



Eco-anxiety and its implications for the mental health of generation z in the face of climate change: A systematic analysis review

Vidia Ade Lukmannia^{1,*}

¹ Department of Psychology, Faculty of Psychology and Humanities, Universitas Muhammadiyah Magelang, Magelang, Central Java 59214, Indonesia.

*Correspondence: vidia.adel11@gmail.com

Received Date: January 21, 2026

Revised Date: June 27, 2026

Accepted Date: August 28, 2026

ABSTRACT

Background: The phenomenon of eco-anxiety or ecological anxiety is increasingly experienced by Generation Z as the real impacts related to climate change increase in various parts of the world. This study aims to identify how eco-anxiety can emerge through cognitive processes and threat perceptions, and understand how these responses affect mental health conditions within the spectrum of psychological well-being. **Methods:** This study uses a systematic literature review (SLR) with a descriptive qualitative approach. Data were obtained through searching relevant scientific articles from 2020 to 2025 using international and national databases. Data analysis was carried out using thematic analysis techniques to identify patterns of findings and similarities in themes between studies. The theoretical component of this study uses the Protection Motivation Theory proposed by Prentice-Dunn and Rogers (1986), as well as the mental health continuum theory developed by Keyes (2002). **Findings:** The results of this research synthesis show that Generation Z in various countries shows a tendency to experience eco-anxiety with diverse psychological responses. Most studies show that Generation Z is globally vulnerable to eco-anxiety, although the form, intensity, and impact vary. **Conclusion:** These findings confirm that eco-anxiety is a complex psychological response and affects the mental health of Generation Z in facing climate change. Based on the protection motivation theory approach, eco-anxiety is formed through the mechanism of threat appraisal and coping appraisal. **Novelty/Originality of this article:** This article provides a new perspective by placing eco-anxiety within the analytical framework of Prentice-Dunn and Rogers' (1986) Protection Motivation Theory, as well as Keyes' (2002) mental health continuum theoretical framework, which highlights that threat perceptions and coping strategies can shape diverse psychological responses and influence mental health conditions in Generation Z.

KEYWORDS: climate change; eco-anxiety; generation z; mental health.

1. Introduction

Climate change, a long-standing issue, has become increasingly urgent as its impacts become visible across nations. These impacts pose a real threat to the existence and continuity of future generations (Mucharomah & Luqman, 2024). According to the World Meteorological Organization (2025) was recorded as the hottest year in history, with the global average temperature nearly 1.45 °C higher than pre-industrial levels. This has resulted in polar ice melt, rising sea levels, increased frequency of heatwaves, and hydrometeorological disasters. This worsening climate change can further undermine food

Cite This Article:

Lukmannia, V. A. (2026). Eco-anxiety and its implications for the mental health of generation z in the face of climate change: A systematic analysis review. *Arung: Community Health Insight*, 2(2), 137-152. <https://journal-iasssf.com/index.php/ARCHI/article/view/3231>

Copyright: © 2026 by the authors. This article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



security and generate economic problems. Moreover, low-income countries will bear the heaviest impacts, further widening global inequality (Tsevreñi et al., 2023). According to the Global Climate Highlights report, was also marked by a decline in polar ice extent. Antarctic sea ice extent reached its lowest level in the history of satellite observations and remained at record-low levels for eight consecutive months.

Climate change is not merely an environmental issue but the most pressing global concern for future generations (Elitok, 2022). In recent years, Generation Z—the cohort following the millennials, born between the mid-1990s and early 2010s—has demonstrated heightened awareness of environmental degradation and its consequences for climate change (Lalal & Mishal, 2022). Generation Z came of age in an era when climate change became a central topic across public discourse. As a result, this generation exhibits a high level of awareness regarding the impacts and consequences arising from the climate crisis (Reyes et al., 2021). Generation Z is also considerably more prone to experiencing heightened climate-related anxiety compared to previous generations (Bakul et al., 2025). Within this context, a phenomenon of anxiety toward climate change has emerged, known as eco-anxiety. This phenomenon reflects a growing concern within society regarding climate change, coinciding with the onset of the Anthropocene—a period in which human activity has become the dominant factor shaping the condition of the Earth, from both cultural and political perspectives (Robbins & Moore, 2013).

The phenomenon of eco-anxiety is defined as a form of ecological anxiety rooted in awareness of the climate crisis and its impact on human survival (Yunanto & Sa'adiyah, 2025). Eco-anxiety was first introduced by the American Psychological Association (APA) to describe feelings of fear, anxiety, and helplessness caused by climate change. This condition is not always pathological; in many cases, this anxiety can instead motivate individuals to act in more environmentally friendly ways (Kurth & Pihkala, 2022). According to Albrecht (as cited in Coffey et al., 2021), eco-anxiety can be defined as an emotional reaction characterized by fear, distress, and worry about environmental damage and crisis. At extreme levels, eco-anxiety can lead to prolonged stress, feelings of hopelessness, and depressive symptoms (Pihkala, 2020). Ecological anxiety is generally understood as worry about environmental damage, but it can also produce positive effects. When an individual experiences a greater degree of this anxiety, it can heighten awareness and motivate pro-environmental action (Kurth & Pihkala, 2022).

Individuals who understand the risks of climate change tend to feel anxious about the negative consequences that may threaten their future, which can have serious effects on mental health (Boluda-Verdú et al., 2022). Individuals experiencing severe eco-anxiety often display signs of psychological distress such as stress, hopelessness, and depression, particularly when they feel unable to effect environmental change (Cosh et al., 2024). According to Niedzwiedz et al. (2023), climate change can affect mental health through three pathways: direct, indirect, and overarching. Direct impacts arise from exposure to adverse weather conditions such as heatwaves and droughts. Indirect impacts are seen through disruptions to social and economic determinants, mental health resources, and barriers to education. Meanwhile, overarching impacts relate to growing uncertainty about the future and long-term psychological distress that can affect an individual's psychological well-being.

Given the emergence of eco-anxiety, mental health has become an important aspect to address, particularly amid growing concern among younger generations about climate change (Showmiya & Kumar, 2024). Based on the World Health Organization's definition as cited in (Kelman et al. (2021), climate change has significant potential to disrupt individual mental health, as it can diminish a person's ability to cope with life stressors, maintain productivity, and actively participate in society. Mental health and well-being are closely linked to the climate crisis. The impacts experienced are shaped not only by environmental conditions but also by various individual factors such as demographic and biological characteristics (Heinz, 2024). Although not yet formally recognized as a mental disorder, ecological anxiety can be experienced by anyone, whether directly affected by climate change or not (Rückle et al., 2025).

