrimental environmental effects from the high energy demands of servers hosting AI.”

Loss of Human Connection	9	“The potential it has to negatively impact relationships with those around you. For instance, how we socially interact with each other has changed significantly since social media who’s to say when robot power AI becomes more popular social interactions aren’t going to change for the worse.”
False Accusations	9	“My writing/assignments getting flagged for AI use falsely. Which could cost me my education for something I never did.”

Note. The categories are not mutually exclusive. The frequencies represent the number of participants that mentioned the category. Most participants were counted towards the frequencies of several categories.

The most frequently cited concern was job security and AI-driven job replacement. Participants expressed deep fears about AI displacing workers across various industries and worsening existing employment inequalities. For example, a participant expressed concern that an "Automation of jobs will concentrate the wealth of the 1% even more than it already is." For many, the growing prevalence of AI technologies might make competition for jobs increasingly difficult, raising questions about future career stability. Participants commented, "If [AI] is used as a replacement for professionals, [it] will result in people losing their jobs." and "Jobs becoming scarce because of replacement with AI."

Unethical use of AI was another central category. Participants voiced anxieties about malicious applications of AI, including revenge pornography, fake videos, scams, and other harmful practices. Participants expressed concerns such as “AI image production being used maliciously/illegally, production of pornography involving any non-consenting individual and/or children.” and “Deepfakes, the increase of potential child pornography, revenge porn, voice scams, anything that can alter someone in a way that can harm them.” There was a strong sense

that AI's rapid expansion was being exploited for unethical purposes without sufficient accountability. For example, a participant conveyed concerns about "[AI's] potential for misuse, such as spreading misinformation or infringing on privacy, which could lead to significant societal harm." Similarly, safety and privacy emerged as a core concern, with participants voicing worries about the "overall safety and not knowing where information is going" and "The use of AI to facilitate mass surveillance."

Concerns about dependency on AI and the erosion of human skills were also recurrent. Participants feared that growing reliance on AI tools would weaken critical thinking, creativity, and essential cognitive abilities that define human intelligence. Participants voiced concerns such as "Dependence upon [AI] - people choosing the easy option rather than thinking independently" and "How dependent we [have] become on AI…beginning to lose our ability to reason or any other competency skills." Many feared societies would increasingly outsource decision-making and problem-solving to AI machines. A participant expressed that "People are becoming highly dependent on AI. I do believe we're becoming super lazy as a species and AI is just the beginning. It's already being used in the workplace, and I know many students who use it for their assignments...eventually no one is [going to] know how to do anything without telling AI to do it for them."

The category of loss of control and takeover anxiety captured existential fears about the long-term trajectory of AI development. Participants expressed concerns that humans may eventually lose the ability to control AI systems as they evolve, leading to unpredictable and potentially dangerous consequences. Many also feared that AI would surpass human intelligence and begin dominating critical aspects of society. Participants commented, "Becoming more intelligent than humans are capable of controlling." and "Because AI is constantly evolving,

humans will not be able to keep up with it. Or even though AI is a human creation, there may come a point when even humans may not be able to control it."

Another key category was the inability to differentiate, with participants highlighting the growing difficulty of differentiating AI-generated material from authentic human-created content. Many worried that this blurring would lead to a loss of trust in information. Comments such as "AI generated content cluttering the internet completely and making it impossible to find anything made by humans" and "Fake things being used as real evidence because it becomes too hard to tell the difference between AI and what's real" illustrate these concerns. Participants feared that this confusion could make it harder to make informed decisions and could increase vulnerability to misinformation. Similarly, misinformation also emerged as a critical social concern. Participants described fears that AI systems would contribute to the mass spread of misinformation, leading to confusion, polarization, and the destruction of public discourse. A general lack of awareness about AI's capabilities and risks compounded these fears. For example, a participant commented on the concern for "[AI's] vast potential for misinformation, propaganda, and creation of false images and videos. AI can be used to create social media accounts to promote certain agendas and influence public discourse. This can be done by companies or entire countries to promote their own interests…Additionally, the continuous improvement in AI image and video generation are making it easier and easier to make fake images/videos to spread misinformation, create doubt, and promote certain narratives…As the technology improves, it will likely become (nearly) impossible to tell them apart from real images/videos…this will make it even harder to separate the truth from lies, falsehoods, and deliberate misinformation."

Impacts on art and creativity centered on the perceived devaluation or replacement of genuine artistic expression. Participants worried that AI would diminish originality and authenticity. These concerns extended beyond financial implications and expressed concern for the loss of culturally and emotionally significant creative work. Participants commented concerns such as, "People are creative. AI can't create anything new, it takes from things that already exist. I'm afraid we'll…lose creativity, originality, authenticity." and "I am bothered by the active theft and devaluation of real, human artistic skill in favour of training AI models."

Participants also expressed concern about the fast growth of AI and the lack of regulation. Many noted that AI development was advancing faster than governments and regulatory bodies could respond, creating legal and ethical gaps. This regulatory lag heightened fears about misuse and unintended consequences. For example, a participant commented, "If AI is developed quickly without sufficient regulation, unexpected outcomes could result, such [as] losing control over autonomous systems or developing technology that widens social and economic gaps. Innovation and responsible development must be balanced."

Inequality was also a significant category. Participants feared that AI technologies would widen existing societal divides, especially by disadvantaging marginalized populations lacking access to advanced tools, education, or infrastructure. Participants expressed concerns such as, "I worry that AI…will instead be used to help the rich get richer at the expense of the poor." and "The socio-economic implications of widespread [AI] use under capitalism. Basically, that it'll make all our current problems even worse."

Lastly, participants described learning challenges and fears of technological exclusion. Many feared they would be unable to keep pace with rapid AI advancements, leaving them feeling left behind in education, employment, and everyday life. As one participant described,

"I'm not skilled with technology and I'm worried I won't be able to keep up with technology and will become disadvantaged." These concerns reflect broader anxieties about the growing gap between those able to adapt to AI-driven environments and those at risk of being excluded.

Concerns About Financial Futures

Participant responses revealed a wide range of concerns, organized into several overarching descriptive categories. These categories, frequencies, and representative participant quotes are summarized below. A total of 535 responses were recorded for each question.

Table 10

Categories, Frequencies, and Quotes for Participants' Concerns About Their Financial Future

Category	n	Example Quote
Financial Security	160	"I am most concerned that I will not be able to support myself in today's economy. I worry that I will always struggle to make ends meet."
Housing Insecurity	138	"As a Gen Z, the big concern is housing. Will I ever realistically be able to own a home? It seems increasingly unlikely given the state of the economy in Canada."
Cost of Living	122	"I will not be able to keep up with the cost of living in this country."
Quality of Life	109	"I won't be able to make enough to have a good life."
Job Security	78	"I'm worried if I will get a stable job in the future with my degree."
Debt	69	"[I'm afraid] that I won't be able to pay off my loans and be in debt forever."

Financial Independence	60	“Making enough money to live independently and without relying on others.”
Providing for Family	50	“Not making enough to provide for my family.”
Salary Concerns	35	“Inflation continues to increase while salaries remain the same.”
Political and Economic Instability	18	“The state of the economy and political uncertainty make financial stability seem out of reach.”
Financial Disparity	16	“The gap between the middle and upper class is growing and minimum wage does not keep up.”
Retirement	11	“[I’m afraid] that I will never have enough money to retire.”

Note. The categories are not mutually exclusive. The frequencies represent the number of participants that mentioned the category. Most participants were counted towards the frequencies of several categories.

The most common concern among participants was achieving financial security. This category captured fears about long-term instability. Many participants worried about being trapped in cycles of financial hardship, unable to save, invest, or prepare for emergencies. Some specifically referenced fears of insolvency, being unable to meet financial obligations or facing bankruptcy, particularly under the weight of student debt, high living costs, and unstable employment. For example, one participant shared: "Uncertainties about the future of one's finances often center on things like inflation, job security, growing living expenditures, retirement funds, and handling unforeseen bills. Long-term financial plans, such as home ownership or a comfortable retirement, can also raise concerns about sustaining financial stability in the face of fluctuations in the economy."

Another central category was housing insecurity. Participants expressed anxiety about their ability to afford a home or secure stable housing in the future. One participant wrote, "I won't be able to afford to buy a house until much later in my life. Forced to rent, or live with my parents for a long, long time." Many also worried that rising housing costs would prevent them from achieving key life milestones such as homeownership or maintaining consistent rental housing. A participant expressed: "The way the Canadian economy is headed, with the lack of affordability, higher cost of living and unbelievably high prices, I feel like my dreams of having a house and a car [are] completely unattainable, and I'll have to live my life trying to make ends meet." Some participants even voiced fears about experiencing homelessness if financial instability worsened after graduation.

Quality of life concerns were another major area of distress. Participants feared that ongoing financial insecurity would severely limit their ability to live a fulfilling and meaningful life. They expressed concerns about being unable to afford hobbies, travel, or maintain a general sense of comfort and emotional well-being. As one participant summarized, "Not being able to live the life I want to live." These anxieties reflect a broader fear that financial hardship could impact material stability and personal happiness. Participants highlighted the emotional toll of financial instability including persistent worry, sleepless nights, and psychological strain. As one participant stated, "Will I be able to enjoy life to the fullest without worrying about affording my payments?"

The rising cost of living was also frequently cited. Participants voiced frustrations that essential expenses like groceries, rent, and transportation were rapidly increasing. One summarized this fear: "The way the Canadian economy is headed, with the lack of affordability, higher cost of living and unbelievably high prices." Participants noted that these rising costs were

hindering their ability to achieve goals. For example, one participant shared concerns about "Not being able to afford the same things that previous generations have been able to more easily, i.e., buying a home, having savings, having some additional wealth to travel and enjoy life outside of working." Inflation was often mentioned as an aggravating factor, reducing purchasing power and making saving more difficult.

Job security emerged as another dominant category. Participants described concerns about finding employment after graduation and maintaining long-term job stability. Anxiety about job loss, underemployment, and unstable labour markets was frequently expressed. As one participant stated, "I'm not even able to find a random part-time job so I'm worried how I'll be able to find a job that is [in] the field I'm studying. I have a feeling of incompetency in myself. Especially with how my student loans are increasing and my rent being due, yet I'm still unable to find or secure an interview for a simple part-time job. It is very discouraging." Beyond finding work, many participants also expressed concerns about low wages. Even when employed, they feared salaries would not be sufficient to cover basic living expenses or achieve financial security. One participant noted, "Salaries have not inflated proportionally to inflation and the new cost of living." Another added, "I will not be able to become financially independent even with a job due to the lack of adequate financial compensation."

Debt was a significant source of distress. Participants shared that large amounts of student loans felt overwhelming and feared they would delay or prevent future financial stability. One participant described, "I'm going to be in debt for the rest of my life, [I] will never get a job that pays enough to sustain my lifestyle and also pay off the debt."

Many also expressed fears about not achieving financial independence. They worried about having to remain financially dependent on parents or others well into adulthood. Financial

autonomy was closely linked to individual identity and the transition to adulthood. Comments included: "The state of the economy and the job market make being financially stable as an independent person very difficult. I fear I won't be able to survive when I move out." Another added, "I am afraid my financial autonomy [will not be] separate from my parents."

Providing for family was another key area of concern. Participants expressed anxiety about supporting not only themselves but future children, siblings, or aging parents. For instance, participants commented "Not having enough to provide for my entire family with a single source of income," and "I will not make enough to support myself and my loved ones in the future. The unknowns that come along with the future."

Political and economic instability also emerged as a category. Participants feared that events such as recessions, political upheaval, or global disruptions would worsen financial insecurity. One participant shared, "The state of the economy and political uncertainty make financial stability seem out of reach." Another echoed, "Long-term financial plans, such as home ownership or a comfortable retirement, can also raise concerns about sustaining financial stability in the face of fluctuations in the economy."

Financial disparity highlighted concerns about systemic inequality. Participants worried that growing gaps between rich and poor would limit opportunities for upward mobility, regardless of individual effort or education. One participant stated, "The growing gap between the wealthy and the rest of the population could lead to economic and social challenges, limiting opportunities for upward mobility and access to resources for many people." Another added, "It is unacceptable that there are people living on the street in the same society that has people who own multiple properties."

Finally, although less frequently mentioned, retirement anxiety reflected a growing awareness that saving for the future seemed out of reach. Participants commented, "Saving for retirement seems impossible with the way things are," and "Owning a house, having kids, retiring at a good age — all feel completely out of reach, unless I work myself half to death. What kind of life is that?"

Participant Perceptions of Factors Contributing to Gen Z's Mental Health

Participant responses revealed a wide range of concerns, organized into several overarching descriptive categories. These categories, frequencies, and representative participant quotes are summarized below. A total of 539 responses were recorded for each question.

Table 11

Participant Perceptions of Factors Contributing to Gen Z's Mental Health

Category	n	Example Quote
Financial Concerns	448	"I believe most Gen Z's, including myself are concerned about their financial future."
Climate Change	74	"Climate change for sure, feeling hopeless about the future of the planet."
Social Media	62	"Social media creates constant comparison and pressure to be perfect."
AI	38	"The fear that we'll be replaced [by AI], or that we can't keep up."
Social Isolation	20	"I think a lot of us struggle with loneliness and companionship."
Global Instability	20	"There's no sense of security anymore—jobs, housing, politics, future."

Intergenerational Differences	15	“We were raised in a system that benefitted boomers the most, but that system hadn't changed at all to accommodate the needs of millennials, much less Gen Z.”
External Pressure	8	“The pressure that others tend to put on us, and the somewhat “expectation” that we need to fix the problems that they made.”
Increased Exposure to Global Crises	7	“Being constantly bombarded with depressing information of specifically the present and future.”

Note. The categories are not mutually exclusive. The frequencies represent the number of participants that mentioned the category. Most participants were counted towards the frequencies of several categories.

Participant responses revealed a complex web of individual, societal, and global factors. While some concerns reflected personal struggles, many pointed to broader structural and systemic issues that shape Gen Z's day-to-day experiences. The following categories highlight the most commonly reported contributors.

