



From environmental threat to psychological distress: Eco-anxiety as an emerging mental health issue in climate-vulnerable societies

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ABSTRACT

Background: Climate change has increasingly been recognized not only as an environmental crisis but also as a significant threat to human mental health. One emerging psychological response to this condition is eco-anxiety, which reflects persistent worry, fear, and emotional distress related to environmental degradation and climate uncertainty. In Indonesia, where climate-related disasters and ecological vulnerability are highly prevalent, discussions on eco-anxiety remain fragmented and underexplored within mental health discourse. This study aims to critically review existing literature on eco-anxiety and examine how the climate crisis affects mental health from both global and Indonesian perspectives. **Methods:** This study employed a qualitative literature review approach by systematically collecting and analyzing scientific publications from national and international databases, including SINTA, Scopus, and PubMed Central. Relevant peer-reviewed journal articles and selected disaster reports were reviewed using thematic analysis to identify key patterns, relationships, and research gaps related to eco-anxiety and mental health. **Findings:** The review indicates that eco-anxiety is closely associated with psychological distress such as anxiety, stress, and reduced mental well-being, particularly among younger populations and communities exposed to climate risks. Social context, media exposure, and collective experiences were found to intensify eco-anxiety, while adaptive coping mechanisms and social support play important roles in mental resilience. However, empirical research in Indonesia remains limited, with a lack of culturally adaptive measurement tools and integrated policy responses. **Conclusion:** Eco-anxiety represents a multidimensional mental health challenge that requires greater attention within climate adaptation and public health strategies. Integrating environmental perspectives into mental health services is essential to strengthen psychological resilience amid ongoing climate change. **Novelty/Originality of this article:** This article contributes a comprehensive and contextualized synthesis of eco-anxiety literature by highlighting research gaps, social dimensions, and policy implications within the Indonesian context, offering an integrative perspective that connects environmental psychology, mental health, and climate change.

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

1. Introduction

“The climate crisis is not just about the environment, it is a crisis of humanity, affecting our minds, our future, and our sense of safety.” Greta Thunberg expressed the climate crisis as being not just an environmental issue but the beginning of a humanitarian crisis that affected the mind, psychological welfare, future, and security vulnerability of generations

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thereafter (Buedo & Daly, 2025). In Indonesia, climate change is evident from erratic precipitation intensity, extreme weather such as rainstorms to the impact of fear - inspiring farming cycles, grief over loss of the environment, and environmental anxiety known as eco-anxiety. Eco-anxiety reflects the emotional pressure generated by viewing or anticipating irreversible environmental degradation. Such psychological responses come to great attention as a primary focus in environmental psychology. This phenomenon, though relatively new in the discourse of mental health, has begun to take a look at the global literature showing that climate change can trigger negative effects as a result of pressures on human life and its environment. Especially on the potential effects when the environment has been damaged.

Then, in a systematic study of 2024, eco-anxiety has a positive correlated to mental disorders, such as anxiety and depression over many countries (Cosh et al., 2024). Thus, the urgency of the merger of environmental aspects of mental health services is clear. It no longer speaks only of the physical infrastructure and the changing seasons, but also of the psychological infrastructure capable of carrying the psychological burden of the climate crisis. The problem is even more urgent because a number of data show the real impact of climate change on mental health in Indonesia. A longitudinal study in Australia analysing 11 waves of data from 2,003 individuals found that exposure to a single weather-related disaster (such as a flood, bushfire or cyclone) was not significantly associated with a decline in mental health scores, in contrast to findings regarding repeated exposure (Mitchell et al., 2024). Qualitative research involving 21 flood survivors in Kerala revealed that post-disaster resilience is influenced by three main attributes: dispositional attributes (self-efficacy, hope, optimism, perseverance, and tenacity), cognitive attributes (cognitive reframing and cognitive flexibility), and situational attributes (social support, community attachment, and collective efficacy) (Panigrahi & Suar, 2021). In contrast to findings among professional emergency personnel, levels of peri-traumatic distress and the extent to which volunteers were personally affected by the disaster (regardless of whether they came from the directly affected area or not) were not found to predict PTSD symptoms or subjective health complaints among community volunteers (Thormar et al., 2014). These studies suggest that the mental workload of climate disasters in Indonesia is very real not only temporary but potentially potentially debilitating the long-term welfare and economic capacities of society are vulnerable.