Mental health encompasses not merely the absence of psychological disorders but also an individual's capacity to function optimally, maintain a sense of purpose, and adapt to external challenges (Ryff & Keyes, 1995). According to Ryff & Keyes (1995), positive mental health can be observed through an individual's level of psychological well-being—the extent to which a person is able to lead a meaningful and productive life. Keyes (2002) further notes that psychological well-being comprises three main dimensions; emotional, social, and psychological well-being. Although eco-anxiety can generate emotional distress and concern about the future, individuals with good mental health are better equipped to manage their anxiety adaptively, which can in turn serve as motivation to contribute to environmental preservation (Lalal & Mishal, 2022; Showmiya & Kumar, 2024).

Prior research indicates that Generation Z is the group most vulnerable to eco-anxiety, given their heightened awareness of climate change and its future implications (Futó & Karcagi-Kováts, 2024; Lalal & Mishal, 2022; Tsevreni et al., 2023). Tsevreni et al. (2023) found that young people in the Global North tend to experience concern about the climate future in more abstract terms, whereas in the Global South, eco-anxiety is more acute and intense due to direct exposure to climate disasters such as floods, wildfires, and droughts. Meanwhile, Showmiya & Kumar (2024) found that the stronger an individual's environmental identity, the greater the level of ecological anxiety experienced.

Research conducted by Lalal & Mishal (2022) revealed that eco-anxiety among Generation Z gives rise to an existential crisis characterized by a sense of lost meaning in life and doubt about the future. Lutz et al. (2023) further contribute to understanding eco-anxiety by framing it as a continuum of emotional responses to environmental crisis. Their cross-cultural findings indicate that moderate levels of eco-anxiety can, in fact, be functional and adaptive, as they drive individuals toward greater connection with nature, heightened ecological empathy, and the cultivation of pro-environmental behavior.

Although the issue of climate change and its impact on mental health has been extensively studied, research specifically addressing the phenomenon of eco-anxiety among Generation Z remains relatively limited (Hickman et al., 2021). Moreover, a review of the literature reveals very few studies linking eco-anxiety to theoretical frameworks explaining the process of anxiety formation, such as protection motivation theory (PMT), as proposed by Rogers (1986). This theory is relevant for understanding how perceived threat from climate change shapes psychological responses, as well as how individuals' capacity to respond to risk drives emotional distress or adaptive behavior in relation to environmental issues. Furthermore, no studies to date have examined eco-anxiety through the lens of Keyes' (2002) mental health continuum theory, spanning the states of flourishing, moderate mental health, and languishing.

This study therefore aims to address these gaps by identifying how eco-anxiety emerges through cognitive processes and threat perception, and by examining how such responses affect mental health across the spectrum of psychological well-being. The findings of this study are expected to inform the development of psychological interventions and environmental education programs that help Generation Z manage ecological anxiety adaptively, enhance mental well-being, and foster pro-environmental behavior.

2. Methods

The method employed in this study is a systematic literature review (SLR) using a qualitative descriptive approach. The SLR method, or systematic literature review, is a research method used to collect, select, and analyze in depth existing research findings on a particular topic. The purpose of this method is to provide a systematic understanding of the latest developments in knowledge regarding the topic and field under investigation (Renuat et al., 2024). The research data were drawn from scientific articles published in internationally and nationally reputable journals, including Scopus, ScienceDirect, and Google Scholar. The articles reviewed consist of empirical research findings addressing eco-anxiety and its impact on the mental health of Generation Z. The inclusion criteria for this study were as follows, 1) articles published between 2020 and 2025; 2) studies whose

primary subjects focus on Generation Z, aged 15–30 years; 3) studies addressing topics related to eco-anxiety, climate change, and mental health; and 4) articles published in reputable, peer-reviewed scientific journals.

In its implementation, this study was conducted through several stages. In the initial stage, the researcher established criteria for journals relevant to the research topic. Subsequently, the researcher identified and searched for journal articles containing the keywords eco-anxiety, climate anxiety, Generation Z, and mental health. In the following stage, the researcher formulated the research questions and established the literature selection procedure. The literature selection process in this study followed the PRISMA guidelines (Identification, Screening, Eligibility, and Inclusion), presented in Figure 1. In the final stage, the researcher compiled the findings based on the collected literature.

The data analysis technique employed a thematic analysis approach, identifying the principal themes emerging from research findings relevant to the topic of eco-anxiety and Generation Z mental health. According to Braun & Clarke (2006), thematic analysis is a flexible and systematic method for identifying meaningful themes within qualitative data. The themes identified were subsequently categorized based on Rogers' protection motivation theory (PMT) framework and Keyes' (2002) mental health continuum theory.