The most dominant category was finances, which is by far the most frequently mentioned contributor. Participants emphasized the constant anxiety caused by debt, unaffordable housing, unstable employment, and rising prices. Many described living with chronic financial insecurity and the pressure to survive in an economy that feels stacked against them. For example, participants said, "I think financial future would be the more prominent factor that contributes to the high rates of depression etc. The increase in housing prices in Canada and the inflation is really hard for Gen Z." and "I think it's mostly financial. Many Gen Zs do not have the same opportunities other generations did, as inflation increases and job opportunities go down." Participants also commented that because they are unable to meet basic needs, it is hard to worry about other concerns, such as climate change and AI. One participant expressed, "Financial

future by far…We can afford to not think too hard about climate impacts just yet and we can afford to pass down AI worries to the next generation. We cannot, however, afford basic necessities, to move out, we cannot find jobs, we cannot repay student debt, and we cannot start our lives." Additionally, due to the immediate and unavoidable nature of finances, participants believed it was the greatest contributor. For example, one participant said, "…finances mainly contribute to high rates of anxiety and depression amongst my generation…it is incredibly difficult to miss the ever-rising prices of food in supermarkets. Given how hard it is to avoid inflation as students, it certainly would be on people's minds more often."

Furthermore, participants described focusing solely on trying to survive. This category reflected the idea that Gen Z's baseline has shifted from thriving to coping. One participant commented, "We're not thriving, we're just trying to survive." Participants articulated how ongoing financial pressures created a day-to-day mentality rooted in exhaustion, scarcity, and hypervigilance, often leaving little space for joy or long-term planning. For example, a participant expressed, "There is no time for us to think that hard about AI or climate change at a productive rate when we're struggling to keep a roof over our heads, keep our grades up, and make sure we're well enough to keep working to continue this cycle."

Climate-related concerns were another central category. Participants reported growing up under the looming threat of environmental degradation and feeling overwhelmed by climate-related news and disasters. Many described a sense of existential dread, hopelessness, and despair about the planet's future. For example, a participant commented, "Climate change…I and the other young people around me are constantly wondering if the world's going to be habitable when we're our parents' ages. Many of my friends plan to not have children for the specific reason of not wanting to have to bring them into a world where climate change isn't being

properly mitigated. I constantly wonder if spending time and energy on higher education for the purpose of getting a job is going to be worth it if the world goes to hell by the time I'm 40."

Social media was another significant category and was often described as being a double-edged sword. While participants expressed that social media provides connection and access to information, they emphasized its negative psychological effects — including comparison, perfectionism, and the constant pressure to perform. Participants commented, "Social media, I think it keeps people lonely, makes people insecure, makes people envious of lives that aren't even real rather they are done up for content." and "It's impossible to feel good about yourself when you're always seeing people doing better than you." Another participant highlighted, "Regular exposure to carefully chosen pictures and lifestyles can damage one's self-esteem, breed comparison anxiety, and produce irrational expectations."

Participants also expressed concerns about rapid technological advancement and the role of AI. Many feared being replaced, falling behind, or losing control over their futures. Participants commented, "The fear that we'll be replaced, or that we can't keep up." and, "I think the use of AI…kind of makes people anxious."

Despite being digitally connected, many participants described feeling socially disconnected. This category reflected loneliness and isolation due to a lack of in-person communication and the superficiality of online relationships. Participants highlighted the absence of meaningful, face-to-face interactions and described a growing sense of fragmentation within their generation. Several expressed a longing for deeper companionship and the struggles of navigating life without a strong support system. One participant stated, "Lack of companionship, lack of friends, social media, fear of missing out…" — captured how digital spaces can amplify feelings of exclusion. Another added, "Lack of companion[ship] and people

to go to," highlighting the emotional toll of not having trusted people during distress.

Participants frequently described the world as uncertain, unstable, and unpredictable. This sense of global instability extended across employment, housing, politics, and the future at large. Many voiced fears about not being able to make long-term plans or build a secure life. This lack of stability contributed to chronic stress, feelings of hopelessness, and a persistent sense of vulnerability — even among those currently doing well. One participant commented, "We have no future. Financially, climate wise, and with the onset of 'AI' or LLM. All the pieces stack together for a nightmare. No one thing is the worst." Participants also highlighted political unrest and rising global conflict as factors affecting their mental health. Comments such as "Social unrest, particularly the increasingly polarizing political situation in both the U.S. and Canada" and "The hopelessness of political issues" conveyed fears around politics and governance.

Another major category was intergenerational differences between Gen Zs and older adults, particularly around work, housing, mental health, and values. In this category, participants described feeling dismissed and misunderstood by older generations, noting a perceived lack of empathy or support for their concerns. One participant expressed, "The undue pressure and burden put on Gen Z, I feel like we're constantly criticized by those older than us… we're constantly told that many of our problems result from being 'lazy' or 'wasting our time and money on experiences' but this stems from a more systematic shift…which can't seem to be comprehended by the older generations since they had never experienced the same thing in their childhood."

Participants also described intense external pressures academically, professionally, physically, and socially. This pressure came from families, institutions, and internalized

standards. One participant reported, "There's constant pressure to succeed, be productive, be perfect." Many described a cycle of burnout and self-comparison, driven by the belief that anything short of perfection was a failure. This contributed to chronic anxiety and feelings of inadequacy, even when doing well by traditional standards. Participants also commented on the perceived imbalanced expectation that their generation fix the global problems. One noted, "Gen Z has been given the responsibility to solve the world's problems…we have been told since we were kids that we have to fix everything…immense pressure, and the older generations have all the money to contribute but still just won't?"

Lastly, participants highlighted constant exposure to global suffering through social media and news cycles as contributors to poor mental health outcomes. This emotional saturation contributed to burnout, helplessness, and compassion fatigue. Participants commented, "All of the above especially with our unlimited access to information from online platforms. Our brains are overloaded with so many things we don't have a ton of control over and for myself, it makes me feel powerless." and "There is so much to process; the average kid now has much more information than before, making it hard to contain."

CHAPTER 5: DISCUSSION

The purpose of this study was to explore the influence of eco-, AI, and financial anxiety on post-secondary students' levels of depression and anxiety. The research questions that were addressed were: 1) What are the effects of generation anxiety on the mental health outcomes of post-secondary students? 2) What is the relative and collective impact of eco-anxiety, AI anxiety, and financial anxiety on the mental health of post-secondary students? and 3) How do post-secondary students perceive climate change, AI, and financial concerns as contributing factors to the high rates of depression and anxiety in Gen Z? This study was timely and necessary as, to my knowledge, there is no peer-reviewed literature on the topic of eco-, AI, and financial anxiety on the mental health outcomes of Gen Z. This discussion section will synthesize key results, contextualize findings within existing literature, outline limitations, and propose future directions and practical implications for counselling psychology and educational institutions.

Interpretation and Synthesis of Results

The major findings for each research question were interpreted and synthesized with previous literature. The categories developed from the qualitative description analysis were also interpreted and compared to the existing literature.

Research Question One: What Are the Effects of Generation Anxiety on the Mental Health Outcomes of Post-Secondary Students?

Pearson correlations showed that eco-, AI-, and financial anxiety are widespread among Gen Z post-secondary students and significantly predict depression, anxiety, and stress outcomes. As such, higher levels of these anxieties are associated with higher depression, anxiety, and stress scores. These findings support the hypothesis that generation-specific anxieties, those embedded in societal transformations, are significantly intertwined with Gen Z's

poor mental health outcomes. Notably, these three stressors together accounted for roughly one-third of the variance in mental health scores, suggesting they form a substantial part of Gen Z's mental health burden.

Among the three types of generation anxieties examined, financial anxiety emerged as the strongest and most consistent predictor of poor mental health outcomes. Students anxious about their financial future tended to report higher depression, anxiety, and stress symptoms, more so than those less worried about their finances. This finding reinforces existing literature on financial stress and youth mental health. For example, a survey by Statistics Canada (2024) found that younger adults reported some of the highest levels of financial stress. For Gen Z specifically, this aligns with their broader struggle to establish financial stability amid soaring housing costs, stagnant wages, and inflation. Furthermore, numerous prior studies have identified financial strain as a top stressor for post-secondary students, correlating with higher depression, anxiety, stress, and social problems (Archuleta et al., 2013; Davis & Mantler, 2004; Heckman et al., 2014; Liu et al., 2019; Potter et al., 2020). For example, research on financial anxiety and young adults has highlighted that worry over debt, expenses, and future economic stability can significantly impact psychological well-being (Archuleta et al., 2013). Post-secondary students who reported financial anxiety experienced numerous negative mental health outcomes, such as lower self-esteem, anxiety disorder, depression, and suicidality (Potter et al., 2020). Literature on the financial stress of students reveals that it is positively associated with an increase in depression and anxiety levels (Archuleta et al., 2013). Therefore, findings in this study mirror prior evidence by confirming that financial anxiety is a major psychological burden among Gen Z.

Eco-anxiety was also found to be significantly related to mental health outcomes. Students reporting greater anxiety about climate change tended to have higher depression, anxiety, and stress scores. This suggests that climate change-related concerns are likely taking measurable tolls on the psychological well-being of Gen Z. These findings resonate with Clayton and Karaszia's (2020) suggestion that climate-related distress may overlap with features of post-traumatic stress and anxiety disorders. Participants' expressions of helplessness, fear for the future, hypervigilance, and avoidance align with what some scholars term pre-traumatic stress. In this context, pre-traumatic stress is used to describe the anticipation of climate-related disasters and existential fear about the future, even if no direct trauma has occurred (Burke et al., 2018). As such, the findings reflect heightened emotional arousal, intrusive thoughts about future catastrophes, and a chronic sense of threat, which are consistent with clinical features of trauma-related responses and generalized anxiety.

Additionally, these findings support a growing body of research that indicates that eco-anxiety is linked to mental health problems in youth. Prior studies have documented that young people experiencing eco-anxiety report feelings of helplessness, fear for the future, and sadness, which can manifest as depression or generalized anxiety. For instance, Clayton et al. (2017) noted that climate change can act as a chronic stressor that exacerbates anxiety symptoms. Recent studies have found high rates of anxiety about environmental issues among youth worldwide (Baudon & Jachens, 2021; Clayton et al., 2017; Coffey et al., 2021; Usher, 2019). This study's findings align with these reports, validating that Gen Zs worried about climate change show elevated levels of depression, anxiety, and stress. This convergence with prior research strengthens the argument that eco-anxiety is a real psychological phenomenon affecting this generation. Additionally, Pearson correlations revealed that experiences with climate change

were significantly associated with poorer mental health outcomes. Engagement with pro-environmental behaviours was also positively associated with depression, anxiety, and stress scores, supporting previous research that eco-anxiety can cause individuals to reflect on their ecological behaviour and build more sustainable and eco-friendly lifestyles at the individual and communal level (Pihkala, 2020).

Although somewhat less predictive than financial or eco-anxiety, anxiety related to AI also showed a significant association with mental health outcomes. In the data, higher AI anxiety was associated with increased depression, anxiety, and stress levels. There is comparatively less prior research on AI-related anxiety, but the results of this study provide empirical support to what some recent studies have begun to suggest (Li & Huang, 2020; Manyika et al., 2017; Mirbabaie et al., 2021; Wang & Wang, 2022). Early conceptual papers on AI found that the presence of AI heightens individuals' insecurity and stress (Vorobeva et al., 2022; Wang & Wang, 2022). This study contributes to the growing literature by identifying AI anxiety as a distinct and measurable factor influencing mental health in Gen Z. Given this generation's digital immersion and proximity to AI's increasing role in workplaces and social life, such anxiety may stem from fears of job displacement, loss of autonomy, or ethical concerns. These findings complement the existing discourse on technology-related stress, indicating that AI anxiety, much like earlier forms of digital stress, plays a role in shaping Gen Z's psychological well-being.

Research Question Two: What Is the Relative and Collective Impact of Eco-Anxiety, AI Anxiety, And Financial Anxiety on the Mental Health of Post-Secondary Students?

The generated statistical models aimed to determine which form of generation anxiety most strongly predicted symptoms of depression, anxiety, and stress, and whether the collective weight of these anxieties accounted for substantial variance in mental health outcomes. The

findings revealed distinct patterns across the models, offering insight into the stressors shaping Gen Z's psychological well-being.

Predictors for Depression

In the stepwise regression model for depression, several generation-specific stressors and social factors emerged as significant predictors. Higher depression scores were most strongly associated with greater social isolation and loneliness, explaining approximately 38% of the total variance in depression scores ($f^2 = 0.38$), and reinforcing substantial evidence that loneliness significantly contributes to depressive symptoms among young adults (Beutel et al., 2017; Cigna, 2020). Research on social isolation and loneliness shows that social isolation results in increased depressive symptomatology, poor self-rated health, and a poor self-reported quality of life (Hwang et al., 2020; Pietrabissa & Simpson, 2020). This comes as no surprise as 80% of Gen Z reported feeling lonely in the past year (GWI, 2024). Financial anxiety was another robust positive predictor, aligning with research demonstrating that financial stress is a major contributor to mental health issues among Gen Z, including depressive symptoms (Archuleta et al., 2013; Eisenberg et al., 2007). Eco-anxiety also significantly predicted higher depression, consistent with findings from Hickman et al. (2021) and Clayton and Karazsia (2020), who showed that climate-related concerns are strongly associated with hopelessness and emotional distress in youth. Additionally, heavier daily internet use was linked to greater depressive symptoms, supporting studies that found associations between excessive social media exposure and depression (Hunt et al., 2018; Twenge & Campbell, 2019). This finding is also supported by empirical studies indicating that excessive social media time (e.g. >3 hours/day) increases the risk of depression and perceived social isolation (Riehm et al., 2020) .

In contrast, higher perceived social support predicted lower depression, supporting Lee

and Goldstein's (2016) work emphasizing the protective role of close relationships and support networks. These findings are also supported by research that indicates that social support not only improves mental health outcomes but also mediates the relationship between depression, anxiety, stress, and mental health, highlighting its buffering effect against mental health issues (Acoba, 2024; Scardera et al., 2020). Additionally, certain demographic factors such as being cisgender and being employed were associated with slightly lower depression scores in the final model. These findings suggest that those with non-cis-gender identities and lack of employment have higher depression scores. An explanation for these findings is the minority stress model, which posits that chronic exposure to stigma, discrimination, and social rejection leads to elevated psychological distress (Meyer, 2003). For example, transgender and nonbinary individuals frequently encounter transphobia, misgendering, and invalidation, which can result in anxiety, depression, and suicidal ideation (Meyer, 2003; Wittlin et al., 2024). Additionally, non-cis-gender individuals often experience rejection from family, friends, and community, leading to social isolation. The absence of supportive relationships and community networks can intensify feelings of loneliness and despair, further impacting mental health (Klinger et al., 2024). In terms of employment, these findings are supported by research which indicates unemployment is inversely associated with mental health regardless of the economic context. As such, unemployed individuals are more vulnerable to mood disorders due to increased financial stress, loss of structure, social isolation, insecurity, hopelessness, uncertainty, and embarrassment (Arena et al., 2023; Bartelink et al., 2019; Virgolino, 2022).