As are the facts of recent times. The catastrophic flashflood and avalanche that hit Sumatra by late November 2025, a major trigger factors include forest degradation in the headland of the river (das) asa result of deforestation for palm and illegal logging, which reduces soil 'absorption of water, increases surface runoff, and triggers a large-scale avalanche. The causes of nature are further complicated by global climate change, where rising temperatures of up to 1.55 droughts strengthen rainfall intensity with monthly precipitation falling in just one day, creating an extreme climate pattern that can be directly linked to human ecological damage (Salehi, 2024). The result was tragic, with more than 1,000 people dead and 186 missing by December 21, 2025, with extensive infrastructure damage, food crisis, power outage, and mass displacement in such areas as aceh, religio, and tapanuli (EM-DAT, 2025). The combination of "human behavior" such as the loss of forest cover and the nature of steep slopes makes this disaster a real warning of growing climate uncertainty, where extreme weather is a powerful trigger to eroded environmental vulnerability.

Efforts to deal with the effects of climate change on mental health have begun to come from a variety of angles. Governments, for example, through health education programs and promotion in flood and drought communities, have begun to introduce climate adaptation education into public health activities (Berry et al., 2018). An international study shows that self-promoting strategies integrated with climate adaptation have been effective in improving community literacy and reducing environment-related concerns. On the other hand, community and service organizations have implemented healing trauma and post-disaster psychosocial support for children and communities affected by floods or rob, with results indicating deductions in anxiety after intervention. Nevertheless, most of these

programs are still local or ad-hoc, not yet systematic and not integrated into national mental health services.

While attention to the effects of climate change on mental health is increasing, the study of eco-anxiety in Indonesia remains a limited and is not systematically integrated. Most of the research and programs still remain focused on handling the postdisaster, while long-term psychological aspects such as environmental anxiety, loss of nature, and future uncertainty remain largely to the fore. However, the psychological pressure of the climate crisis does not always come directly but grows slowly as exposure to environmental risks and climate related information (Cosh et al., 2024). The deficiencies of the study indicate a gap between the increasingly complex effects of the climate crisis and the still fragmented scientific response. Without adequate understanding of eco-anxiety, mental health care efforts are potentially reactive and stretch out from the root of the problem (Mosca et al., 2025). Therefore, studies that integrate environmental psychology perspectives, mental health, and climate change become important to paint a more comprehensive picture of how the climate crisis affects people's psychological well-being, especially in developing countries like Indonesia, which have a high level of environmental vulnerability.

Based on these conditions, the article aims to critically review the literature on eco-anxiety and the impact of the climate crisis on mental health, both in the global and in Indonesia. It is hoped that the study can contribute conceptually to enriching environmentally based mental health discourses, while at the same time providing a more responsive basis for policy development and mental health interventions to climate change challenges. Thus, the study not only serves as an academic study but also as a reflection of the urgent need for an adaptive mental health approach in the midst of an ongoing climate crisis.

2. Methods

2.1 Research approach and data sources

The study used a qualitative approach with literature review as a primary technique in data collection and analysis. This approach was chosen because the aim of research focuses, not on hypothesis testing or direct field data gathering, but on understanding, reviewing, and synthesizing existing scientific findings related to the eco-anxiety phenomenon and the impact of the climate crisis on mental health. Library study methods are considered relevant to explore systematic and critical concepts, patterns of findings, and development of scientific studies, especially on issues still in relative growth in Indonesia (Creswell & Poth, 2018).

The research's national and international scientific journals are indexed in reputable databases, such as *sinta*, *scopus*, and *pubmed central* (PMC), as well as peer-demographic articles on the research topic. In addition, recent climate disaster reports from credible news sources are used limited as support data to give empirical context to the discussion, especially in describing the actual conditions affecting the climate crisis in Indonesia. The use of supporting data is not intended as a primary source of analysis, but rather as a contextual illustration that reinforces the relevance of theoretical studies to the social realities occurring in society (Yin, 2018).

2.2 Data collection and analysis procedure

Primary data in the study includes an empirical and conceptual study that addresses eco-anxiety, mental health, and climate change, both in the context of Indonesia and global, with a focus on environmental psychology. An emphasis on ward psychology is made to understand the relationship between changing environmental conditions and individual and community psychological responses (Clayton, 2019). This perspective enables a more comprehensive analysis of how the climate crisis affects mental well-being, not only at the individual level, but also in a broader social and community context.