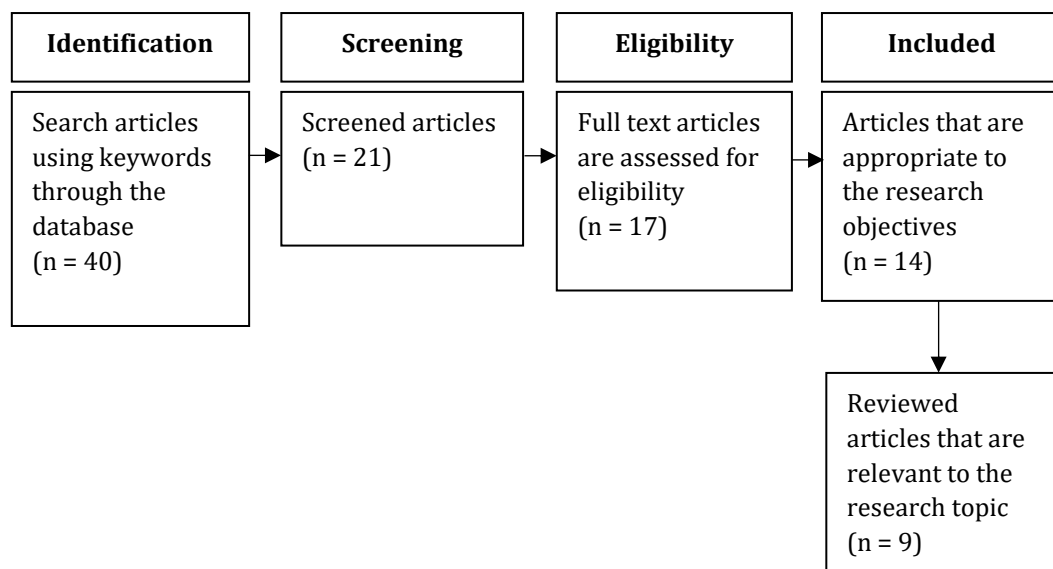


Fig. 1. PRISMA Flowchart

3. Results and Discussion

Based on the literature review process conducted, nine studies addressing eco-anxiety among Generation Z were identified. A summary of these studies is presented in Table 1. Based on the synthesis of findings presented in Table 1, Generation Z across various countries shows a tendency toward experiencing eco-anxiety, albeit with diverse characteristics. Most studies indicate that Generation Z is globally vulnerable to eco-anxiety, although its form, intensity, and impact vary. Generally, eco-anxiety among Generation Z is marked by negative emotions such as fear, anxiety, and hopelessness, as well as psychological disturbances including stress, depression, sleep disorders, and post-traumatic stress disorder (PTSD) (Lalal & Mishal, 2022; Niedzwiedz et al., 2023; Tsevereni et al., 2023). Lalal & Mishal (2022) documented feelings that "humanity is doomed," reflecting a profound sense of hopelessness among young people. Showmiya & Kumar (2024) found that the stronger an individual's environmental identity, the greater the ecological anxiety experienced. Meanwhile, research conducted by Dhanda (2025) and Reyes et al. (2023) found that high levels of ecological anxiety can trigger a decline in emotional well-being, such as increased stress, depression, and feelings of helplessness. At moderate levels,

however, eco-anxiety can instead foster a sense of responsibility and social concern toward environmental issues.

Table 1. Summary of research findings

Authors (year)	Journal	Findings
Tsevreli et al. (2023)	Generation z worries, suffers and acts against climate crisis—the potential of sensing children's and young people's eco-anxiety: A critical analysis based on an integrative review	Generation Z experiences eco-anxiety on a global scale. In the Global North, young people tend to feel anxious and worried about the climate future. In the Global South, by contrast, the impacts are more direct: young people suffer firsthand from climate disasters such as floods, droughts, and wildfires, making eco-anxiety in this region more intense and often manifesting as ecological trauma. Generation Z views the climate crisis as an existential crisis, marked by fear of the future, a sense of lost meaning in life, and even reluctance to have children. Eco-anxiety also drives collective action, as feelings of anxiety, anger, and hopelessness toward the climate crisis frequently transform into activism and political engagement, exemplified by movements such as Fridays for Future.
Showmiya & Kumar (2024)	Impact of environmental identity and eco-anxiety on mental health among gen x and z	There is a strong positive relationship between environmental identity and eco-anxiety. The stronger an individual's attachment to the environment, the greater the level of ecological anxiety experienced. In addition, there is a negative relationship between both environmental identity and eco-anxiety with mental health. In other words, the higher these two factors, the lower an individual's level of mental health. Environmental identity and eco-anxiety significantly influence mental health. A strong emotional attachment to the environment makes individuals more sensitive to climate issues, but it also increases vulnerability to stress, anxiety, and diminished psychological well-being. There are also generational differences between Gen X and Gen Z. Generation X shows higher levels of environmental identity and eco-anxiety, yet lower mental health status. Generation Z, by contrast, shows lower levels of eco-anxiety than Generation X, with relatively better mental health outcomes.
Lalal & Mishal (2022)	Eco-anxiety: Impact on generation z's mental health and the contemporary significance of environmental awareness and education	Generation Z has come of age during the climate crisis, making them particularly susceptible to ecological anxiety marked by fear of the future, anger at governmental inaction, and even depression or sleep disturbances. Global studies show that a majority of young people feel that "humanity is doomed," reflecting a profound sense of hopelessness. Eco-anxiety affects mental health, increasing the risk of stress, depression, concentration difficulties, relationship problems, and PTSD following climate-related disasters. At the same time, eco-anxiety is also viewed as a survival mechanism, one that drives Generation Z toward greater engagement in environmental advocacy.
Futo et al. (2024)	Understanding gen z's climate anxiety: A	Generation Z is the most vulnerable to climate anxiety, with the 16–30 age range showing the

	look at the latest research	highest levels of climate-related anxiety compared to other generations. Feelings of fear, anger, hopelessness, and even reluctance to have children arise from the impacts of climate change and uncertainty about the future. The effects on mental health include increased stress, depression, feelings of helplessness, and even social conflict. More than 45% of young respondents reported that climate anxiety affects their daily lives and social relationships. The level of anxiety varies by country, shaped by geographic, economic, and political conditions, as well as direct experience with climate disasters. Countries with more frequent climate disasters (such as Portugal, with its wildfires) show higher levels of anxiety. In Russia, by contrast, the figure is lower, as concerns over war dominate young people's attention. Nevertheless, although climate anxiety has negative effects on mental health, research also shows that this anxiety can serve as a catalyst for positive action, including engagement in environmental activism, lifestyle changes, and sustainability advocacy.
Tahir (2025)	The effects of generation anxiety on post-secondary mental health outcomes: Implications for service providers and educators	Generation Z shows a higher prevalence of anxiety compared to previous generations. Contributing factors include academic pressure, uncertainty about the future, social change, and exposure to global issues such as climate change, the pandemic, and economic instability. Elevated anxiety levels can directly increase the risk of depression, sleep disturbances, reduced concentration, social isolation, and declining academic performance. Compared to earlier generations, Gen Z is more open about discussing mental health issues, yet also more susceptible to stigma and social pressure. Gen Z tends to seek support more often through social media and peer communities rather than relying solely on formal institutions.
Bakul et al. (2025)	Assessing the relationship between climate change anxiety, ecological coping, and pro-environmental behavior: Evidence from gen z bangladeshis	Generation Z in Bangladesh experiences moderate levels of climate change anxiety, particularly in the domain of cognitive-emotional impairment. Findings show a positive relationship between climate change anxiety and the use of both denial and problem-focused coping (PFC). Direct exposure to disasters heightens anxiety and promotes the use of more diverse coping strategies. Additionally, climate anxiety is also associated with pro-environmental behavior (PEB), with individuals experiencing higher anxiety levels showing greater engagement in environmental activities.
Dhanda (2025)	Climate anxieties and collective action: Sociopsychological dynamics of eco-activism among gen z	The relationship between eco-anxiety and Generation Z activism is dynamic and reciprocal: anxiety can trigger action, while that action, in turn, can help manage the anxiety itself. The key factors enabling this transformation from anxiety into positive action are collective efficacy, social identity, peer support, and emotional regulation capacity.
Reyes et al. (2023)	An investigation into the relationship	The findings of this study indicate that climate change anxiety influences the mental health of