Surprisingly, those who had experiences with climate change reported significantly lower levels of depression. This finding contrasts research by Clayton et al. (2017) which suggested that those with direct experiences of climate change were more prone to mood disorders,

specifically depression. An explanation behind this could be that individuals who experience climate events may develop coping mechanisms or a sense of mastery that can buffer against depression (Reser et al., 2012). Reser et al. (2012) found that those who only theorized about climate change, or saw it as a distant global issue, tended to feel more helpless and anxious, contributing to higher depression or eco-anxiety scores. Whereas direct experience with climate change grounded the threat in the here and now, encouraging problem-solving rather than rumination. They also found that media exposure to climate disasters was more likely to induce fear, helplessness, or fatalism, whereas personal experience was more likely to result in adaptive engagement (Reser at al., 2012). As such, exposure may serve to foster action, engagement, and a sense of control as the fear of the unknown decreases, particularly since individuals often tend to imagine things to be worse than they actually are. Furthermore, researchers hypothesize that experiencing climate change may lead to greater engagement in environmental activism or pro-environmental behaviors, which research shows can buffer against eco-anxiety and depression by fostering meaning and purpose (Stanley et al., 2021). Moreover, repeated exposure to environmental stressors might lead to psychological habituation, where individuals emotionally adjust or become desensitized - especially in regions where extreme weather is expected.

Taken together, the results from the stepwise regression model for depression highlight the multifaceted nature of Gen Z's mental health challenges, highlighting the critical role of both generation-specific stressors and psychosocial factors. While predictors such as social isolation, financial anxiety, eco-anxiety, excessive internet use, and non-cis-gender identities were associated with elevated depressive symptoms, protective factors like social support and employment status appeared to mitigate these effects.

Predictors for Anxiety

In the stepwise regression model for anxiety, several generation-specific stressors and social factors emerged as significant predictors. Financial anxiety once again surfaced as a strong predictor, explaining approximately 25% of the total variance in anxiety scores ($f^2 = 0.25$), reinforcing previous findings that financial stress significantly elevates anxiety symptoms, particularly in student populations (Archuleta et al., 2013; Eisenberg et al., 2007). These findings are supported by literature noting that 43% of Gen Z participants reported feeling financially insecure or "behind" in their financial lives (Brigham, 2025). This trend also aligns with research indicating that poor financial circumstances create high levels of anxiety and negatively affect financial behaviour, academic progress, and overall health (Bennett et al., 2015; Potter et al., 2020). Like depression, social isolation was a significant predictor of anxiety, supporting research that loneliness amplifies general anxiety, especially among Gen Z (Beutel et al., 2017; Cigna, 2020). This is further supported by Pietrabissa and Simpson (2020), who found that prolonged social isolation, characterized by reduced connections and contact, increases the likelihood of developing anxiety symptoms. Eco-anxiety was also a significant contributor, consistent with Kurth and Pihkala's (2022) research showing that individuals anxious about climate change report heightened fear, nervousness, and distress. AI anxiety significantly predicted anxiety levels as well, aligning with Wang and Wang (2022), who found that fear of job automation and replacement exacerbates stress and worry in younger individuals.

In contrast to the depression model, perceived social support was not a significant predictor in the anxiety model, suggesting that social support may be less directly related to the symptoms of anxiety. Researchers hypothesize that the future-oriented fear and hypervigilant nature of anxiety can persist even in the presence of support, decreasing the buffering effects of

support networks. These findings are also consistent with literature showing that social support tends to have greater mediating effects for depression than for anxiety (Acoba, 2024; Tannous-Haddad, 2024; Yu & Zhang, 2025). Moreover, increased internet use was not a significant predictor of anxiety, which may be attributed to the type of content participants engage with. For instance, some studies suggest that purposeful or socially supportive online activity may not increase anxiety and can even serve as a coping mechanism (Gao et al., 2020; Prizant-Passal et al., 2016). Moreover, individual differences such as emotion regulation ability and resilience may moderate the relationship between internet use and anxiety symptoms (Elhai et al., 2017).

Interestingly, participants who reported a current or past mental health diagnosis had lower anxiety scores. This may reflect greater mental health literacy or access to treatment (e.g., psychotherapy or medication), both of which can serve as protective factors (Cuijpers, 2014). Individuals with chronic anxiety may also become desensitized to symptoms, develop effective coping strategies, or underreport severity due to familiarity (Craske et al., 2009). Similar to climate change, it is possible that having previously navigated a mental health diagnosis fosters a form of resilience, where lived experience teaches individuals that they can endure and manage distressing circumstances. As a result, individuals may develop stronger coping mechanisms and enhanced emotional regulation, thereby mitigating the impact of new stressors. This aligns with Bandura's (1997) concept of self-efficacy, which posits that successfully overcoming past challenges enhances individuals' belief in their ability to handle future adversity. In this context, lived experience with mental health may act as a protective factor, promoting psychological preparedness when confronting additional sources of distress.

Another explanation behind this finding may lie in the concept of response shifts following a diagnosis. Research by Sprangers and Schwartz (1999) found that once individuals

receive a diagnosis, they often develop a framework for understanding their symptoms, which can alter how they perceive and report distress. As such, a response shift refers to a psychological adjustment in how individuals evaluate the severity of their symptoms, often due to changes in internal standards, values, or conceptualizations (Sprangers & Schwartz, 1999). For example, before diagnosis, someone might interpret physical symptoms such as a racing heart or restlessness as alarming and unexplained. After receiving treatment and psychoeducation, those same symptoms may be viewed as predictable features of an anxiety disorder, which can reduce fear and increase self-efficacy. Individuals may also feel more in control, particularly if they receive therapy or acquire management skills. As a result, those with diagnoses may subjectively report lower anxiety even if some symptoms persist (Sprangers & Schwartz, 1999).

In summary, the anxiety model reinforces growing evidence that generation-specific stressors, particularly financial, climate, and AI-related anxieties, along with social isolation, are significant predictors of anxiety symptoms among Gen Z post-secondary students.

Predictors for Stress

The stepwise regression model predicting stress mirrored the anxiety model in many respects, with financial anxiety and social isolation again standing out as the strongest predictors. Financial anxiety explained approximately 30% ($f^2 = 0.30$) and social isolation explained approximately 14% ($f^2 = 0.14$) of the total variance in stress scores. This aligns with research by Beutel et al. (2017), who found that social disconnection is a primary driver of perceived stress and emotional dysregulation in youth. Similarly to the depression and anxiety models, finance-related concerns increased levels of stress (Archuleta et al., 2013). These findings are also supported by research by Davis and Mantler (2004), who found that financial stress makes people vulnerable to serious psychological illnesses that carry considerable emotional,

motivational, cognitive, and neurological changes. Furthermore, unlike the many other stressors students experience over the course of their adult life, financial stress is unique due to its private nature (Davis & Mantler, 2004). Students under financial stress are often ashamed to admit their problem and ultimately delay seeking assistance and support (Davis & Mantler, 2004). Furthermore, AI anxiety was a significant predictor of elevated stress, echoing findings that fears about employment loss and learning challenges associated with AI may lead to chronic uncertainty and stress responses (Dai et al., 2020; Wang et al., 2022). Eco-anxiety also predicted increased stress consistent with Hickman et al. (2021), who found that persistent concern over climate change can manifest as psychological stress.

Similar to the anxiety model, those with a recent or current mental health diagnosis reported slightly lower stress, suggesting that mental health treatment or awareness may help students manage distress more effectively. Additionally, social support and media use were not significant predictors of stress, similar to the model for anxiety. The anxiety and stress models demonstrated a high degree of overlap in their significant predictors, suggesting that the psychological mechanisms underlying general anxiety and perceived stress in Gen Z may stem from similar sources. In both models, financial anxiety and social isolation were among the most powerful predictors, highlighting that financial insecurity and disconnection from others are central drivers of psychological distress in this cohort (Archuleta et al., 2013; Beutel et al., 2017). This pattern also aligns with previous research showing that chronic exposure to societal-level stressors can lead to both persistent worry (i.e., anxiety) and feelings of overload or helplessness (i.e., stress), particularly in younger populations facing uncertain futures (Hickman et al., 2021; Twenge & Campbell, 2019). The convergence of predictors in these two models suggests that Gen Z's anxiety and stress are driven by a common set of generation-specific

pressures that elicit psychological distress. Additionally, research shows that stress and anxiety are highly correlated - chronic stress can often lead to the development of anxiety disorders, and anxiety can increase perceived stress, creating a feedback loop (McEwen, 2004). Physiologically, both also have shared symptoms such as increased heart rate, muscle tension, and restlessness (Juruena et al., 2020). Additionally, research by Juruena et al. (2020) found that higher perceived stress predicted greater anxiety symptoms over time in young adults. Moreover, Selye's (1974) work on stress suggests that when individuals view a stressor as overwhelming or uncontrollable, anxiety is a likely psychological outcome.

In summary, the stress model reinforces patterns found in the anxiety model, pointing to a consistent set of generational stressors that underlie poor mental health. Financial strain and social isolation appear to be central to Gen Z's experience of both stress and anxiety.

Effects of Moderators

The null findings in the moderation analyses were surprising. Awareness, media consumption, social isolation, and social support did not significantly moderate the relationships between the independent variables and mental health outcomes. This might suggest that generation-specific anxieties exert a strong and direct influence on psychological well-being regardless of these context-dependent conditions.

Alternatively, the measures used to assess moderators may have lacked the sensitivity or specificity needed to detect complex interactions. Although several of the moderating variables (e.g., social isolation, social support, and media consumption) were significant independent predictors of mental health outcomes, their interaction effects were not strong. This may be due to a theoretical mismatch, where these variables influence mental health directly but do not necessarily alter the strength or direction of the relationship between generation-specific

anxieties and outcomes. As Frazier et al. (2004) note, not all psychosocial variables function as true moderators, and attempting to model interactions without a clear theoretical rationale often results in weak or non-significant moderation effects. Therefore, their role in this study may be better understood as additive rather than interactive.

Research Question Three: How Do Post-Secondary Students Perceive Climate Change, AI, And Financial Concerns as Contributing Factors to the High Rates of Depression and Anxiety in Gen Z?

As part of the qualitative analysis, participants in this study were asked what concerns them the most about climate change, AI, and their financial future. Lastly, participants were also prompted to reflect on what they believed were contributing factors to the high rates of depression and anxiety in Gen Z.

Climate Change Concerns

Findings revealed several concerns about the climate change crisis, which for many participants generated feelings of grief, powerlessness, and anticipatory devastation. For many, eco-anxiety was not just about rising temperatures but symbolized the collapse of ecosystems they depended on and a future they increasingly feared might not exist. Several of the categories found are well-supported by current research on climate-related psychological impacts.

The most dominant category concerned the increasing severity and unpredictability of extreme weather events, such as floods, wildfires, and heatwaves. Participants expressed alarm at the intensifying frequency of these events and the direct threat they pose to human health, property, and community stability. Similarly, participants expressed grief about the loss of wildlife, including animals, national parks, and ecosystems. These categories align with findings by Clayton (2020) and Hickman et al. (2021), who noted that uncontrollable and destructive

environmental events often elicit feelings of helplessness, anxiety, and trauma, particularly among young people. Many participants' responses also reflected experiences of solastalgia, a term coined by Albrecht (2005) to describe the distress people feel when their familiar environment becomes irreversibly altered. The loss of once-thriving ecosystems, melting glaciers, and destroyed habitats was not just viewed as environmental degradation, but also articulated through emotionally charged language that suggested personal loss and grief.

Another prevalent category was around climate change's impact on future generations. Many participants expressed anguish about the world they may leave behind for their children or the moral implications of having children at all, which is well-supported by recent literature on eco-anxiety (Kelly, 2017; Nairn, 2019; Pihkala, 2020). Some also described hesitation in building families due to concerns about environmental instability. This aligns with recent findings that those affected by eco-anxiety report fearing for themselves, their children, and future generations with deep feelings of loss, hopelessness, and anger as they witness the effects of climate change (Coffey et al., 2021; Usher, 2019). Additionally, a lack of ecological stability can impact one’s sense of security, resulting in the grief and mourning of a lost future (Wray, 2023). This category is also supported by literature that shows that a large number of young adults report being concerned about the future well-being of their child, hypothetical or existing (Wray, 2023). Research also shows that choosing not to have children due to climate concerns may feel like a compulsory sacrifice of a core life goal, which can cause feelings of loss, sadness, and identity disruption; this perceived loss of a future family can affect self-concept, life satisfaction, and long-term emotional well-being (Schneider-Mayerson & Leong, 2020).

Other central categories, such as inaction from powerful entities and lack of power to effect change, can be significant predictors of poor mental health outcomes. When individuals

feel their actions are ineffective in driving meaningful change, especially in the face of large-scale global issues, they may experience learned helplessness, which is a psychological state linked to depression and apathy (Seligman, 1975; Alloy et al., 1984). Witnessing injustice (e.g., corporate greenwashing or governmental inaction) can trigger moral injury or distress, causing emotional suffering that arises when one's core values are violated by systemic failure which is known to be associated with anxiety, anger, and depression (Litz et al., 2009; Wray, 2023). Additionally, prolonged exposure to climate-related concerns without perceived progress or institutional support can lead to activism burnout, which is a state of emotional exhaustion, detachment, and diminished sense of accomplishment, all of which are associated with depressive symptoms (Chen & Gorski, 2015).

Furthermore, the prospect of large-scale environmental collapse or the possibility of uninhabitable regions due to climate change may lead to existential depression, particularly among youth who perceive their future as fundamentally compromised. Unlike clinical depression, existential depression is rooted in a loss of meaning, purpose, and hope for the future (Yalom, 1980). For many young people, the idea that the Earth may no longer be habitable weakens their motivation to plan, build a life, or pursue long-term goals (Pihkala, 2022). This type of psychological distress often involves feelings of apathy, futility, and emotional paralysis (Yalom, 1980), which is further compounded by repeated exposure to catastrophic climate narratives in the media (Pihkala, 2022).