The data collection process is based on a literary search of the Google scholar, the scopus, and pubmed database using key words such as "eco-anxiety of Indonesia," "climate anxiety of mental health," and a combination of other relevant key words. Literature obtained is then selected through screening processes based on inclusion and exclusion criteria. Inclusion criteria include the relevance of topics, quality publications, journal indexing, and relatively recent publication timings. Meanwhile, literature that had not been substantially relevant or otherwise met academic standards was expelled from analysis (Ridley, 2012). The final stage of analysis is by thematically regrouping key findings to identify the patterns, research gaps, and theoretical and practical implications of eco-anxiety studies in the context of the climate crisis.

3. Results and Discussion

3.1 *Eco-anxiety as a psychological impact of the climate crisis*

Increasingly evident climate change has affected not only the physical aspects of the environment but also significantly the mental health of humans. The concept of eco-anxiety refers to the anxiety and psychological stresses arising from awareness of the threat of climate change and its potential to span future life. An international systematic study found that eco-anxiety correlates with the symptoms of psychological disorders such as stress, depression, and general anxiety, and suggests that this anxiety is not just a temporary measure of fear but can strain mental health in the long run because it involves perceptions of the threat to human existence and wellbeing (including a significant relationship between eco-anxiety and anxiety symptoms in various population groups) (Cosh et al., 2024). This relationship between climate change and mental stress is also strengthened by studies that study the eco-anxiety phenomenon in the young generation's context. Quantitative research suggests that the z generation indicates higher levels of eco-anxiety than other age-groups, which indicates a different psychological vulnerability between cohorts of the global climate threat (Marcolini et al., 2025). This phenomenon suggests that repeated exposure to the reporting of climate change and intimidation of future uncertainties can bolster feelings of anxiety, especially for individuals who do not yet have mature psychological coping mechanisms against such social-environmental threats.

In the Indonesian context, some local studies indicate that climate change is affecting people's mental health through exposure to natural disasters and social adaptation challenges. For example, studies that conduct a review of the effects of climate change on people's health point out that extreme weather conditions, such as floods and droughts, not only affect the physical but also contribute to increased ecological anxiety and other psychological disorders at the community level. The findings make clear that mental health risks resulting from the climate crisis are no longer speculative but are important issues that should be included in public health studies in Indonesia (Charlson et al., 2021). Furthermore, the national literature indicates that ecological anxiety is also influenced by exposure to media and communication patterns on climate change, which are significantly linked to eco-anxiety levels in the young generation. Research on communication in Indonesia found that exposure to information on climate change through various media channels is strongly linked to increased environmental anxiety, suggesting that this phenomenon is influenced not only by direct experiences of disasters but also by the way climate issues are consumed socially and communicatively. Thus, eco-anxiety needs to be viewed as a multidimensional phenomenon involving environmental, psychological, and social-cultural factors simultaneously.

Newberry Le Vay et al. (2024) reveal that climate change education without adequate psychological support actually risks triggering climate anxiety in children and adolescents, which can hinder sustainable climate action. Conversely, integrating mental health into the climate change curriculum enables learners to develop coping strategies, agency and hope, so that emotional responses to the climate crisis can shift from being a burden to a driver of collective action. The authors propose a whole-school approach as a framework for

implementation, whilst acknowledging that systemic barriers such as a lack of teacher training and funding silos remain major challenges.

Thus, eco-anxiety management can become a catalyst for sustainable adaptation of climate change at the national level. In implementing multidisciplinary interventions approaches, community-based programs become the key to reducing the load of eco-anxiety. Initiatives like the anti-social support groups combined with environmental restoration activities, such as mangrove planting in the east coast of Java, have proved to be effective in turning anxiety into action. Local research indicates that participation in these projects reduces anxiety symptoms by 30% in the younger generation, by giving a sense of control and a direct contribution to climate mitigation (Wutich et al., 2020).

Mental-health screening integration based on eco-anxiety in disaster - related systems requires special training for primary health. Simple screening modules that measure levels of climate concern through adaptive questionnaires can be integrated into routine services, enabling early detection and reference to psychological services. Evidence from the project pilot in Kalimantan indicates that this approach increased the emotional resilience of communities by 40%, with cross-ministry collaboration that accelerated the distribution of resources. Ultimately, eco-worry management not only protects mental health but also strengthens national adaptation to climate change through ongoing collective action. By building a climate education curriculum in Sumatra and east Java that emphasizes emotional resilience, future generations can turn threats into opportunities for innovation. The findings of a similar program evaluation confirm a significant decline in the prevalence of climate depression, making this strategy the foundation for long-term national resilience.