	between climate change anxiety and mental health among gen z Filipinos	Generation Z in the Philippines. Higher levels of anxiety toward climate issues correspond to a greater likelihood of psychological distress, including stress, anxiety, and mild depression. However, at certain levels, environmental anxiety can serve as a positive driver, fostering concern, a sense of responsibility, and pro-environmental behavior. Furthermore, the Filipino cultural context—characterized by strong values of collectivism, religiosity, and a spirit of mutual assistance—has proven to be a protective factor, helping individuals manage ecological anxiety more adaptively.
Niedzwiedz et al. (2023)	Eco-anxiety among children and young people: A systematic review of social, political, and geographic determinants	Levels of environmental anxiety increase with age, peaking during adolescence and early adulthood. Adolescent females generally show higher levels of eco-anxiety than their male counterparts. Eco-anxiety is also a multidimensional phenomenon shaped by a range of social, political, and geographic factors. Additionally, media exposure plays a dual role: it can raise awareness and encourage pro-environmental behavior, but it can also generate excessive anxiety when messages are framed in alarming or fear-inducing ways. The effects on mental health include triggering stress, depression, sleep disturbances, PTSD, and diminished psychological well-being.

Eco-anxiety has a significant impact on the mental health of Generation Z. Several studies show an increased risk of stress, depression, concentration difficulties, and PTSD following climate disasters (Futó & Karcagi-Kováts, 2024; Lalal & Mishal, 2022; Showmiya & Kumar, 2024; Tahir, 2025; Tsevreni et al., 2023). Futó & Karcagi-Kováts (2024) found that more than 45% of young respondents reported climate anxiety affecting their daily lives. Niedzwiedz et al. (2023) further reinforced these findings, showing evidence of sleep disturbances and depression, particularly among adolescent females. These secondary data findings indicate that eco-anxiety affects not only emotional aspects but also cognitive and social functioning. Continuous exposure to climate crisis information through social media and global news coverage can intensify threat perception, generating feelings of helplessness and emotional exhaustion (Tahir, 2025).

Existential crisis is also one of the forms experienced by Generation Z. This existential crisis manifests as doubt about the future and a sense of losing direction and meaning in life amid the threat of climate change. Studies conducted by Tsevreni et al. (2023) and Futó & Karcagi-Kováts (2024) describe how many young people feel pessimistic about their prospects for survival and question the viability of having children in the future. Research by Lalal & Mishal (2022) similarly shows that Generation Z frequently experiences a sense of lost meaning in life as a result of environmental destruction. This illustrates that eco-anxiety extends beyond emotional symptoms alone, reaching into fundamental aspects of life—beliefs, identity, and existential meaning. This condition demonstrates how profoundly climate change can threaten the existential dimension of young people worldwide.

Furthermore, the literature also reveals that eco-anxiety does not always produce negative outcomes. Several studies indicate that this climate-related anxiety can motivate Generation Z to engage in environmental activism and adopt more sustainable lifestyles (Futó & Karcagi-Kováts, 2024; Tsevreni et al., 2023). Anxiety about impending change often serves as a starting point for collective awareness and social participation among young people. When feelings of fear, anger, and worry about the future are channeled constructively through social activities, campaigns, or environmental movements, eco-

anxiety can become a source of positive psychological energy (Dhanda, 2025). Research by Tsevreni et al. (2023) and Futó & Karcagi-Kováts (2024) shows that ecological anxiety can drive collective action and political engagement, as seen in movements such as Fridays for Future. Lalal & Mishal (2022) similarly describe eco-anxiety as a survival mechanism that can motivate Generation Z toward greater involvement in environmental advocacy. This suggests that eco-anxiety does not only affect mental health negatively but also functions as a catalyst for social and environmental change.

There are also notable differences in how eco-anxiety is understood and responded to between the Global North and the Global South. In Global North countries such as those in Europe and North America, eco-anxiety generally stems from heightened awareness of environmental issues and a sense of responsibility toward the climate crisis (Futó & Karcagi-Kováts, 2024; Tsevreni et al., 2023). Consequently, responses in these regions tend to take the form of active participation in environmental movements, policy advocacy, and sustainable lifestyle changes. In contrast, in Global South countries such as those in Asia and Africa, eco-anxiety is often tied to socioeconomic vulnerability and direct exposure to the everyday impacts of climate change, such as natural disasters, food crises, and economic instability (Reyes et al., 2023; Tsevreni et al., 2023).

These findings indicate that eco-anxiety is a highly complex psychological response to the threat of climate change. This anxiety arises from the interaction of environmental factors, personal experience, cultural values, and global information exposure, all of which shape how Generation Z interprets ecological risk. The findings further show that the levels of anxiety and forms of response identified reflect interconnected emotional, cognitive, behavioral, and existential dimensions of eco-anxiety. To understand how eco-anxiety develops from threat perception to how individuals respond through psychological coping mechanisms, this can be examined through the lens of protection motivation theory (PMT), as proposed by Rogers (1986). Based on Rogers' (1986) Protection Motivation Theory, the findings can be organized around the two primary dimensions of PMT, threat appraisal and coping appraisal. Analysis through these two dimensions provides insight into how eco-anxiety shapes the psychological and behavioral responses of Generation Z to the climate crisis.

3.1 Perception of threat and initial emotional reaction

Threat perception regarding climate change is evident in how Generation Z views its impacts as tangible, threatening to their personal futures, influencing life decisions about having children, and generating feelings of vulnerability amid increasing climate disasters in their surroundings (Futó & Karcagi-Kováts, 2024; Prentice-Dunn & Rogers, 1986). Within this threat appraisal dimension, the cognitive process of evaluating the level of danger encompasses perceptions of how severe the threat is and the extent to which individuals feel vulnerable to it (Shafiei & Maleksaedi, 2020).

Research by Tsevreni et al. (2023) shows initial emotional reactions to threat perception differing across geographic regions. Young people in the Global North tend to feel anxious and worried about their future, whereas in the Global South, impacts are more tangible—such as wildfires, floods, and droughts—making young people in the Global South more vulnerable to these threats. This indicates that individuals who have direct experience of climate change impacts report higher levels of perceived vulnerability and threat (Marikyan & Papagiannidis, 2023; Tsevreni et al., 2023).

Emotional attachment to the environment makes individuals more sensitive to climate change issues, increasing the likelihood of stress and ecological anxiety (Showmiya & Kumar, 2024). According to Protection Motivation Theory, high threat perception can trigger emotional responses such as anxiety and hopelessness, which form part of an initial mechanism through which individuals evaluate the impact of the threats they face (Marikyan & Papagiannidis, 2023; Prentice-Dunn & Rogers, 1986).