AI-Related Concerns

AI-related concerns were found to be multifaceted. Among all categories, concerns around job displacement due to AI emerged the most. Participants expressed fears that AI would replace human labour across multiple industries, making competition for employment more

intense. These categories align with findings from Wang and Wang (2022), who found that perceived unemployment caused by AI significantly contributes to worker anxiety and uncertainty. Moreover, replacement by automation can also lead to a significant loss of meaning for workers (Wang & Wang, 2022). Many participants worried they would struggle to find meaningful or secure employment in a labour market shaped by rapid automation, even with education and qualifications. Therefore, these findings support the idea that uncertainty of the future, prospective unemployment, and poor job prospects significantly contribute to the anxiety around AI (Li & Huang, 2020; Manyika et al., 2017). Beyond personal employment concerns, many participants also highlighted how AI might exacerbate societal inequalities.

Several participants believed that AI would reinforce existing power structures, allowing those with access to AI resources to benefit disproportionately while marginalizing vulnerable populations. These findings support Wang and Wang's (2022) concept of sociotechnical blindness. Sociotechnical blindness refers to the lack of understanding of how AI systems are shaped by human decisions, values, and power (Wang & Wang, 2022). People often view AI as neutral or purely technical; however, AI is designed and used by humans, making it vulnerable to human biases and judgement. When people are ‘blind’ to this, they might trust AI too much or fail to question who benefits and who is harmed by it. For example, consider a criminal justice system that uses an AI-based risk assessment tool to determine sentencing or parole decisions. If this tool was trained on historical data that reflects past biases, such as over-policing in marginalized communities, it might overestimate the risk associated with individuals from those backgrounds. As a result, these individuals could receive disproportionately harsh sentences or be denied parole more frequently, perpetuating racial disparities in the justice system. As such, because people do not always understand how these systems work or who controls them,

sociotechnical blindness can allow inequality to persist and grow. Consequently, as AI systems reinforce existing power imbalances, those affected may not have the knowledge or tools to speak up or challenge them. In the results, several participants expressed anxiety around this and feared that AI technologies would make things less fair, especially for people who are already disadvantaged. These sentiments reflect the growing understanding that social inequity can have profound negative effects on mental health, leading to symptoms of chronic stress, anxiety, depression, and low self-efficacy (Blustein et al., 2019; Kawachi & Subramanian, 2014).

Another major category of concerns related to the ethical development and misuse of AI. Participants voiced anxiety about deepfakes, misinformation, and the potential for AI to be weaponized in personal, political, or criminal contexts. These responses also revealed a deeper fear of losing collective control over AI's development, with some respondents suggesting that technology could eventually evolve beyond human regulation. Feeling powerless in the face of uncertain or uncontrollable situations can increase anxiety and depression, as shown by research on how people react to unpredictable and uncontrollable stressors (Grupe & Nitschke, 2013; Maier & Seligman, 2016). Participants also spoke at length about their inability to differentiate between human and AI content. Concerns about misinformation, manipulated images, and fake news were common. These findings align with research showing that exposure to misinformation, especially ones that rely on exaggerated or fear-inducing claims, can cause emotional dysregulation, panic, and even symptoms of trauma, particularly when misinformation relates to existential threats like pandemics, climate change, war, or AI (Best, 2021; Pennycook & Rand, 2021). Additionally, the emotional and cognitive overload of constantly navigating an AI-driven media environment, whereby individuals are expected to verify and critically assess large volumes of content, can lead to decision fatigue and mental exhaustion. This is especially

true for chronically online youth exposed to rapid information cycles (Bawden & Robinson, 2009; Montag et al., 2021; Frison & Eggermont, 2020).

In addition to structural and ethical concerns, many participants feared that society's increasing reliance on AI would negatively impact human skills such as creativity, reasoning, and originality. Several described how the normalization of AI in education and the workplace weakened critical thinking, creating a culture of dependency where people are encouraged to "choose the easy option" rather than engage in meaningful cognitive effort. When individuals feel that their creativity or intellect is undervalued, or when automation removes the opportunity for meaningful engagement, they may experience diminished motivation and symptoms of depression (Mirbabaie et al., 2021; Wang & Wang, 2022). These concerns are consistent with theories of self-determination, which suggest that autonomy, competence, and relatedness are essential for psychological well-being (Ryan & Deci, 2000). Self-determination theory states that when autonomy, competence, and relatedness needs are not supported (e.g., in work, education, or relationships), people are less likely to feel motivated, engaged, and mentally healthy, leading to experiences of anxiety, disengagement, or depression (Ryan & Deci, 2000). As such, if AI replaces meaningful and creative tasks or encourages passivity, it may reduce autonomy and competence. Additionally, if AI isolates people or replaces human interaction, it may reduce relatedness. Recent literature also supports these findings, showing that AI's impact on autonomy, competence, and relatedness can significantly influence mental well-being (Galindo-Domínguez et al., 2025; Xia et al., 2022). Similarly, another central category was the learning challenges associated with AI. AI is often seen as superior to human learning due to its ability to outperform highly skilled individuals in thinking tasks (Li & Huang, 2020). As such, because AI is perceived as complex and therefore challenging, the perceived difficulty of

learning this technology generates anxiety (Li & Huang, 2020; Wang & Wang, 2022). These findings also align with self-determination theory, since learning challenges may impact an individual's competency needs.

As such, researchers argue that AI must be designed to support, not replace, human motivation and growth. For example, Calvo et al. (2020) discuss the importance of designing AI systems that support human autonomy, competence, and relatedness to enhance psychological well-being. They emphasize that technology should be developed with these psychological needs in mind to promote positive user experiences (Calvo et al., 2020).

Financial Concerns

Participants' responses indicated concerns about financial security significantly affecting their psychological well-being. A consistent category was the fear of long-term insolvency and financial instability, including being unable to afford basic standards of living. Concerns about student debt, inflation, and the inability to afford housing were particularly distressing. Participants felt they were blocked from major life milestones that previous generations could more readily achieve, such as homeownership or financial independence. These worries are consistent with existing research linking financial strain to heightened levels of depression and anxiety, particularly among emerging adults (Archuleta et al., 2013; Eisenberg et al., 2007). Moreover, financial insecurity has consistently been linked to poor mental health outcomes. Sweet et al. (2013) found that when people owe more than they can comfortably repay, they often feel trapped, ashamed, or anxious about the future. This chronic stress can lead to depression, anxiety, and even suicidal ideation (Sweet et al., 2013). Similarly, Ridley et al. (2020) found a bidirectional relationship between poverty and mental illness, showing that financial insecurity contributes to depression and anxiety and can impair economic decision-

making and earning potential, creating a self-perpetuating cycle. Weida et al. (2020) further emphasized the impact of financial instability on psychological well-being, especially among young adults facing job loss or insecure employment. Their study highlighted that poor financial health, defined by limited savings, debt, and unstable income, is a measurable social determinant of health that predicts increased psychological distress. Together, these findings highlight how financial insecurity can be both a predictor and consequence of poor mental health, particularly under conditions of prolonged uncertainty.

Housing insecurity was also a major category in the results; this finding is well-supported by the literature, which identifies housing affordability as a major psychological stressor, often associated with poor sleep, chronic worry, and a sense of hopelessness (Bentley et al., 2016). Similar trends are evident in recent Canadian surveys that demonstrate housing affordability as a major concern, particularly among renters and lower-income households, with up to 61% of low-income renters expressing high levels of worry (Statistics Canada, 2024). The inability to build a secure future, despite hard work, led many participants to question their self-worth and autonomy, which are core components of psychological well-being (Ryan & Deci, 2000). The cumulative effect of living in an unaffordable economy was linked to a loss of dignity, independence, and peace of mind.

Another prominent contributor to financial anxiety was uncertainty around employment and compensation. Participants worried about finding work post-graduation and wages that would not match the rising cost of living. Many expressed a sense of discouragement and inadequacy, particularly when job opportunities felt out of reach despite their qualifications. This aligns with research showing that job insecurity and underemployment are associated with increased psychological distress, particularly among youth navigating the school-to-work

transition (Blustein et al., 2013; Modini et al., 2016).

Debt was also a dominant source of stress, especially student loans. Participants feared that the burden of long-term debt would delay or prevent key life transitions, such as moving out, starting a family, or saving for retirement. The anticipatory need to rely on parents during the transition to adulthood led to feelings of guilt, burden, and inadequacy. Many participants also expressed fears that they would be unable to financially support their families; this aligns with research that states when individuals feel unable to support loved ones, they are prone to emotional exhaustion and symptoms of anxiety (Asadi et al., 2024). These delays in traditional markers of adulthood can result in feelings of instability, anxiety, and depression (Arnett, 2000). Similarly, Cook et al. (2024) found that delayed transitions from adolescence to adulthood (e.g., still living with parents, unemployment, marriage) were significantly associated with higher depression and anxiety scores. The uncertainty about when or if independence will be possible can impact self-efficacy, reinforce depressive rumination, and foster feelings of being left behind in comparison to others (Arnett et al., 2014). Additionally, research shows that when debt can lead to internalized shame, guilt, and reduced self-esteem, all of which are known predictors of both anxiety and depression (Sweet et al., 2013).

Participants also frequently expressed the impact of financial insecurity on their perceived quality of life. Many described how ongoing financial strain diminished their ability to enjoy life beyond survival, limiting opportunities for leisure, hobbies, travel, and social engagement. This shift from living to surviving on a day-to-day basis reflects what some researchers describe as a restricted life agency, where financial hardship can impact cognitive functioning and constricts an individual's capacity to make thorough decisions or pursue fulfilling experiences (Haushofer & Fehr, 2014). When financial barriers prevent individuals

from participating in joyful or growth-oriented activities, it can lead to emotional stagnation, anhedonia, and reduced motivation, all of which are core symptoms of depression (APA, 2013). Additionally, these findings are supported by self-discrepancy theory in the literature, which explains that discrepancies between one's actual self and ideal self can result in emotional vulnerabilities (Mason et al., 2019). For instance, a gap between one's actual achievements and personal ideals may lead to disappointment and dissatisfaction, potentially contributing to poor mental health outcomes (Mason et al., 2019). Over time, a gap between desired and actual living conditions can impact self-worth, reinforce feelings of inadequacy, and perpetuate a cycle of anxiety and hopelessness (Mason et al., 2019; Sweet et al., 2013).

Participant Perceptions of Contributing Factors to High Rates of Depression and Anxiety

In the quantitative analysis, financial anxiety showed one of the most significant effects on mental health outcomes, predicting elevated depression, anxiety, and stress levels. Similarly, in the qualitative analysis, many participants explicitly identified financial stressors (debt, cost of living, job insecurity) as their most pressing concern, often describing a constant fear of not meeting basic needs or future goals. Across responses, participants described an ongoing financial insecurity shaped by unaffordable housing, rising inflation, unstable employment, and student debt. Many expressed that financial insecurity consumed so much of their attention and energy that other existential threats, such as climate change or AI, felt secondary. This reflects what researchers describe as survival-based cognition, where chronic financial stress constrains emotional and cognitive resources, leading to hypervigilance, depressive thinking, and reduced planning capacity (Haushofer & Fehr, 2014). Participants' comments illustrated how this financial instability impacted their sense of future orientation, agency, and independence, vital components of positive mental health. As observed in earlier literature, when young adults

perceive their financial future as out of reach, even with hard work or education, they are at increased risk for symptoms of depression and anxiety (Archuleta et al., 2013; Sweet et al., 2013). This financial strain also intersected with broader systemic critiques, as many participants believed Gen Z had been dealt a weaker hand than previous generations, exacerbating feelings of generational injustice and social frustration.

The finding that financial anxiety was the most frequently cited concern among Gen Z is consistent with Maslow's hierarchy of needs (Maslow, 1943), which states that human motivation is driven by a progressive fulfillment of needs. It is important to acknowledge that Maslow developed this theory while living with the Blackfoot people in the early 1930s, and some of its foundational ideas were informed by their worldview and ways of being. As highlighted by Feigenbaum and Smith (2020), recognizing these Indigenous contributions aligns with efforts toward reconciliation and ethical scholarship.

In this hierarchy, needs begin with physiological necessities (e.g., food, shelter) and safety (e.g., stability, employment). In Maslow's framework, when these foundational needs are unmet, individuals are psychologically unable to focus on higher-level goals such as love, belonging, self-esteem, or purpose. For Gen Z, many of whom are facing rising housing costs, stagnant wages, student debt, and job insecurity, the pursuit of stability has become an all-consuming task. Participants described feeling stuck in a survival mentality, unable to plan for the future or engage in meaningful life activities. This is also consistent with Tay and Diener's (2011) study that unmet physiological and safety needs are most strongly associated with reduced life satisfaction and increased psychological distress. As such, unmet needs produce a sense of chronic vigilance, wherein individuals are mentally preoccupied with affording groceries, rent, or loan payments, which Haushofer and Fehr (2014) described as the cognitive

burden of poverty. As participants noted, when you cannot afford to meet basic needs, concerns about broader issues like climate change or AI feel secondary, not because they matter less, but because survival demands immediate attention.

Another major category was the psychological toll of social media, increased exposure to global crises, and social isolation. The prominence of social factors in the findings is consistent with broader research on Gen Z's mental health. Prior studies have repeatedly identified Gen Z as potentially the loneliest generation, reporting higher loneliness and social isolation levels than older cohorts (Cigna, 2020). Although Gen Z is the most digitally connected generation in history, participants described a lack of meaningful interactions and poor social networks. Even as they remained online, participants reported feeling more disconnected, pressured, and overwhelmed than ever. Digital communication often lacks the depth, warmth, and nonverbal cues needed to foster genuine emotional closeness. As a result, young people may find themselves surrounded by online acquaintances but lacking real-life confidants, intensifying feelings of disconnection (Kamal, 2024; OnSide Youth, 2024; Primack et al., 2024; Riehm et al., 2020). Research also suggests that loneliness is a significant predictor of both depression and anxiety in adolescents and emerging adults (Beutel et al., 2017; Pietrabissa & Simpson, 2020). Social isolation has also been linked to increased stress responses, poor sleep, and reduced emotional resilience (Cacioppo & Cacioppo, 2014), all of which can compound existing mental health vulnerabilities.