Beyond eco-anxiety's relationship with public behavior and policy, research also suggests that eco-anxiety can worsen psychological conditions when triggered by repeated exposure to extreme climate events. In a global study linking climate change exposures to the mental impact, it has been found that citizens affected by disasters such as floods or heat waves are more likely to experience stress, anxiety and psychological disorders than those who are not affected. The study pointed out that extreme climate conditions, which increase the frequency of climate change, not only pose physical threats but also have long-term psychological impact on affected communities, which should be noted in the design of disaster health and policy strategies (Hwong et al., 2022). Empirical studies also reveal that eco-anxiety is not independent, but is often linked to other psychological burdens such as post-traumatic stress disorder and depression when individuals feel they are losing control over their ecological future. The results suggest that climate-related anxiety can well distort public health if it is not properly interfaced, especially in vulnerable populations such as young people and those in volatile areas. The systematic study also emphasizes that community-based interventions, education and psychosocial support need to be developed more systematically as part of public health responses to the effects of the climate crisis (Fernanda et al., 2024).

3.2 Eco-anxiety relationships with people's mental health

Figure 1. Global prevalence of eco-anxiety among youth aged 16-25 based on a 10-country survey (N=10,000). Data indicate that 75% of young respondents find the future frightening, 58% feel betrayed by their government's climate response, and 39-48% are hesitant to have children due to climate concerns. Climate anxiety is notably higher in Global South countries (65.5%) compared to Global North countries (42%) (Hickman et al., 2021), *The Lancet Planetary Health*. High eco-anxiety levels are often linked to indications of psychological disorders, such as excessive anxiety, stress, and sleep disorders. In the context of students in Indonesia, studies show that climate change has significantly affected their psychological condition; The majority of the respondents reported climate - related concerns such as extreme weather or flooding, which then affected their daily thinking and emotions. The findings suggest that climate change is not only an environmental issue but also a factor that exacerbates the better psychological condition of the younger generation (Baudon & Jachens, 2021).

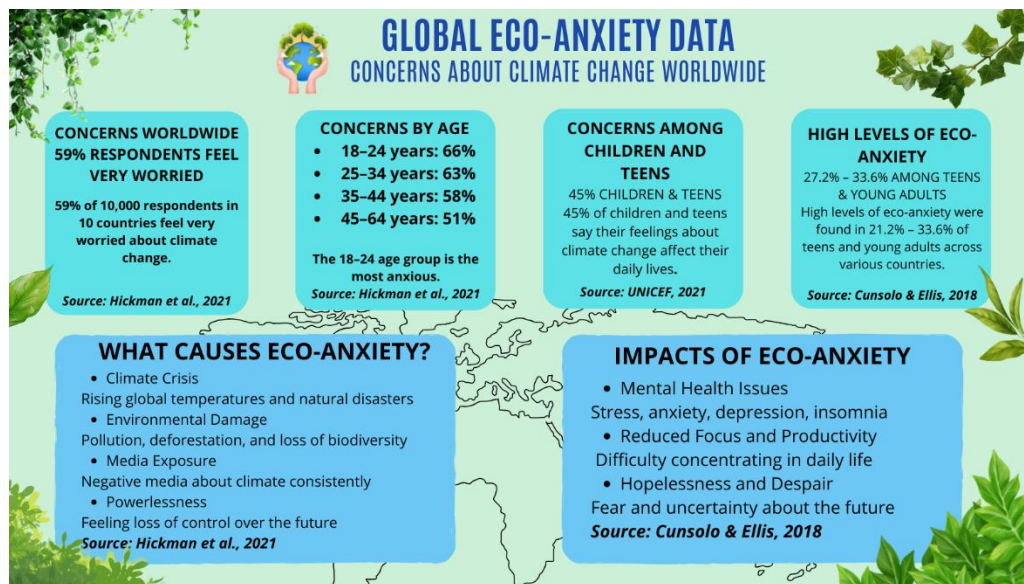


Fig. 1. Global eco-anxiety data: Concerns about climate change worldwide (Hickman et al., 2021; UNICEF, 2021; Cunsolo & Ellis, 2018)

Another study that focused on the climate anxiety among university students in Bandung showed that anxiety arising from perceptions of climate change tends to be widespread, even in individuals who have not been directly affected by the climate catastrophe. This suggests that exposure to information about climate change and environmental uncertainty can trigger a significant negative psychological response. The study defines eco-anxiety as a psychological reaction to the perceived environmental threat, not simply in response to the direct experience of natural disasters (Gow, 2010). In addition, studies that adapt the climate anxiety scale into an Indonesian context indicate that the psychological measure is consistent in identifying climate anxiety symptoms among young adults, which opens the door to further measurement in wider populations. This adaptation is essential because it suggests that the eco-anxiety phenomenon has a constructive equilibrium and can be valid in the Indonesian context, making it easier for advanced research that links eco-anxiety to other psychological disorders such as depression or chronic stress (Jaro & Saffana, 2023).