Bakul et al.'s (2025) findings on Generation Z in Bangladesh show that direct exposure to disasters heightens threat perception and vulnerability to climate change, as reflected in

climate anxiety levels affecting both cognitive and emotional dimensions (Prentice-Dunn & Rogers, 1986). Additionally, findings from Niedzwiedz et al. (2023) indicate that threat perception among Generation Z manifests through increased eco-anxiety during adolescence and early adulthood, with females showing higher vulnerability than males. Climate change thus constitutes a threat with direct impacts on mental health, including stress, depression, sleep disturbances, PTSD, and diminished psychological well-being (Niedzwiedz et al., 2023; Prentice-Dunn & Rogers, 1986; Robbins & Moore, 2013).

These findings align with the concept of protection motivation theory (PMT) as proposed by Prentice-Dunn & Rogers (1986), which holds that threat is perceived through two components: the extent to which the threat is regarded as serious (perceived severity), and the extent to which an individual feels vulnerable to that threat (perceived vulnerability). When individuals appraise climate change as a threat with high severity and vulnerability, a psychological response in the form of anxiety emerges as a form of self-protection (Clayton, 2020).

3.2 *Response and adaptation strategies*

Eco-anxiety among Generation Z gives rise to diverse psychological and behavioral responses, ranging from declining mental health to active engagement in environmental action (Dhanda, 2025; Futó & Karcagi-Kováts, 2024; Lalal & Mishal, 2022). Within the coping appraisal dimension, the psychological responses arising from eco-anxiety can be divided into two directions of adaptation strategy: maladaptive and adaptive (Clayton, 2020; Ojala, 2013; Rogers, 1975). Coping appraisal within protection motivation theory (PMT) comprises response efficacy, self-efficacy, and response cost, which together determine whether an individual exhibits an adaptive response or a maladaptive response such as withdrawal and feelings of helplessness (Marikyan & Papagiannidis, 2023).

On the maladaptive coping side, high levels of eco-anxiety can produce prolonged stress, depression, sleep disturbances, and emotional exhaustion, particularly among adolescent females and individuals in the Global South who are socioeconomically more vulnerable (Lalal & Mishal, 2022; Niedzwiedz et al., 2023; Tahir, 2025). This aligns with PMT, wherein when individuals assess their capacity to cope with a threat as low, reactions such as hopelessness and social withdrawal emerge (Rogers, 1975).

On the adaptive coping side, moderate levels of eco-anxiety can drive pro-environmental action and engagement in activism, such as environmental campaigns and sustainable lifestyle changes (Dhanda, 2025; Futó & Karcagi-Kováts, 2024; Tsevreñi et al., 2023). This is consistent with PMT's premise that belief in the effectiveness of action (response efficacy) and confidence in one's own capacity to contribute (self-efficacy) can serve as motivational drivers, giving rise to adaptive behavior (Rogers, 1975; Shafiei & Maleksaeidi, 2020). In this regard, eco-anxiety among Generation Z is not solely a negative phenomenon but can also become a source of motivation through the mechanism of coping appraisal (Ojala, 2013; Prentice-Dunn & Rogers, 1986).

Building on the discussion above, having identified eco-anxiety through the lens of threat perception and coping strategies in response to climate change among Generation Z, these psychological responses can also affect mental health status across the spectrum of psychological well-being. To understand how eco-anxiety influences the mental health of Generation Z, this can be examined through Keyes' (2002) mental health continuum theory. Based on Keyes' (2002) mental health continuum theory, the findings can be categorized into three primary states; flourishing, moderate mental health, and languishing. These three states offer insight into how varying levels and forms of eco-anxiety play distinct roles in shaping the mental health of Generation Z.

3.3 *Eco-anxiety contributes to flourishing*

Although eco-anxiety is often viewed as a form of negative anxiety, several prior studies indicate that, at certain levels, feelings of concern about environmental issues can

actually drive individuals toward a state of flourishing, or optimal mental well-being (Dhanda, 2025; Lalal & Mishal, 2022; Reyes et al., 2023; Showmiya & Kumar, 2024; Tsevreni et al., 2023). Individuals with moderate levels of eco-anxiety tend to exhibit heightened environmental awareness, a sense of responsibility toward nature conservation, and increased motivation to engage in pro-environmental activities as a form of social contribution (Malboeuf-Hurtubise et al., 2024).

Research conducted by Bakul et al. (2025) shows that among Generation Z in Bangladesh, climate anxiety triggers ecological coping strategies that, in turn, increase engagement in pro-environmental behavior as a form of positive psychological adaptation. According to Keyes (2002), the flourishing state is characterized by a balance among emotional, social, and psychological well-being. Adaptive eco-anxiety can enhance these dimensions through the cultivation of empathy, a sense of meaningful life purpose, and engagement in environmental activities (Ogunbode et al., 2022).

Furthermore, Tsevreni et al. (2023) note that although Generation Z experiences existential anxiety as a result of the climate crisis, many have transformed feelings of fear and anger into collective action, such as the Fridays for Future movement. This reflects psychological and social functioning consistent with the characteristics of individuals in a flourishing state (Keyes, 2002). Eco-anxiety can also be managed positively through peer support and emotional regulation (Dhanda, 2025). This social support and shared sense of purpose reflect the aspects of social integration and social contribution, which fall within the social well-being dimension of the mental health continuum (Keyes, 2007). Both aspects demonstrate an individual's capacity to feel connected to their community and to contribute meaningfully to their social environment (Keyes, 2007).

Meanwhile, research conducted by Showmiya & Kumar (2024) shows that although eco-anxiety and environmental identity are negatively associated with mental health, this relationship also illustrates that emotional attachment to the environment can serve as a foundation for proactive energy. When individuals are able to manage their ecological anxiety adaptively—through environmental advocacy, public education, and community engagement—this condition has the potential to foster flourishing, characterized by feelings of thriving and psychological growth. Additionally, social support and environmental adaptive capacity play an important role in maintaining mental health balance amid the climate crisis (Hannachi et al., 2024). Eco-anxiety within the context of flourishing is therefore not merely an obstacle, but a psychological condition that can direct Generation Z toward pro-environmental action (Pihkala, 2020).