Social media often magnified these feelings, which participants viewed as a catalyst for perfectionism, comparison, and low self-worth. Many participants emphasized the psychological toll of constant comparison, curated lifestyles, and the pressure to perform online. This mirrors a growing body of research suggesting that social media intensifies social comparison, which is

strongly associated with increased depressive symptoms, lower self-esteem, and anxiety, especially among youth (Twenge & Campbell, 2018; Huang, 2017). Platforms like Instagram and TikTok create an environment where individuals are regularly exposed to highly filtered and idealized portrayals of others' lives. Over time, this can distort users' perceptions of what is 'normal' and reinforce feelings of inadequacy or failure. As one participant described, "It's impossible to feel good about yourself when you're always seeing people doing better than you," capturing the sense of being constantly outperformed or left behind.

More recently, Haidt (2024) argues that the widespread adoption of smartphones and social media during early adolescence has fundamentally reshaped the developmental environment of Gen Z, leading to a significant decline in mental health. As young people increasingly replaced in-person interaction with digital engagement, opportunities for emotional regulation, social learning, and resilience-building diminished. Haidt (2024) emphasizes that this phone-based childhood disrupted critical developmental milestones, fostering heightened self-monitoring, exposure to cyberbullying, and chronic social comparison. The result is a generation experiencing record-high rates of anxiety, depression, and loneliness. Moreover, the curated and performative nature of online platforms often intensifies feelings of social disconnection, even as users remain constantly connected. Haidt (2024) suggests that this paradox, being digitally connected but emotionally isolated, has created a psychosocial environment in which Gen Z is more vulnerable to internalizing disorders, especially when compounded by other systemic stressors.

Additionally, Haidt (2024) highlights how depression and anxiety can spread through online peer networks via social contagion. Social contagion refers to the process by which emotions, behaviours, or beliefs spread from person to person, especially within close social

networks or online communities. Online, this means that people exposed to others' emotions or reactions may "catch" or mimic those feelings without fully realizing it. Social contagion can happen through direct interaction, media, or even watching videos of people expressing certain moods or fears. This is true particularly on platforms like TikTok and Instagram, where mental health struggles are frequently shared and normalized (Haidt, 2024). Haidt (2024) states that constant exposure can amplify individuals' perceptions of threat and distress, especially when it reinforces fear-based narratives around climate change, AI, or financial insecurity. Consequently, social media environments not only reflect anxieties but can also intensify and propagate them within Gen Z communities. Furthermore, participants also referenced compassion fatigue and emotional exhaustion from constant exposure to global crises. The sense of being perpetually aware yet unable to intervene creates a form of distress in which Gen Z internalizes global traumas without having tools for resolution, contributing to psychological overwhelm and emotional fatigue (Andrews & Hoggett, 2019; Hickman et al., 2021).

Beyond finances, participants expressed distress rooted in climate anxiety, AI uncertainty, and global instability. Many expressed fear that the future of the planet was in jeopardy and that their efforts might be rendered futile. This aligns with mounting research showing that Gen Z experiences disproportionately high levels of eco-anxiety and AI anxiety, which has been associated with hopelessness, chronic stress, and disconnection from traditional life goals (Clayton & Karazsia, 2020; Hickman et al., 2021; Li & Huang, 2020; Wang & Wang, 2022). Participants also reported feeling overwhelmed by continuous exposure to global conflict. This finding aligns with research that exposure to media without any social contextualization can serve to enhance fear in Gen Z, resulting in heightened anxiety and depression overtime (Best, 2021). Additionally, Pe’er & Slone (2022) found that greater media exposure to global conflict

was directly associated with increased psychological distress and post-traumatic symptoms. The convergence of climate fears, AI anxiety, and political helplessness illustrates how Gen Z is navigating a uniquely globalized set of existential threats, many of which feel well beyond individual control.

Lastly, participants noted a stark disconnect between how Gen Z perceives the world and how older generations, including parents, educators, and political leaders, respond to their concerns. Many described feeling dismissed, invalidated, or misunderstood, particularly when voicing fears about climate change, AI, financial insecurity, or mental health. This perceived lack of empathy contributed to emotional alienation, with participants expressing frustration that older generations failed to grasp the unprecedented scale and complexity of challenges Gen Z faces. These findings reflect broader research indicating that emotional invalidation can increase the risk of anxiety, depression, and self-doubt, especially during emerging adulthood when identity and autonomy are still developing (Arnett, 2000; Westphal et al., 2016). One participant summarized this experience by saying, "We're constantly told our problems aren't real or that we're just being dramatic," highlighting the emotional toll of not being taken seriously. In addition to feeling dismissed, participants also reported intense pressure from older generations to succeed despite being handed fewer resources and less stability. Many described being held to high academic, financial, and personal standards, while simultaneously lacking the support systems that made those goals achievable in prior generations. These findings are well-supported by research that indicates that pressure and unmet expectations contribute to chronic stress, self-criticism, and burnout (Culatta & Clay-Warner, 2021). Participants expressed frustration at being tasked with solving global crises while being labelled as lazy or entitled. This reflects research that Gen Z is simultaneously infantilized and criticized for not doing enough while being asked

to do everything despite a lack of change in structures (Wray, 2023). As such, expectations and pressure, combined with emotional invalidation, are powerful drivers of anxiety and depression, as young people feel both unsupported and excessively responsible for fixing systemic problems they did not create (Wray, 2023).

Although each domain emerged as a distinct category, participants' responses revealed how deeply interconnected their concerns are. Financial pressure did not exist on its own, it shaped fears about the future, strained relationships, and made the transition to adulthood more difficult. Climate change triggered fear, grief, and a sense of betrayal from institutions and older generations. AI increased anxieties about job and financial security, contributed to social isolation, and intensified the loss of human creativity and critical thinking. Meanwhile, social isolation and social media were linked to higher stress and anxiety, driven by constant comparison, exposure to global crises, and a lack of meaningful support. As participants mentioned, "…a combination of climate change, AI, and the financial situation. They just create such a bleak and hopeless vision of the future that it's practically inevitable that many of us will be depressed and/or anxious." and "…these are all interconnected. Climate change could ruin someone's future (relocation, natural disaster), which causes them to worry about their financial future…AI could replace someone else's job they worked hard towards, which, again, would cause them to worry about their financial future. Certain generative AI are very bad for the environment, which would worry those already depressed about climate change." Together, these findings illustrate that Gen Z's mental health is shaped not only by personal experiences, but by the cumulative pressures of living in an uncertain, hyperconnected, and often unsupportive world. Their experiences of depression, anxiety, and stress appear to be shaped by the interplay of financial, ecological, technological, and social forces, confirming the multidimensional nature

of generation anxiety.

Theoretical Implications

These findings can also be interpreted through the lens of life course theory (LCT; Mortimer & Shanahan, 2003), which was the guiding framework for this thesis. LCT posits that the unique historical and social conditions experienced by a generation, especially during its formative years, have long-lasting effects on their life outcomes and well-being. Recent trends suggested that Gen Z's life course is marked by financial instability, rapid technological change, and an escalating climate crisis. As such, the results of this study support that theoretical perspective; generational factors such as climate change, AI, and financial instability were shown to be significant predictors of mental health in Gen Z. Additionally, Harley and Mortimer (2000) found that late transitions to adult statuses, like leaving the parental home, entering marriage, or becoming a parent, have detrimental effects on mental health. Moreover, the young people in their study who experienced multiple transitions in the same year experienced poorer mental health (Harley & Mortimer, 2000). Thus, Mortimer and Shanahan (2003) state that these differential experiences in the transition to adulthood can help to explain some of the differences in mental health. As such, LCT is well-supported by the findings from this study, as many participants expressed concerns about transitioning into adulthood and reaching major life milestones. Additionally, the results of this study show that many Gen Z participants are navigating multiple high-stakes transitions, such as post-secondary education, seeking and securing employment, managing finances, and facing global crises like climate change and AI. These overlapping pressures likely contribute to higher rates of anxiety, stress, and depression.

Furthermore, LCT stated that because lives are interconnected, individuals are affected by larger social changes through the impact of such changes on their interpersonal contexts within more micro-level settings (Mortimer & Shanahan, 2003). LCT aligns with the findings of

this study as large-scale societal forces, such as climate change, AI, and financial instability, significantly affected Gen Z's interpersonal relationships. For example, many participants expressed how financial stress impacted their relationships, independence, and ability to build a future with others. Similarly, eco-anxiety was often discussed in terms of its effect on family planning, trust in older generations, and a sense of collective grief over environmental loss. The impact of AI and technological change was also described in terms of how it would alter human connection, learning, and creativity. Social media and social isolation further reflected how global digital systems reshape even the most intimate social interactions.

Overall, this study supports LCT by demonstrating that Gen Z's mental health is strongly shaped by the world they are growing up in. Global issues like climate change, AI, and financial stress are not just background noise; they affect how young people feel, how they relate to others, and how they plan their futures. Many are simultaneously dealing with major life changes while facing global problems that make those changes even harder. The results of this study thus show that the challenges of this generation are unique and have significant effects on their mental well-being.

Lastly, the results of this study support Barlow's (2004) notion of anxiety as a future-oriented state of distress arising from perceived unpredictability and uncontrollability. This also aligns with the concept of existential anxiety explored in this thesis. Existential anxiety is a form of psychological distress rooted in concerns about meaning, mortality, uncertainty, and the future, and is often triggered by major life events or large-scale global transitions (Yalom, 1980). Each form of generation anxiety studied here, eco-, AI-, and financial, shares these features, reinforcing the conceptualization of these stressors as forms of chronic, systemic anxiety with concrete mental health consequences.

Limitations

While this study provides a novel exploration of generation anxiety among Gen Z post-secondary students, the findings must be interpreted in light of several limitations. First, because the study focused on post-secondary students within a specific context, its generalizability to broader populations is limited. The sample of 586 Gen Z students predominantly identified as women (about 68%) and white (about 56%); consequently, the findings may not fully represent the broader generational cohort. For instance, research has found that students of colour are more vulnerable to financial anxiety than their counterparts (Archuleta et al., 2013). Given the sample's demographic composition, the experiences of BIPOC Gen Zs may not have been adequately captured. Additionally, Gen Zs not attending university or those in different cultural or geographic settings could experience these anxieties differently. Thus, caution should be exercised when extending these conclusions beyond similar student populations. Furthermore, the heavy representation of post-secondary students means that issues like financial anxiety might be particularly pronounced, as this population is likely dealing with factors such as student debt, first-time financial management, and transitions into financial independence. Additionally, post-secondary students with higher levels of education may have increased awareness, which has shown to increase levels of psychological distress (Clayton, 2020). Overall, the sample's relative homogeneity may constrain the applicability of these findings to the wider Gen Z population.

A second limitation is that all data on eco-, AI-, and financial anxiety, as well as mental health outcomes, were collected via self-report questionnaires, which can introduce potential bias, inaccuracies, or exaggerations. Although each eco-, AI, financial anxiety, depression symptoms, anxiety symptoms, and stress symptoms were measured using psychometrically

robust scales and participation was voluntary, there may still be confounding influences such as social desirability bias. Social desirability bias refers to participants' tendency to choose responses that are more socially acceptable or viewed favourably by others, rather than responses that reflect their true thoughts or feelings (American Psychological Association, n.d.). For example, some participants might underreport mental health symptoms due to stigma or overreport their anxieties based on transient mood states. Another relevant bias is voluntary response bias; students with strong opinions about these issues may have been more likely to participate, leading to an under-coverage of others less engaged with the study topic. This concern is particularly relevant given the use of convenience sampling (Embretson & Hershberger, 1999).

Moreover, since all measures were self-administered at a single time point, the study may be affected by common method variance (CMV; Podsakoff et al., 2003). CMV refers to the artificial inflation or deflation of correlations between variables due to the measurement method rather than true relationships among the constructs (Podsakoff et al., 2003). This often occurs in self-report surveys where the same participant answers all questions at once and where items share similarities in format, wording, or response scales. As such, someone reporting high anxiety might also report high stress, not necessarily because the two are intrinsically linked, but due to the participant's current mood or tendency to respond consistently. This complicates interpretation and raises the possibility that some observed associations are artifacts of measurement. Additionally, without any objective or clinical assessments to support the responses, the findings are limited by the honesty and self-awareness of participants. For example, a generally anxious individual may rate all constructs highly, thereby inflating correlations. Reliance solely on self-report data thus warrants cautious interpretation.

A third limitation is the study's cross-sectional design, meaning that all data was collected at a single point in time. Due to the study's cross-section nature, causal inferences cannot be made. Without longitudinal tracking or experimental manipulation, it remains unclear whether eco-anxiety leads to depression or whether individuals with depression are more prone to eco-anxiety. Any language suggesting influence should therefore be considered theoretical, with the observed relationships understood as correlational. Furthermore, the timing of data collection may also be a confounding factor, as recent external events (e.g., climate disasters, AI-related job loss, or economic downturns) could have temporarily heightened participants' responses. Moreover, while the CCAS and AIAS were validated for this study, they are relatively new measures, and debate remains about whether they capture truly distinct constructs versus broader forms of anxiety.

Another limitation of this study is the lack of geographic specificity in the sample data. While participants were post-secondary students based in Canada, the survey did not collect detailed information about their regional location (e.g., province or territory), nor did it assess whether they were from urban, suburban, or rural areas. Additionally, the sample was primarily drawn from a university in southern Alberta, which may limit the generalizability of the findings. This omission limits the ability to examine how regional factors, such as economic conditions, environmental vulnerabilities, or local media influence, may shape experiences of anxiety and depression. Future research should aim to capture geographic diversity and context, as experiences may vary based on location.

Similarly, while participants were asked to report their gender as man, woman, transgender, and non-binary, the analysis combined these into a single dummy variable (cis-gender vs. non-cis-gender). As a result, this approach may overlook meaningful differences

between specific gender identities, and it might have been worthwhile to analyze differences between men and women specifically to explore potential variations in anxiety and mental health outcomes. Future research could examine each gender identity individually to better understand their distinct experiences.

Although several of the moderating variables (e.g., social isolation, social support, and media consumption) were significant independent predictors of mental health outcomes, their interaction effects were not strong. This may be due to a theoretical mismatch, where these variables influence mental health directly but do not necessarily alter the strength or direction of the relationship between generation-specific anxieties and outcomes. The absence of interaction effects may suggest that the models used did not fully account for the complex and dynamic nature of different contextual and structural factors that shape mental health. This may serve to oversimplify the relationships by assuming linear moderation rather than more complex or nonlinear processes. Additionally, the moderator variables may not have captured the full depth of the constructs they were meant to represent. For example, awareness was measured by a single Likert scale item, which may not encompass the complexity of a person's knowledge, engagement, or emotional investment in climate change, AI, or financial issues.