The aspect of communication and the consumption of information also helps to reinforce the relationship between eco-anxiety and psychological disorders, especially in the intense youngsters receiving news of the effects of climate change. Research in a communication perspective suggests that repeated exposure to the content that depicts environmental threats worsens ecological anxiety and influences individual behavior and emotional response patterns. The findings highlight that social factors, such as media and everyday communication patterns, can modernize eco-anxiety levels and reinforce negative psychological tendencies associated with climate change (Ogunbode, 2022). In addition to the influence of the media, socioeconomic factors help deepen the relationship between eco-anxiety and mental health disorders in Indonesian students. Research in urban areas like Jakarta shows that inequality of access to environmental resources, such as clean water or green space, worsens anxiety symptoms and fuels emotional burnout. Respondents from low-income families report higher levels of stress due to perceptions of helplessness against climate change, eventually relating to increased risk of general anxiety disorders (Crandon, 2022).

Research conducted by Yang et al. (2023) shows that a 14-day consecutive mindfulness intervention is effective in significantly increasing trait mindfulness, particularly in the aspects of describing (the ability to describe inner experiences), acting awareness (awareness whilst acting), and non-judging (not judging inner experiences). These findings are based on a randomised pre-test post-test control group experiment

involving 46 participants exposed to negative news regarding global climate change. The study results revealed that the group receiving mindfulness-based stress reduction (MBSR) training experienced a significant reduction in negative affect compared to the placebo and control groups, and demonstrated significantly lower DASS-21 scores (depression, anxiety, stress) post-intervention. Thus, mindfulness interventions have been shown to mitigate the negative impact of exposure to 'bad information' online, implying their potential application in addressing infodemic syndromes such as information exhaustion, judgement bias, and information avoidance in the post-pandemic era.

Finally, the integration of eco-anxiety in a college education curriculum in Indonesia can be a preventive strategy for safeguarding the mental health of the younger generation. Longitudinal research at state university shows that climate-based subjects that stress collective solutions manage to reduce the negative psychological symptoms by 25% over the control group. This approach turns passive anxiety into proactive motivation, minimizing long-term effects on emotional well-being and opening opportunities for further research on psychological consequences in the middle of a climate crisis.

3.3 Eco-anxiety in a social and community context

The psychological response to climate change is not only an individual but also affected by social and community context. Studies in Indonesia indicate that eco-anxiety is often a manifestation of a collective experience arising in social relationships in communities, especially when exposure to extreme climate risk strengthens mutual anxiety. This agrees with the findings that suggest that social communities and group involvement can modernize an emotional response to environmental threats, where social support plays an important role in determining to what extent individuals are able to manage the psychological stresses of environmental change. Climate change also encourages another form of psychological pressure that is closely associated with community social experiences, such as the solastalgia concept, which is the sense of loss felt by communities when their environment changes drastically. Qualitative studies studying the emotional well-being of local communities in coastal areas indicate that physical changes can deepen a sense of identity loss and a stable future, which, in turn, aggravates psychological disorders such as anxiety and continuing sadness. The findings emphasize that eco-anxiety is not only individual but also a collective emotional phenomenon born of community attachment to its environment (Albrecht, 2007).

Furthermore, social communication dynamics among the younger generation help strengthen the relationship between climate change and psychological response in a community context. Quantitative research among the z generation suggests that exposure to information on climate change through media and interpersonal interactions has a significant correlation with eco-anxiety levels. This suggests that beyond the backdrop of real-life experiences on climate risk, ecological anxiety is also influenced by the way communities and social networks produce and distribute information on climate issues. The role of social communication is important because it can strengthen both a positive and a negative response to climate change, depending on the communication patterns that occur within the community (Burke et al., 2018).