3.4 Eco-anxiety in moderate mental health conditions

Some members of Generation Z show a balance between negative and positive emotions in responding to climate change. They recognize the reality of ecological threats yet remain able to adapt emotionally, seeking solutions through social action, education, and environmental advocacy (Dhanda, 2025; Pihkala, 2020; Tsevreni et al., 2023). Individuals at this stage can experience ecological anxiety without losing control over their lives, indicating a state of moderate mental health (Clayton, 2020; Keyes, 2002). In this state, individuals are neither fully flourishing nor experiencing psychological decline (languishing); rather, they remain able to function socially and psychologically despite confronting ecological anxiety (Clayton, 2020; Keyes, 2002; Pihkala, 2020).

Findings from Futó et al. (2024) and Lalal & Mishal (2022) highlight that some members of Generation Z are able to manage anxiety toward the climate crisis through active engagement with environmental issues. Rather than rejecting their anxiety, they channel it as motivation to act—changing their lifestyles and engaging in pro-environmental activities. This aligns with Keyes' (2002) view that individuals in a state of moderate mental health remain capable of social functioning and maintaining a sense of meaning in life, even without achieving optimal well-being. Additionally, findings from Tahir (2025) show that Generation Z demonstrates high mental health awareness and tends to seek support through peer communities and social media to manage stress and anxiety.

Findings from Showmiya & Kumar (2024) illustrate that the stronger an individual's environmental identity, the greater the level of eco-anxiety experienced. Although this has negative implications for mental health, emotional attachment to the environment can also enhance ecological awareness and social empathy. At this stage, individuals are not fully flourishing, as they continue to experience emotional strain, yet they are not languishing either, as they continue to exhibit adaptive social and psychological functioning (Keyes, 2002).

Eco-anxiety within this state of moderate mental health reflects a form of ecological awareness that remains within adaptive limits. Individuals at this stage recognize the climate threat while maintaining emotional balance, social connectedness, and life purpose through various forms of pro-environmental engagement (Dhanda, 2025; Keyes, 2002; Pihkala, 2020; Showmiya & Kumar, 2024; Tsevreni et al., 2023). Eco-anxiety at non-severe levels also constitutes a form of functional distress—a functional emotional response to the threat of climate change—signaling a high degree of connectedness between the individual and their surrounding environment (Lutz et al., 2023).

3.5 *Eco-anxiety and the state of languishing*

In the languishing state, eco-anxiety develops into a form of anxiety that is no longer adaptive. Individuals experience emotional exhaustion, loss of hope, and difficulty finding meaning in life when confronting climate change (Clayton, 2020; Keyes, 2002). According to Keyes (2002), languishing is a condition in which individuals do not display clinically diagnosable mental disorder symptoms, yet occupy the lowest point on the mental health continuum due to diminished emotional, social, and psychological functioning.

Research by Ogunbode et al. (2022) shows that high levels of eco-anxiety are frequently accompanied by declining life satisfaction and psychological functioning. Young people who feel unable to make a tangible impact on climate change tend to experience prolonged stress and hopelessness. Meanwhile, findings from Pihkala (2020) show that excessive eco-anxiety can produce feelings of helplessness, profound grief (eco-grief), and a sense of disconnection from society and the surrounding environment.

Tsevreni et al. (2023) further explain that some members of Generation Z view the climate crisis as an existential crisis, giving rise to fear of the future, a sense of lost hope, and even reluctance to have children. These findings suggest that severe eco-anxiety can produce eco-grief and ecological trauma, particularly in the Global South, which is more vulnerable to climate disasters such as floods, droughts, and wildfires (Tsevreni et al., 2023b). Reyes' (2024) findings in the Philippines similarly found that high levels of climate-related anxiety correlate with increased psychological distress, including stress, anxiety, and mild depression.

Eco-anxiety within this languishing state reflects a condition in which individuals become trapped between environmental concern and an inability to cope with it emotionally. Ecological anxiety at this stage produces feelings of helplessness, loss of hope, and diminished social and psychological functioning (Clayton, 2020; Keyes, 2002; Stanley et al., 2021). Within the framework of the mental health continuum theory, this condition reflects low mental well-being—not due to clinical disorder, but because the individual is unable to find meaning and connection while confronting the reality of the climate crisis (Keyes, 2002).

Overall, the analysis shows that eco-anxiety among Generation Z can be positioned along the mental health spectrum in accordance with Keyes' (2002) mental health continuum theory. At adaptive levels, eco-anxiety functions as a source of motivation and ecological awareness that can drive individuals toward a state of flourishing through pro-environmental action and social engagement (Bakul et al., 2025; Dhanda, 2025; Keyes, 2002; Lalal & Mishal, 2022). Conversely, when ecological anxiety intensifies without adequate emotional and social support, individuals may shift toward moderate mental health or even languishing, a state marked by emotional exhaustion and declining psychological functioning (Clayton, 2020; Keyes, 2002; Ogunbode et al., 2022; Tsevreni et

al., 2023). Eco-anxiety is therefore not merely an emotional response to climate change but a psychological phenomenon reflecting the balance among awareness, resilience, and adaptive capacity within each individual confronting the environmental crisis.

4. Conclusion

This study confirms that eco-anxiety is a complex psychological response that affects the mental health of Generation Z in confronting climate change. Drawing on Protection Motivation Theory, eco-anxiety forms through the mechanisms of threat appraisal and coping appraisal, producing two directions of response: adaptive and maladaptive. Adaptive responses drive engagement in pro-environmental behavior and activism. Maladaptive responses, meanwhile, are marked by symptoms of stress, depression, emotional exhaustion, and even PTSD. Within the mental health continuum theory, the level and form of eco-anxiety can be positioned along a spectrum of mental well-being encompassing flourishing, moderate mental health, and languishing. At adaptive levels, eco-anxiety functions as a source of ecological awareness and motivation for pro-environmental behavior. However, when ecological anxiety intensifies without adequate emotional or social support, individuals risk emotional exhaustion, loss of life meaning, and declining psychological functioning, which can lead toward a state of languishing. These findings broaden the understanding of eco-anxiety, positioning it not merely as a form of negative anxiety but also as a potentially transformative emotional response capable of driving environmental action, fostering engagement in social activism, and enhancing psychological well-being. This demonstrates that eco-anxiety plays a dual role: it can generate emotional distress, yet it can also serve as a positive psychological driver that motivates individuals to adapt and contribute to environmental sustainability.

This study contributes to the development of environmental psychology and mental health scholarship by highlighting the importance of a positive well-being approach for understanding and managing the psychological impacts of the climate crisis on younger generations. Furthermore, these findings may serve as a foundation for developing psychological interventions and environmental education programs oriented toward strengthening resilience, adaptively managing ecological anxiety, and reinforcing pro-environmental behavior among young people. This study has several limitations that warrant consideration. The number of articles specifically addressing eco-anxiety among Generation Z within the framework of Keyes' Mental Health Continuum and Rogers' Protection Motivation Theory remains very limited, which may constrain the comprehensiveness of the analysis. Additionally, the literature analyzed is drawn largely from research conducted in specific geographic regions, particularly the Global North, and does not yet fully represent the experiences of Generation Z in the Global South, including Indonesia.