Lastly, another limitation relates to the process of category development in the qualitative analysis. The act of coding brief, open-ended responses and organizing them into categories may have introduced the risk of overinterpretation or imposition of meaning that was not explicitly stated by participants. The brevity of participant input limited opportunities for clarification or elaboration, which may have affected the depth of description. However, efforts were made to preserve the authenticity of participants' views by using a qualitative descriptive approach, which emphasizes low inference and remaining close to the data (Sandelowski, 2000, 2010).

While the grouping of codes into descriptive categories involved some level of researcher decision-making, this process was guided by clear analytic procedures and frequent consultation with relevant literature and committee feedback to enhance rigour and transparency. Rather than aiming for theoretical interpretation, the goal was to summarize patterns in the data in plain, participant-informed terms, consistent with qualitative description. As such, the risk of overinterpretation was actively mitigated through methodological alignment and iteration throughout the analysis process.

Future Directions

Future studies should aim for more diverse and representative samples of Gen Z, extending beyond post-secondary settings. This sample may include Gen Z in the workforce or those who are neither employed nor in school to determine whether the findings hold consistently. A broader demographic sample, encompassing different countries, cultures, ethnicities, genders, and socioeconomic backgrounds within Gen Z, will help researchers ascertain if the findings are universal or specific to the sample. For example, comparing university students with non-students could reveal whether financial anxiety is higher among those with different financial responsibilities or if AI anxiety is more modest for those already in high-tech jobs. Additionally, cross-cultural research would be valuable as Gen Zs in other parts of the world may prioritize different anxieties. For instance, political instability or public health threats might rank higher for Gen Zs in specific regions. Expanding beyond the relatively homogeneous sample in this study will enhance generalizability and provide a richer understanding of Gen Z's mental health across varied contexts. Additionally, future studies could include other youth demographics, such as high school students, to see if similar patterns hold, as Gen Z anxieties may begin before university. For example, even high school–aged Gen Zs

reported significant stress about societal issues; 58% cited climate change as a major stressor, and 77% identified work as a top stressor (APA, 2021). Therefore, expanding the sample to younger adolescents could reveal developmental or contextual differences in how eco-, AI-, and financial anxieties manifest.

Future research could employ longitudinal designs to follow Gen Z participants over time and investigate causality. A longitudinal study could track levels of eco-, AI, financial anxiety, and mental health outcomes over several years to explore how these factors influence each other. For example, does increasing eco-anxiety predict increases in depression one year later? Or do changes in financial situations, such as graduation and securing a job, improve mental health outcomes? The collection of such data would clarify the directionality of effects. Additionally, research could investigate cause-and-effect relationships between variables by introducing and assessing specific interventions. For example, an intervention could involve providing a subset of participants with a financial literacy or coping skills program to see if reducing financial anxiety leads to better mental health outcomes, thus strengthening evidence of cause and effect. Thus, moving beyond a one-time correlational snapshot will allow future researchers to confirm whether generation anxieties drive mental health changes or if other pathways are at work.

The current study focused on three primary anxieties; however, the findings demonstrate that Gen Z's experience is multifaceted. Future research should examine other sources of generation-specific anxiety that emerged from our participants' comments and the broader literature. Two clear factors for further exploration are social media and social isolation. These factors, in particular, warrant further investigation, as qualitative findings indicated that social media was believed to be a significant contributor to poor mental health outcomes. Thus, measuring social media anxiety, social isolation, or the mental health toll of constant

connectivity would be valuable. Other areas for future investigation could include performance anxiety due to high academic competition or pandemic-related anxiety, given COVID-19's impact on this generation's late adolescence. By incorporating these factors, future studies can create a more complete picture of the mental health challenges Gen Z faces.

Since this study found that moderators such as social support, recent or current diagnoses, cis-gender identities, and employment significantly impacted mental health outcomes, future work could explore additional potential buffers or coping resources. Exploring buffers and coping resources would be valuable in identifying what helps Gen Zs manage these large-scale stressors. Future studies might investigate factors such as resilience, optimism, mindfulness, physical activity, community engagement, therapy, spirituality, or family support. For example, does having a strong sense of purpose or involvement in activism mitigate the effects of eco-anxiety, ultimately turning anxiety into action? Or does financial literacy and access to financial aid reduce the mental health impact of financial anxiety? Furthermore, future studies can apply an intersectional lens to examine if specific subgroups (e.g., Gen Z from marginalized communities) experience these anxieties differently and what unique supports these subgroups may need. By identifying effective coping strategies or protective factors, research can move toward describing the problem and finding practical solutions.

Because Gen Z's environment is dynamic and constantly evolving, future research should continuously update the knowledge base as circumstances change. For example, the development of AI is rapid, and what is a concern today might become a reality tomorrow. Longitudinal research should monitor whether the intensity or nature of generation anxieties shift over time for Gen Z. For example, will there be a rise in AI anxiety as the technology evolves, or will familiarity with it reduce fear? Will eco-anxiety rise as crises worsen, or will adaptation to

climate change occur? Additionally, individual perspectives on these anxieties may evolve as Gen Z ages into new life stages, such as entering careers or becoming parents. Keeping research up-to-date will ensure that any recommendations for support remain relevant for the current generation of youth, rather than becoming outdated by rapid social changes.

Finally, future research should prioritize the development of validated, multi-item measures for assessing awareness and media consumption related to climate change, AI, and the economy. In the present study, these variables were measured using single-item or unvalidated tools, which may have limited the reliability and sensitivity of the findings. Multi-item, psychometrically sound instruments would allow researchers to capture the nuanced dimensions of awareness, such as perceived relevance, emotional engagement, and understanding of consequences, as well as the quantity, quality, and emotional tone of media consumption. Validated scales would also support more rigorous comparisons across studies and populations. Given the rapidly evolving nature of climate change, AI technologies, and finance-related discourse, future tools should also account for temporal relevance and emerging platforms (e.g., TikTok, Reddit) where Gen Z often encounters these issues. Creating standardized measures will enhance the precision of research and inform the development of interventions tailored to how young people consume information and form beliefs around global challenges.

Implications for Counselling Psychology

University counselling centers and individual therapists play a vital role in responding to the increase in mental health concerns among students nationwide (Kitzrow, 2002). As such, mental health professionals must be prepared to support Gen Z students juggling an unprecedented mix of existential, technological, and financial fears.

Counsellors must recognize that eco-, AI, and financial anxiety can co-occur and

reinforce one another. Rather than treating each concern in isolation, therapy can take an integrative approach that validates these worries while helping Gen Zs build general coping skills. Professionals must work towards helping clients manage distress around uncertainty and treat these anxieties as a rational response to real threats, rather than pathologizing them. Several evidence-based techniques from cognitive-behavioural therapy (CBT), feminist therapy, and trauma therapy approaches can be applied to this context. For example, a study by Baudon and Jachens (2021) found that interventions for eco-anxiety must be centred around fostering inner resilience, such as teaching clients to reframe catastrophic thoughts, finding realistic hope, and differentiating what is within versus outside of their control. They also highlight that therapists must encourage clients to take action, help them find social connections and emotional support by joining groups, and connect clients with nature (Baudon & Jachens, 2021). Therapists can also help Gen Z clients challenge cognitive distortions, such as all-or-nothing thinking (i.e., "we are doomed"), while acknowledging their feelings, which is similar to cognitive-behavioural treatments for other anxieties (Clark & Beck, 2011).

In particular, feminist approaches can help practitioners better understand the challenges Gen Z faces by looking at how gender, age, race, and class all interact to shape their experiences. Feminist theories, specifically intersectionality (Crenshaw, 1991), can help remind us that Gen Z's mental health struggles are often linked to larger social issues, not just personal problems. This approach encourages practitioners to consider how things like discrimination, inequality, and pressure to succeed affect mental well-being. Feminist and relational approaches to therapy also emphasize empathy, connection, and empowerment (Jordan, 2010), which can help young people feel understood and supported. By including this perspective, practitioners can offer care that feels more relevant and respectful to Gen Z clients' real-life experiences.

Furthermore, emotion-focused strategies, such as those processing grief about environmental losses, may prove useful (Baudon & Jachens, 2021; Greenberg, 2004). These approaches can help individuals acknowledge and work through complex emotional responses such as sadness, helplessness, and hopelessness, which may be overlooked in traditional cognitive-based interventions. Therapeutic practices like meaning-making, acceptance-based techniques, and grief work can offer space to validate emotional pain while fostering resilience and adaptive coping (Greenberg, 2004). Overall, counselling should foster a sense of agency in Gen Z in the face of big external problems. Similarly, evidence-based modalities such as Acceptance and Commitment Therapy (ACT) may be beneficial for helping clients sit with uncertainties while living in alignment with their values. ACT can equip clients with mindfulness skills to increase psychological flexibility, allowing them to acknowledge complex thoughts and emotions without being controlled by them. This is especially beneficial when dealing with existential concerns or uncontrollable external stressors, as it encourages clients to stay grounded in purposeful action despite ongoing discomfort (Hayes & Pierson, 2005).

Another important counselling implication is to aid students in moving towards proactive coping. Research on anxiety and depression suggests that action can be a natural treatment for these conditions (Beck, 2010; Clark & Beck, 2011). By encouraging clients to engage in collective or individual actions, such as volunteering, campus sustainability projects, activism, counsellors can transform anxiety into empowerment (Baudon & Jachens, 2021; Beck, 2010). Additionally, counsellors can integrate elements of career counselling when addressing AI or job-related anxiety (McMahon et al., 2005). For example, helping students channel their worry about automation into a concrete plan for skills development or career exploration could help alleviate anxiety around AI.

Likewise, for financial anxiety, counselling professionals should coordinate with financial aid offices and community supports to help Gen Z clients address practical issues, such as budgeting and debt management, alongside providing emotional support. Helping Gen Z clients manage and brainstorm solutions for finances aligns with research demonstrating solution-focused therapeutic approaches to be effective treatment interventions for financial anxiety (Archuleta et al., 2014; Archuleta et al., 2020). Additionally, multidisciplinary approaches are supported by studies that show that students under high financial stress benefit from professional financial counselling, which can mitigate some adverse effects of that stress (Britt et al., 2015). With the client's consent, mental health professionals may refer them to a financial counsellor or financial literacy programs, helping them tackle their challenges from a practical perspective. As such, the goal would be to reduce feelings of helplessness and hopelessness by connecting Gen Z clients to resources and problem-solving strategies.

Counsellors working with Gen Z students must recognize the complex role that social media plays in mental health. While social media can provide community and information, excessive or unfiltered use is linked to heightened anxiety, poor self-esteem, and depressive symptoms (Twenge & Campbell, 2018; Huang, 2017). Additionally, research indicates that passive use (e.g., scrolling) is associated with upward social comparison, reduced well-being, and a sense of inadequacy (Lup et al., 2015; Verduyn et al., 2017). In counselling sessions, practitioners should engage in the following: assess how clients use social media (e.g., duration, purpose, content engagement); explore emotional responses to usage (e.g., feelings of inferiority, fear of missing out); support clients in developing mindful habits, such as limiting passive scrolling or curating their feed to reduce exposure to distressing content; encourage digital detox strategies or boundaries as a form of self-care; and normalize concerns about social comparison

while reinforcing values-based self-worth rather than worth based on appearance, productivity, or financial success portrayed online. Interventions like CBT can help reframe distorted thoughts and poor self-esteem triggered by online content. At the same time, ACT can help clients disengage from harmful thought patterns and reconnect with values.

Furthermore, the study found that social isolation is a powerful predictor of poor mental health. However, qualitative findings suggest that even when social connections exist, they may not buffer distress if youth perceive those around them as dismissive or disconnected from their generation-specific concerns. As such, counselling interventions should focus on increasing social interaction and enhancing perceived support quality. Counsellors can help clients differentiate between quantity and quality of support and identify relationships that feel emotionally validating; use interpersonal and emotion-focused therapy techniques to explore past relational patterns and current barriers to connection; encourage clients to build new, values-based support networks (e.g., joining environmental activism groups for those with eco-anxiety or peer discussions about AI or financial stress); facilitate group therapy sessions or workshops around shared generational concerns which reduce isolation and build collective meaning; and teach communication and assertiveness skills to help clients articulate their emotional needs to family, friends, or partners. With these interventions, counsellors can help improve clients' felt sense of belonging and mutual understanding, which are protective factors against depression and anxiety (Ozbay et al., 2007; Holt-Lunstad et al., 2010).

Counsellors should also be trained in the unique experiences of Gen Z. This generation is likely educated on issues like climate change, technologies, and social justice. Consequently, they often suffer moral injuries and feel betrayed by government and older generations' inaction (Hickman et al., 2021). Therapists working with Gen Z clients should be prepared to discuss

global and societal issues as valid stressors. For example, as AI anxiety grows among young people, counsellors and psychologists may need to address fears about technological displacement and job security. Emerging discourse suggests mixed opinions on whether AI will supplement or replace certain aspects of mental health care, such as digital therapy bots or diagnostic tools (Vaidyam et al., 2019). Mental health professionals may need to develop digital literacy and remain attuned to client concerns around technological change as part of culturally responsive care.

Therapeutic techniques like meaning-making can help students find purpose in addressing these challenges and values-based counselling can align coping strategies with students' core values (e.g., environmental activism or equity) making them effective interventions. Additionally, peer support groups and group counselling interventions could also be useful. For example, group therapy for eco-anxiety, where students can share feelings of eco-grief or uncertainty, can help to reduce isolation. Youth mental health advocates often recommend creating safe spaces for young people to express fears about climate change, AI, or finances to reduce social isolation and increase social support (Stapleton & Jece, 2024). In summary, counselling services should broaden their toolkits by combining conventional anxiety-management skills with content-specific guidance (e.g., career advice, financial coaching) and a big-picture view to understand Gen Z's context. By doing so, counsellors can help Gen Zs feel heard and equipped to handle the unique stressors of their generation.

Implications for Universities and Educators

Post-secondary institutions should consider integrating this study's findings into curriculum design and teaching practices to better support student well-being. Educators can constructively incorporate discussions of the contemporary challenges associated with climate

change, AI, and finances into coursework. For example, curriculum reform might involve adding interdisciplinary courses where students learn about climate change, AI technologies, and personal finance, alongside coping strategies and solution-oriented ventures. By bringing these real-world issues into the classroom, universities acknowledge students' realities and help them practically and emotionally process them.