Future research could explore cross-cultural comparisons between Global North and Global South countries to gain deeper insight into contextual differences in how eco-anxiety affects the mental health of Generation Z. Longitudinal research could also be employed to observe how the phenomenon of eco-anxiety evolves over time, and how coping mechanisms, social support, and environmental engagement influence the mental health of Generation Z. Future studies could further develop resilience-based psychological interventions and environmental education programs to help young people transform ecological anxiety into an adaptive strength and a long-term commitment to ecosystem sustainability.

Acknowledgement

The author would like to thank the researchers and institutions whose data were used as references in this study, as well as academic colleagues who provided valuable feedback throughout the writing process.

Author Contribution

The author was responsible for the conceptualization of the study, secondary data collection and analysis, manuscript preparation, and development of the conclusions.

Funding

This research received no external funding.

Ethical Review Board Statement

Not available.

Informed Consent Statement

Not available.

Data Availability Statement

Not available.

Conflicts of Interest

The author declare no conflict of interest.

Declaration of Generative AI Use

During the preparation of this work, the author used Claude to assist in improving grammar, clarity, and academic tone of the manuscript. After using this tool, the author reviewed and edited the content as needed and took full responsibility for the content of the publication.

Open Access

©2026. The author. This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>

References

- Bakul, F., Heanoy, E. Z., Antu, A. Das, Khandakar, F., & Ahmed, S. (2025). Assessing the relationship between climate change anxiety, ecological coping, and pro-environmental behavior: Evidence from Gen Z Bangladeshis. *Acta Psychologica*, 254. <https://doi.org/10.1016/j.actpsy.2025.104847>
- Boluda-Verdú, I., Senent-Valero, M., Casas-Escolano, M., Matijasevich, A., & Pastor-Valero, M. (2022). Fear for the future: Eco-anxiety and health implications, a systematic review. In *Journal of Environmental Psychology* (Vol. 84). Academic Press. <https://doi.org/10.1016/j.jenvp.2022.101904>
- Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, 74. <https://doi.org/10.1016/j.janxdis.2020.102263>
- Coffey, Y., Bhullar, N., Durkin, J., Islam, M. S., & Usher, K. (2021). Understanding eco-anxiety: A systematic scoping review of current literature and identified knowledge gaps. *The journal of climate change and health*, 3, 100047. <https://doi.org/10.1016/j.joclim.2021.100047>
- Cosh, S. M., Ryan, R., Fallander, K., Robinson, K., Tognela, J., Tully, P. J., & Lykins, A. D. (2024). The relationship between climate change and mental health: a systematic review of

- the association between eco-anxiety, psychological distress, and symptoms of major affective disorders. *BMC Psychiatry*, 24(1). <https://doi.org/10.1186/s12888-024-06274-1>
- Dhanda, J. (2025). Climate anxieties and collective action: Sociopsychological dynamics of eco-activism among Gen Z. *Shodh Prakashan Journal*, 2(10), 80–97. <https://shodhprakashan.in/index.php/journal/issue/view/33>
- Elitok, M. (2022). exploring eco-anxiety and coping in young adults: a qualitative study on the mental health effects of environmental crisis. İstanbul Bilgi University. <https://tez.yok.gov.tr/UlusalTezMerkezi/TezGoster?key=sELqxhTlFGAjsbjOuuuyCKO0ip-nAPohUYqnSNIZlCpytCC2WIWNDj4ZtWf-QU7m>
- Futó, J. E., & Karcagi-Kováts, A. (2024). Understanding Gen Z's climate anxiety: A look at the latest research. *Cognitive Sustainability*, 3(2). <https://doi.org/10.55343/cogsust.103>
- Hannachi, T., Yakimova, S., & Somat, A. (2024). A follow up on the continuum theory of eco-anxiety: Analysis of the climate change anxiety scale using item response theory among French speaking population. *International Journal of Environmental Research and Public Health*, 21(9), 1158. <https://doi.org/10.3390/ijerph21091158>
- Heinz, A. (2024). The impact of climate change on mental health. *European Psychiatry*, 67(S1), S1-S1. <https://doi.org/10.5281/zenodo.14558448>
- Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. *The Lancet Planetary Health*, 5(12), e863–e873. [https://doi.org/10.1016/S2542-5196\(21\)00278-3](https://doi.org/10.1016/S2542-5196(21)00278-3)
- Kelman, I., Ayeb-Karlsson, S., Rose-Clarke, K., Prost, A., Ronneberg, E., Wheeler, N., & Watts, N. (2021). A review of mental health and wellbeing under climate change in small island developing states (SIDS). In *Environmental Research Letters* (Vol. 16, Issue 3). IOP Publishing Ltd. <https://doi.org/10.1088/1748-9326/abe57d>
- Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222. <https://doi.org/10.2307/3090197>
- Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *American Psychologist*, 62(2), 95–108. <https://doi.org/10.1037/0003-066X.62.2.95>
- Kurth, C., & Pihkala, P. (2022). Eco-anxiety: What it is and why it matters. In *Frontiers in Psychology* (Vol. 13). Frontiers Media S.A. <https://doi.org/10.3389/fpsyg.2022.981814>
- Lalal, N., & Mishal, S. (2022). Eco-Anxiety: Impact on generation Z's mental health and the contemporary significance of environmental awareness and education. *International Journal of Policy Sciences and Law*, 2(2), 3313–3331. <http://ijpsl.in/wp-content/uploads/2022/01/Eco-Anxiety-Impact-on-Generation-Zs-Mental-Health-and-the-Contemporary-Significance-of-Environmental-Awareness-and-Education-merged.pdf>
- Lutz, P. K., Passmore, H. A., Howell, A. J., Zelenski, J. M., Yang, Y., & Richardson, M. (2023). The continuum of eco-anxiety responses: A preliminary investigation of Its nomological network. *Collabra: Psychology*, 9(1). <https://doi.org/10.1525/collabra.67838>
- Malboeuf-Hurtubise, C., Léger-Goode, T., Herba, C. M., Bélanger, N., Smith, J., & Marks, E. (2024). Meaning making and fostering radical hope: applying positive psychology to eco-anxiety research in youth. *Frontiers in Child and Adolescent Psychiatry*, 3, 1296446. <https://doi.org/10.3389/frcha.2024.1296446>
- Marikyan, D., & Papagiannidis, S. (2023). *Protection motivation theory*. TheoryHub Book: This handbook is based on the online theory resource: TheoryHub.
- Mucharomah, N. L., & Luqman, Y. (2024). Pengaruh terpaa media terkait perubahan iklim dan self-efficacy terhadap tingkat eco-anxiety pada Generasi Z di Indonesia. *Interaksi Online*, 13(1), 653-664. <https://ejournal3.undip.ac.id/index.php/interaksi-online/article/view/48826>

- Niedzwiedz, C. L., Kankawale, S. M., & Vittal Katikireddi, S. (2023). Eco-anxiety among children and young people: A systematic review of social, political, and geographic determinants. In *MedRxiv* (pp. 1–45). <https://doi.org/10.1101/2023.12.19.23300198>
- Ogunbode, C. A., Doran, R., Hanss, D., Ojala, M., Salmela-Aro, K., van den Broek, K. L., Bhullar, N., Aquino, S. D., Marot, T., Schermer, J. A., Wlodarczyk, A., Lu, S., Jiang, F., Maran, D. A., Yadav, R., Ardi, R., Chegeni, R., Ghanbarian, E., Zand, S., ... Karasu, M. (2022). Climate anxiety, wellbeing and pro-environmental action: correlates of negative emotional responses to climate change in 32 countries. *Journal of Environmental Psychology*, 84. <https://doi.org/10.1016/j.jenvp.2022.101887>
- Ojala, M. (2013). Coping with climate change among adolescents: Implications for subjective well-being and environmental engagement. *Sustainability (Switzerland)*, 5(5), 2191–2209. <https://doi.org/10.3390/su5052191>
- Pihkala, P. (2020). Anxiety and the ecological crisis: An analysis of eco-anxiety and climate anxiety. *Sustainability (Switzerland)*, 12(19). <https://doi.org/10.3390/SU12197836>
- Prentice-Dunn, S., & Rogers, R. W. (1986). Protection motivation theory and preventive health: beyond the health belief model. <https://doi.org/https://doi.org/10.1093/her/1.3.153>
- Renuat, A., Muhadzib, M. A., & Rachmawati, D. E. (2024). Exploration of climate change on mental health in Indonesia: Systematic analysis review. In *Proceeding International Conference Restructuring and Transforming Law*, 37-47. <https://proceedings.ums.ac.id/icrtlaw/article/view/3606>
- Reyes, Carmen, B. P. B., Luminarias, M. E. P., Mangulabnan, S. A. N. B., & Ogunbode, C. A. (2023). An investigation into the relationship between climate change anxiety and mental health among Gen Z Filipinos. *Current Psychology*, 42(9), 7448–7456. <https://doi.org/10.1007/s12144-021-02099-3>
- Reyes, F., Gosme, M., Wolz, K. J., Lecomte, I., & Dupraz, C. (2021). Alley cropping mitigates the impacts of climate change on a wheat crop in a mediterranean environment: A biophysical model-based assessment. *Agriculture (Switzerland)*, 11(4). <https://doi.org/10.3390/agriculture11040356>
- Robbins, P., & Moore, S. A. (2013). Ecological anxiety disorder: Diagnosing the politics of the Anthropocene. In *Cultural Geographies*, 20(1), 3–19. SAGE Publications Ltd. <https://doi.org/10.1177/1474474012469887>
- Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *The Journal of Psychology*, 91(1), 93–114. <https://doi.org/10.1080/00223980.1975.9915803>
- Rückle, K., Rohrer, M., Mihók, B., Johansson, M., Andersson, H., Pomee, M. S., Vergadi, E., Rouva, G., Agrawal, A., Balázs, B., Brattich, E., Carelli, M., De Luca, C., Di Sabatino, S., Krishnan V, S., Molter, A., Pilla, F., Ruggieri, P., Scolobig, A., & Hertig, E. (2025). Determinants and relationships of climate change, climate change hazards, mental health, and well-being: a systematic review. In *Frontiers in Psychiatry* (Vol. 16). Frontiers Media SA. <https://doi.org/10.3389/fpsyt.2025.1601871>
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. In *Journal of Personality and Social Psychology*, 69(4). <https://psycnet.apa.org/buy/1996-08070-001>
- Shafiei, A., & Maleksaeidi, H. (2020). Pro-environmental behavior of university students: Application of protection motivation theory. *Global Ecology and Conservation*, 22. <https://doi.org/10.1016/j.gecco.2020.e00908>
- Showmiya, S. H. A., & Sajeeth Kumar, G. (2024). Impact of environmental identity and eco-anxiety on mental health among two generation people (Gen X and Z). In *Impact of Climate Change on Social and Mental Well-Being* (pp. 259–275). Elsevier. <https://doi.org/10.1016/B978-0-443-23788-1.00014-2>
- Stanley, S. K., Hogg, T. L., Leviston, Z., & Walker, I. (2021). From anger to action: Differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing. *Journal of Climate Change and Health*, 1. <https://doi.org/10.1016/j.joclim.2021.100003>

- Tahir, A. (2025). The effects of generation anxiety on post-secondary mental health outcomes: Implications for service providers and educators. (Doctoral dissertation, Lethbridge, Alta.: University of Lethbridge, Faculty of Education).
- Tsevreni, I., Proutsos, N., Tsevreni, M., & Tigkas, D. (2023). Generation Z worries, suffers and acts against climate crisis—the potential of sensing children's and young people's eco-anxiety: A critical analysis based on an integrative review. In *Climate* (Vol. 11, Issue 8). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/cli11080171>
- World Meteorological Organization. (2025). *WMO confirms 2024 as warmest year on record at about 1.55°C above pre-industrial level*. World Meteorological Organization. <https://wmo.int/news/media-centre/wmo-confirms-2024-warmest-year-record-about-155degc-above-pre-industrial-level>
- Yunanto, F., & Sa'adiyah Sy, E. N. (2025). Archipelagic eco-Futures: Eco-anxiety dan harapan ekologis dalam fiksi iklim Indonesia dan Filipina. *GHANCARAN: Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, 783–793. <https://doi.org/10.19105/ghancaran.vi.21619>

Biography of Author

Vidia Ade Lukmannia, Department of Psychology, Faculty of Psychology and Humanities, Universitas Muhammadiyah Magelang, Magelang, Central Java 59214, Indonesia.

- Email: vidia.adel11@gmail.com
- ORCID: 0009-0004-2863-0685
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A