Given the overwhelming impact of financial anxiety, institutions should incorporate financial literacy education and readily available financial supports for students. Financial education might include mandatory workshops or courses on personal finance, budgeting, and managing student loans so that students feel more equipped to handle their financial futures. Universities could also collaborate with financial experts or use online modules covering budgeting, credit, investing basics, and debt management to improve students' financial confidence. Beyond education, the hope is that schools strengthen financial aid resources, emergency bursaries, and advising to alleviate financial stressors. For example, increasing scholarships, providing on-campus jobs or co-op opportunities, and communicating available financial aid resources on or off campus can reduce uncertainty. If students know their institution is proactively helping them with monetary challenges, it can ease the constant pressure. Financial wellness initiatives can also directly address the significant impacts of financial anxiety identified in this study, potentially improving students' mental health and academic focus.

To tackle AI-related anxiety, educational institutions should implement AI readiness education and career development programs that demystify technology and prepare students for the changing workforce, such as updating curricula to include content on how AI and automation impact different disciplines. International bodies are calling for such measures already; UNICEF's recent guidance on AI and children urges education systems worldwide to improve

children's digital literacy and awareness of AI's impacts (UNICEF, 2021). As such, universities should teach students how to navigate and use AI technologies. Career services can host seminars on the future of work, inviting industry speakers to discuss how students can adapt and remain competitive in an AI-infused job market. By proactively educating students about AI, not just the threats but also the opportunities, universities can help to reduce the fear of the unknown. Mentorship programs might connect students with alums working in tech-driven fields to discuss coping with technological change. As such, the goal would be to replace anxiety with competence and confidence. If students feel that universities will equip them to work alongside AI or in new industries, their stress about being left behind may diminish. In short, embedding AI literacy and adaptability training into the educational experience can empower students, addressing the root of AI anxiety with knowledge and practical strategies.

In response to widespread eco-anxiety, universities should strengthen sustainability programs and climate discourse on campus. For example, creating more opportunities for students to engage in environmental action, such as sustainability clubs, campus gardens, clean energy projects, or partnerships with local environmental organizations, might help students navigate climate-related concerns. Research has found that young people feel less despair when they are actively engaged in addressing climate issues (Baudon & Jachens, 2021). Thus, by actively involving students in solutions to climate issues, institutions help transform anxiety into agency whereby students can feel they are contributing to positive change, alleviating feelings of helplessness and hopelessness. Additionally, universities can hold regular open forums on climate change that incorporate mental health perspectives (e.g., talks on coping with eco-anxiety, resilience in the face of climate change). International youth advocates recommend integrating climate change education into school curricula and supporting youth-led climate

initiatives as a way to address climate emotions (Stapleton & Jece, 2024). As such, encouraging conversations about climate change in a hopeful, action-focused manner can make students feel heard and supported. The hope is that educational environments should become hubs for sustainability engagement and productive conversations about the environment, helping students find community and meaning.

Furthermore, educators play a key role in shaping how students understand and navigate digital environments. Given the association between excessive or comparison-based social media use and increased anxiety and depression (Lup et al., 2015; Verduyn et al., 2017), educational settings should encourage digital literacy. As such universities should: integrate media literacy into curricula across disciplines to help students critically evaluate social media content; provide workshops or discussions on algorithmic awareness, teaching students how social media platforms are designed to maximize engagement and emotional arousal; encourage reflective thinking that helps students analyze how social media affects their mood, self-esteem, and behavior; and promote digital hygiene practices (e.g., setting usage limits, disabling notifications, and being intentional about online engagement) as part of student wellness programming. Embedding digital literacy and mental health education into first-year seminars or general education courses can equip students with coping strategies to manage online stress and reduce the emotional toll of constant digital connection.

Likewise, research shows that perceived social support significantly buffers psychological distress in students (Holt-Lunstad et al., 2010; Ozbay et al., 2007). However, Gen Z often reports feeling isolated even in connected campus environments. To enhance perceived and actual support on campus, educators can design classroom environments that foster connection, peer collaboration, and psychological safety. Group assignments, peer-led

discussions, and mentorship programs can help students feel more connected. Additionally, educators can engage in relational teaching by validating student concerns and creating opportunities for check-ins or flexible accommodations when students express mental health challenges. Educators should also normalize vulnerability and help-seeking by integrating conversations about stress, burnout, and emotional regulation into academic discussions, particularly during high-pressure periods. Also, educators should partner with student services to direct students to peer support groups, campus events, or well-being initiatives that reduce isolation and enhance belonging. Moreover, faculty can help identify students facing mental health challenges and refer them to counselling, peer mentorship, or student life programs, acting as important gatekeepers in early intervention.

Moreover, post-secondary institutions can incorporate skills training directly into the student curriculum as a preventive measure for mental health issues. By offering courses or co-curricular programs that teach stress management, emotional resilience, and coping strategies as part of the university journey, universities can take proactive approaches to mental health. For example, first-year orientation could include sessions on managing uncertainty or balancing social media use. Additionally, universities can introduce wellness courses for credit to cover topics like coping with global news, financial planning, and adapting to new technologies. Embedding wellness and stress-coping into the education system through mindfulness workshops, peer mentorship programs, or regular wellness check-ins can help mitigate mental health problems before they escalate. By normalizing conversations about anxiety, depression, and coping strategies in the classroom, institutions can reduce stigma and equip all students with basic tools for psychological self-care. Research shows that embedding mental health awareness in the curriculum and training faculty in mental health literacy improves

early identification of distress and encourages help-seeking (Fox et al., 2020). Overall, if we equip Gen Z students with the tools and knowledge to handle generation anxiety, we empower them to succeed academically and personally despite the challenges of their time.

Lastly, on a broader level, the implications of this study suggest that educational institutions have a role in advocating for and creating structural changes that alleviate student stress. For instance, universities might lobby for policies that reduce student financial burdens, such as better student loan terms or increased public funding for education, given the clear link between finances and mental health. Universities could also lead by example in sustainability, such as committing to carbon-neutral campuses, which can give students hope that progress is happening, and in ethical technology use, such as having guidelines for AI on campus that address student concerns about academic integrity and future job preparation. Schools can position themselves as leaders in addressing generational challenges. By actively engaging in solutions outside the classroom, educational institutions can demonstrate that students' worries are being taken seriously at the highest levels. This can create an atmosphere of trust and reduce cynicism, which indirectly benefits mental health.

In summary, post-secondary institutions should treat the mental well-being of students as a campus-wide responsibility. By weaving mental health, resilience, and future-oriented skills into the fabric of education, universities can better support Gen Z students in navigating their anxieties and thriving both during and after their studies.

Conclusion

The overarching aim of this study was to examine the impact of generation-specific anxieties (eco-anxiety, AI anxiety, and financial anxiety) on the mental health outcomes of Gen Z post-secondary students. Financial anxiety emerged as the most robust predictor of depression,

anxiety, and stress symptoms. Eco-anxiety and AI anxiety also contributed to mental health outcomes, though their effects were more modest. Although the proposed moderators did not significantly alter the strength of these relationships, social isolation, social support, and daily internet use significantly predicted mental health outcomes. Qualitative responses reinforced these findings, revealing widespread concern about financial instability, environmental degradation, and uncertainty about the future of work due to AI. This study contributes to a growing body of literature on the contextual nature of Gen Z mental health and highlights the importance of addressing structural and societal stressors in research and practice. These findings should be used to inform targeted mental health interventions, educational programming, and policy efforts aimed at supporting the psychological well-being of Gen Z students.

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Appendix A: Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995)

Please read each statement and circle a number, 0, 1, 2, or 3 which indicates how much the statement applied to you **over the past week.** There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
0 - Did not apply to me at all
1 - Applied to me to some degree, or some of the time
2 - Applied to me to a considerable degree or a good part of time
3 - Applied to me very much or most of the time

---

1. I found myself getting upset by quite trivial things	0	1	2	3
2. I was aware of dryness in my mouth	0	1	2	3
3. I couldn't seem to experience any positive feeling at all	0	1	2	3
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5. I just couldn't seem to get going	0	1	2	3
6. I tended to over-react to situations	0	1	2	3
7. I had a feeling of shakiness (e.g., legs going to give away)	0	1	2	3
8. I found it difficult to relax	0	1	2	3
9. I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10. I felt that I had nothing to look forward to	0	1	2	3
11. I found myself getting upset rather easily	0	1	2	3
12. I felt that I was using a lot of nervous energy	0	1	2	3
13. I felt sad and depressed	0	1	2	3
14. I found myself getting impatient when I was delayed in any way (e.g., elevators, traffic lights, being kept waiting)	0	1	2	3

15. I had a feeling of faintness	0	1	2	3
16. I felt that I had lost interest in just about everything	0	1	2	3
17. I felt I wasn't worth much as a person	0	1	2	3
18. I felt that I was rather touchy	0	1	2	3
19. I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20. I felt scared without any good reason	0	1	2	3
21. I felt that life wasn't worthwhile	0	1	2	3
22. I found it hard to wind down	0	1	2	3
23. I had difficulty swallowing	0	1	2	3
24. I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
26. I felt down-hearted and blue	0	1	2	3
27. I found that I was very irritable	0	1	2	3
28. I felt I was close to panic	0	1	2	3
29. I found it hard to calm down after something upset me	0	1	2	3
30. I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31. I was unable to become enthusiastic about anything	0	1	2	3
32. I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33. I was in a state of nervous tension	0	1	2	3
34. I felt I was pretty worthless	0	1	2	3
35. I was intolerant of anything that kept me from getting on				

with what I was doing	0	1	2	3
36. I felt terrified	0	1	2	3
37. I could see nothing in the future to be hopeful about	0	1	2	3
38. I felt that life was meaningless	0	1	2	3
39. I found myself getting agitated	0	1	2	3
40. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41. I experienced trembling (e.g., in the hands)	0	1	2	3
42. I found it difficult to work up the initiative to do things	0	1	2	3

Appendix B: Climate Change Anxiety Scale (Clayton & Karazsia, 2020)

Please rate how often the following statements are true of you. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
1 - Never
2 - Rarely
3 - Sometimes
4 - Always
5 - Almost always

1. Thinking about climate change makes it difficult for me to concentrate.	1	2	3	4	5
2. Thinking about climate change makes it difficult for me to sleep.	1	2	3	4	5
3. I have nightmares about climate change.	1	2	3	4	5
4. I find myself crying because of climate change.	1	2	3	4	5
5. I think, “why can't I handle climate change better?”	1	2	3	4	5
6. I go away by myself and think about why I feel this way about climate change.	1	2	3	4	5
7. I write down my thoughts about climate change and analyze them.	1	2	3	4	5
8. I think, “why do I react to climate change this way?”	1	2	3	4	5
9. My concerns about climate change make it hard for me to have fun with my family or friends.	1	2	3	4	5
10. I have problems balancing my concerns about sustainability with the needs of my family.	1	2	3	4	5
11. My concerns about climate change interfere with my ability to get work or school assignments done.	1	2	3	4	5
12. My concerns about climate change undermine my ability to work to my potential.	1	2	3	4	5
13. My friends say I think about climate change too much.	1	2	3	4	5
14. I have been directly affected by climate change.	1	2	3	4	5
15. I know someone who has been directly affected by climate change.	1	2	3	4	5

16. I have noticed a change in a place that is important to me due to climate change.	1	2	3	4	5
17. I wish I behaved more sustainably.	1	2	3	4	5
18. I recycle.	1	2	3	4	5
19. I turn off lights.	1	2	3	4	5
20. I try to reduce my behaviors that contribute to climate change.	1	2	3	4	5
21. I feel guilty if I waste energy.	1	2	3	4	5
22. I believe I can do something to help address the problem of climate change.	1	2	3	4	5

Appendix C: Artificial Intelligence Anxiety Scale (Wang & Wang, 2022)

Please rate how much you agree with the following statements. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
1 - Strongly disagree
2 - Disagree
3 - Somewhat disagree
4 - Neither agree nor disagree
5 - Agree
6 - Somewhat agree
7 - Strongly agree

1.	Learning to understand all of the special functions associated with an AI technique/product makes me anxious.	1	2	3	4	5	6	7
2.	Learning to use AI techniques/products makes me anxious.	1	2	3	4	5	6	7
3.	Learning to use specific functions of an AI technique/product makes me anxious.	1	2	3	4	5	6	7
4.	Learning how an AI technique/product works makes me anxious.	1	2	3	4	5	6	7
5.	Learning to interact with an AI technique/product makes me anxious.	1	2	3	4	5	6	7
6.	Taking a class about the development of AI techniques/products makes me anxious.	1	2	3	4	5	6	7
7.	Reading an AI technique/product manual makes me anxious.	1	2	3	4	5	6	7
8.	Being unable to keep up with the advances associated with AI techniques/products makes me anxious.	1	2	3	4	5	6	7
9.	I am afraid that an AI technique/product may make us dependent.	1	2	3	4	5	6	7
10.	I am afraid that an AI technique/product may make us even lazier.	1	2	3	4	5	6	7
11.	I am afraid that an AI technique/product may replace humans.	1	2	3	4	5	6	7
12.	I am afraid that widespread use of humanoid robots will take jobs away from people.	1	2	3	4	5	6	7

13. I am afraid that if I begin to use AI techniques/products I will become dependent upon them and lose some of my reasoning skills.	1	2	3	4	5	6	7
14. I am afraid that AI techniques/products will replace someone's job.	1	2	3	4	5	6	7
15. I am afraid that an AI technique/product may be misused.	1	2	3	4	5	6	7
16. I am afraid of various problems potentially associated with an AI technique/product.	1	2	3	4	5	6	7
17. I am afraid that an AI technique/product may get out of control and malfunction.	1	2	3	4	5	6	7
18. I am afraid that an AI technique/product may lead to robot autonomy.	1	2	3	4	5	6	7
19. I find humanoid AI techniques/products (e.g. humanoid robots) scary.	1	2	3	4	5	6	7
20. I find humanoid AI techniques/products (e.g. humanoid robots) intimidating.	1	2	3	4	5	6	7
21. I don't know why, but humanoid AI techniques/products (e.g. humanoid robots) scare me.	1	2	3	4	5	6	7

Appendix D: Financial Anxiety Scale (Archuleta et al., 2013)

Please rate how often the following statements are true of you. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
1 - Never
2 - Rarely
3 - Occasionally
4 - Sometimes
5 - Often
6 - Usually
7 - Always

1. I feel anxious about my financial situation.	1	2	3	4	5	6	7
2. I have difficulty sleeping because of my financial situation.	1	2	3	4	5	6	7
3. I have difficulty concentrating on my school/or work because of my financial situation.	1	2	3	4	5	6	7
4. I am irritable because of my financial situation.	1	2	3	4	5	6	7
5. I have difficulty controlling worrying about my financial situation.	1	2	3	4	5	6	7
6. My muscles feel tense because of worries about my financial situation.	1	2	3	4	5	6	7
7. I feel fatigued because I worry about my financial situation.	1	2	3	4	5	6	7

Appendix E: Awareness Likert Scale

Please indicate your current awareness of climate change.

The rating scale is as follows:

1 - Not at all aware
I have no current awareness or understanding of climate change. I can hardly understand climate change even with guidance from an expert.

3 - Slightly aware
I can understand climate change only with the guidance from experts.

4 - Moderately aware
I can understand some aspects of climate change.

5 - Very aware
I can adequately understand climate change.

6 - Extremely aware
I have a proficient understanding and awareness of climate change.

Appendix F: Media Consumption Likert Scale

Please indicate how much of your knowledge on climate change comes from social media sources (e.g., TikTok, Instagram, Facebook, Twitter).

The rating scale is as follows:

1 – 0 - 25% of my knowledge comes from online media sources.
2 – 26 - 50% of my knowledge comes from online media sources.
3 – 51 - 75% of my knowledge comes from online media sources.
4 – 76 - 100% of my knowledge comes from online media sources.

Appendix G: Three-Item Loneliness Scale (Hughes et al., 2004)

Please rate how often the following statements are true of you. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
1 - Hardly ever
2 - Some of the time
3 - Often

1. First, how often do you feel that you lack companionship: Hardly ever, some of the time, or often?	1	2	3
2. How often do you feel left out: Hardly ever, some of the time, or often?	1	2	3
3. How often do you feel isolated from others: Hardly ever, some of the time, or often?	1	2	3

Appendix H: Social Provisions Scale (Cutrona & Russell, 1987)

Please rate how often the following statements are true of you. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:
1- Strongly disagree
2 - Disagree
3 - Neutral
4 - Agree
5 - Strongly agree

1.	I have close relationships that provide me with a sense of emotional security and well-being.	1	2	3	4	5
2.	There is someone I could talk to about important decisions in my life.	1	2	3	4	5
3.	I have relationships where my competence and skill are recognized.	1	2	3	4	5
4.	I feel part of a group of people who share my attitudes and beliefs.	1	2	3	4	5
5.	There are people I can count on in an emergency.	1	2	3	4	5

Appendix I: Open-Ended Questions

1. What concerns you the most about climate change?
2. What concerns you the most about artificial intelligence?
3. What concerns you the most about your financial future?
4. Which one of these stressors do you think mainly contributes to the high rates of depression and anxiety in Generation Z?

Appendix J: Demographic Information

Please select the most appropriate answer.

Are you currently diagnosed, or have been diagnosed (within the past two years), with depression and/or anxiety?

☐ Yes

☐ No

Are you currently, or have you (within the past two years), received pharmaceutical treatment for depression and/or anxiety?

☐ Yes

☐ No

Please indicate the year you were born.

☐ 1997 ☐ 2002
☐ 1998 ☐ 2003
☐ 1999 ☐ 2004
☐ 2000 ☐ 2005
☐ 2001 ☐ 2006

Please indicate which gender you identify with.

☐ Man
☐ Woman
☐ Transgender
☐ Non-binary
☐ Other_____ Prefer not to say

Please indicate your ethnicity.

☐ Asian
☐ Black
☐ Caucasian
☐ Hispanic or Latino
☐ Indigenous
☐ Native Hawaiian or Other Pacific Islander
☐ Mixed Ethnicity (Please Specify) _____

Please indicate your relationship status.

- [ ] Single
- [ ] In a relationship
- [ ] Prefer not to say

How many hours a day do you spend on the Internet?

- [ ] Less than 1 hour
- [ ] 1-2 hours
- [ ] 3-5 hours
- [ ] More than 5 hours

Please indicate your family's current socioeconomic status (i.e., annual household income).

- [ ] Less than $25,000 a year
- [ ] $25,000 to $49,999 a year
- [ ] $50,000 to $74,999 a year
- [ ] $75,000 to $99,999 a year
- [ ] $100,000 to $149,999 a year
- [ ] $150,000 to $249,999 a year
- [ ] More than $250,000 a year
- [ ] I do not know
- [ ] Prefer not to say

Are you currently receiving financial support (not including loans and grants)?

- [ ] Yes
- [ ] No

If yes, please specify _____

How many years have you been at university?

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] Other (Please Specify) _____

What bachelor program are you in?

- [ ] Bachelor of Arts (BA)
- [ ] Bachelor of Arts and Science (BAS)
- [ ] Bachelor of Business Administration (BBA)
- [ ] Bachelor of Commerce (BComm)
- [ ] Bachelor of Education (BEd)
- [ ] Bachelor of Engineering (BEng)
- [ ] Bachelor of Environmental Design Studies (BEDS)
- [ ] Bachelor of Health Science (BHSc)
- [ ] Bachelor of Management (BMgmt)
- [ ] Bachelor of Music (BMus)
- [ ] Bachelor of Science Nursing (BScN)
- [ ] Bachelor of Science (BSc)
- [ ] Bachelor of Social Work (BSW)
- [ ] Double Major (Please Specify) _____
- [ ] Other (Please Specify) _____

Please indicate your current work status.

- [ ] Full-time job
- [ ] Part-time job
- [ ] I am not working

Appendix K: Social Media Advertisement

As part of my Master's Thesis in Counselling Psychology, I am searching for volunteers to takepart in a research study investigating Canadian undergraduate students' levels of Eco-anxiety, Artificial Intelligence Anxiety, and Financial Anxiety, and its impact on Mental Health Outcomes. The online survey is anonymous; thus, you will not be required to provide any identifying information. The survey will take approximately 30-35 minutes to complete. I am looking for participants who are in the process of completing their a post-secondary degree at a Canadian university. Full-time and part-time students are welcomed to participate. However, students above the age of 26 are asked to refrain from participating in this study as it is specific to Generation Z.

If you or anyone you know might be interested in completing the survey, please feel welcomed to share this post and ensure that the link is provided. It is imperative to note that participating inthe study is completely voluntary, and there is absolutely no pressure to do so. For those who wish to participate in the study, all your data will remain anonymous, which means that no one, including, myself, will be able to tell who participated.

To participate in the study, click on the link provided below.

(Link)

Thank you for your time!

Appendix L: Letter of Implied Consent

Title of the study: The Effects of Generation Anxiety on Post-secondary Mental Health Outcomes: Implications for Service Providers and Educators

Principal Investigator: Aleena Tahir
Graduate Student
Faculty of Education, Counselling Psychology
University of Lethbridge
Lethbridge, AB
aleena.tahir@uleth.ca

Supervisor(s): Dr. Charlotte Brenner and Dr. Thelma Gunn

Invitation to Participate: You are invited to participate in this research study about the influences of generation-specific stressors: eco-anxiety, AI anxiety, and financial anxiety on the mental well-being of Canadian undergraduate students.

Purpose of the Study: From this research, we wish to learn how Canadian undergraduate students' levels of generation-specific stressors may impact their levels depression, anxiety, and stress.

Participation: If you wish to participate in this study, please proceed by clicking "next" to complete the survey. The survey should take you approximately 30 to 35 minutes to complete. You do not have to answer any questions that you do not want to answer. Once you have completed the survey, please click on the "submit" button to submit the survey.

Benefits: The benefits of the current study include the potential to provide critical information that is needed to implement better, researched informed interventions and preventative educational programs to prospective and current students.

Risks: The study is interested in investigating undergraduate students' levels of eco-, AI, and financial anxiety, depression, general anxiety, and stress. Thus, it is possible that you may experience some mild emotional discomfort. You will be provided a list of available resources to access mental health support in the event that you experience any discomfort and are wanting and/or needing to seek help.

Confidentiality and Anonymity: The information that you will share will remain strictly confidential and will be used solely for the purposes of this research. The only people who will have access to the research data include the researcher, supervisor, and committee members, and it will be locked/encrypted. Your answers to open-ended questions may be used verbatim in presentations and publications but neither you (nor your organization) will be identified. In order to minimize the risk of security breaches and to help ensure your confidentiality we recommend that you use standard safety measures such as signing out of your account, closing your browser and locking your screen or device when you are no longer using them/when you have completed the study. The data is subject to USA privacy legislation as data is collected via. Qualtrics.

Results will be published in pooled aggregate format. Anonymity is guaranteed since you are not being asked to provide your name or any identifying information.

Data Storage: Electronic copies of the survey will be encrypted and stored on a password protected computer. As part of our commitment to advancing research, we plan to share the data collected in this study with a data repository. This means that the anonymized data will be made available to other researchers for future studies. Your identity will not be linked to the data, and no personally identifiable information will be shared.

Compensation (or Reimbursement): There will be no compensation or reimbursement for this study.

Voluntary Participation: You are under no obligation to participate and if you choose to participate, you may refuse to answer questions that you do not want to answer. Should you choose to withdraw midway through the electronic survey simply close the link and no responses will be included. Given the anonymous nature of the survey once you have submitted your responses it will no longer be possible to withdraw them from the study.

Intended Use: The results of this study will be used in a thesis project and possibly shared in published journal articles and public presentations. No individual results or identifying information will be shared.

Information about the Study Results: If you are interested in obtaining information about the study's results, you may contact me via. email (aleena.tahir@uleth.ca)

Contact Information: If you have any questions or require more information about the study itself, you may contact the researcher (aleena.tahir@uleth.ca) or her supervisors (charlotte.brenner@uleth.ca) and (thelma.gunn@uleth.ca) at the email addresses mentioned above.

The plan for this study has been reviewed by a Research Ethics Board at the University of Alberta. If you have any questions regarding your rights as a research participant or how the research is being conducted, you may contact the Research Ethics Office at 780-492-2615.

Please print a copy of this for your own records.

Appendix M: Debriefing Form

Thank you for participating in this study! Your participation is greatly appreciated.

Purpose of the Study:

We previously informed you that the purpose of the study was to investigate Canadian post-secondary students' levels of generation anxiety (eco-, AI, and financial anxiety) and its impact on mental health outcomes. The goal of our research is to determine if one's level of generation anxiety will influence their levels of depression, anxiety, and stress (i.e., if one has high levels of generation anxiety, we hypothesize that they will have higher levels of depression, anxiety, and stress and thus have poor mental health outcomes).

We realize that some of the questions asked may have provoked strong emotional reactions. As researchers, we do not provide mental health services and we will not be following up with you after the study. However, we want to provide every participant in this study with a comprehensive and accurate list of mental health resources that are available, should you decide you need assistance at any time. Please see information pertaining to resources at the end of this page.

Confidentiality:

Please do not disclose research procedures and/or hypotheses to anyone who might participate in this study in the future as this could affect the results of this study.

Final Report:

If you would like to receive a copy of the final report of this study (or a summary of the findings) when it is completed, please feel free to contact us.

Useful Contact Information:

If you have any questions or concerns regarding this study, its purpose, or procedures, or if you have a research-related problem, please feel free to contact the researcher, Aleena Tahir, aleena.tahir@uleth.ca.

If you have any questions concerning your rights as a research subject, you may contact the University of Alberta Human Participant Research Ethics, ulethics@ualberta.ca.

If you feel upset after having completed the study or find that some questions or aspects of the study triggered distress, talking with a qualified mental health professional may help. If you are a student at the University of Lethbridge and feel you would like assistance, please contact the University of Lethbridge Counselling Services via. email, counselling.services@uleth.ca or by phone 403.317.2845 to schedule an appointment. In the case of an emergency, you may contact the Distress and Suicide Prevention Line of Southwestern Alberta which is available 24/7 at

403.327.7905 or 1.888.787.2880. For those who are outside of the Lethbridge area, a list of Canada-wide mental health resources is available:

- Crisis Services Canada
  Toll Free (24/7): 1.833.454.4566
  Text Support (4pm-12am ET daily): 45645

- Canadian Crisis Hotline
  1.888.353.2273

- Better Help
  Online access to professional counsellors
  www.betterhelp.com

- The LifeLine App
  Direct access to phone, online chat, text, and email crisis support
  Available for iPhone and Android users
  www.thelifelinecanada.ca

In a serious emergency, please remember that you can also call 911for immediate assistance.

Appendix M: Research Ethics Board Letter of Approval

UNIVERSITY OF ALBERTA

RESEARCH ETHICS OFFICE

2-01 North Power Plant (NPP)
11312 - 89 Ave NW
Edmonton, Alberta, Canada T6G 2N2
Tel: 780.492.0459
www.uab.ca/reo

Notification of Approval

Date: Study ID: Principal Investigator: Study Supervisor: Study Title: Approval Expiry Date: Sponsor/Funding Agency:	Monday, July 22, 2024 Pro00143744 Aleena Tahir Charlotte Brenner The Effects of Generation Anxiety on Post-Secondary Mental Health Outcomes: Implications for Service Providers and Educators Monday, July 21, 2025 SSHRC -Social Sciences and Humanities Research Council SSHRC

Thank you for submitting the above study to the Research Ethics Board 2. Your application has been reviewed and approved on behalf of the committee. **Approved Documents:**

Recruitment Materials

Tahir_ParticipantRecruitmentAd

Consent Forms

Tahir_LetterofImpliedConsent

Questionnaires, Cover Letters, Surveys, Tests, Interview Scripts, etc.

Tahir_AlternativeActivity

Tahir_Survey

Other Documents

Tahir_DebriefingForm

Any proposed changes to the study must be submitted to the REB for approval prior to implementation. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application. Approval by the REB does not constitute authorization to initiate the conduct of this research. The Principal Investigator is responsible for ensuring required approvals from other involved organizations (e.g., University of Lethbridge, community organizations, school boards) are obtained, before the research begins. Sincerely, Stanley Varnhagen, PhD Associate Chair, Research Ethics Board 2 *Note: This correspondence includes an electronic signature (validation and approval via an online system).*

University of Lethbridge