Beyond the role of social media communication in strengthening the relationship between climate change and the community's psychological response, research also suggests that eco-anxiety can act as a stimulus to positive social behavior among specific communities. A quantitative study of eco-anxiety in the younger generation found that eco-anxiety is not only linked to emotional stress, but it can also motivate pro-environmental behaviors, such as recycling activities, the purchase of environmentally friendly products, and other conservation measures. The findings broadened the understanding that psychological responses to environmental threats are not always negative but can transform into social engagement that supports communities' resilience in the face of the climate crisis. They are compatible with studies that indicate a range of eco-anxiety, social behaviour, and psychological well-being in a broader context.

Abdullah & Azizan (2024) mapped 122 publications on eco-anxiety and mental health from 2002 to 2022, and found that the number of publications increased rapidly, peaking in 2021. The United States was the most productive country (40 publications), whilst the most dominant keywords were “climate change”, “mental health”, and “eco-anxiety”, with the rate of recent publications (PDLY) reaching 97% for the keyword “eco-anxiety”. The most influential article is the work by Cunsolo & Ellis (2018) on ecological grief, which has been cited 342 times, confirming that eco-anxiety is now a global research priority amidst the climate crisis.

3.4 Eco-anxiety implications for mental resilience and health policy

The disaster, which claimed over 1,000 lives, was attributed to a combination of extreme rainfall exacerbated by deforestation and land-use changes in upstream watershed areas. Source: Riski Cahyadi / Anadolu Agency. Eco-anxiety as a form of psychological stress related to climate change can adversely affect people's mental health, especially when it is a part of their daily psychosocial realities. In the context of public health in Indonesia, changes in environmental conditions such as extreme weather and the threat of disaster are associated with increased stress and mental disorders in vulnerable populations. A national literature review suggests that the effects of climate change on people's health include not only physical diseases but also psychological disorders resulting from growing environmental stress, indicating that psychological pressures like eco-anxiety are an integral part of the social health burden that needs to be treated systematically by the health sector.



Fig. 2. Documentation of the catastrophic flash floods and landslides in North Sumatra, Indonesia (December 2025) (ANTARA, 2025)

Within the framework of public health policy, the eco-anxiety aspect underlines the importance of integration between climate change mitigation strategies and mental health responses. For example, a catastrophic psychological study suggests that the effects of climate change include extreme weather and other environmental threats provoke a psychological response of directly affected stress, anxiety, and trauma to communities, so physical or logistical intervention is not enough without psychosocial support (Darwis & Rahma, 2025). The study concluded that psychological recovery and the development of

social capacity are integral to climate change adaptation policies, as mental resilience play a part in strengthening communities' ability to cope with persistent changes.

The implications of eco-anxiety on mental resilience also require cross-sector policy responses that involve stakeholders of health, environment, and education. Analysis of the environmental law perspective suggests that the impact of climate change on health includes mental disorders that require a strong and responsive policy framework, especially in an Indonesian context that is prone to extreme climate events. Comprehensive public policies need to include prevention efforts, improved health, and unified treatment of health problems so that people not only avoid the physical risks of climate change but also find support to sustain long-term psychological well-being (Choi & Choi, 2021). Such approaches ensure that climate policy will focus not only on aspects of environmental mitigation, but also on strengthening people's mental resilience in the face of growing challenges. Beyond the need for cross-sector policy integration, research also suggests that eco-anxiety also implicates the responsive and community-based reinforcing needs. Studies exploring the effects of climate change on mental health in Indonesia reveal that concerns about environmental threats contribute to increased stress, anxiety and other psychological symptoms, especially among those who directly experience extreme climate events and environmental changes. The findings point out that the psychological effects of climate change are a real public health problem and require a broad-scale and physical-care approach, such as society-based support programs and social approaches that can enhance society's mental resilience on a sustainable basis (Shareeff et al., 2024).

An international systematic study suggests that eco-anxiety has a consistent relationship with psychological burdens and mental disorders such as anxiety, stress, and depression symptoms, so there is an urgent need to include these psychological considerations in national health policies. The study emphasizes that mental health responses to climate change cannot be separated from broader adaptation strategies and mitigation strategies, and that interventions should include the development of social capacities and psychosocial support for environmentally affected susceptible groups. Thus, policies that incorporate mental health care planning in context of climate change adaptation can help strengthen communities' psychological resilience to the long-term effects of the climate crisis (Cosh et al., 2024). Beyond the effects of individual psychological conditions, eco-anxiety also implicates communities' long-term adaptive capacity when it is not offset by a strategy for improving mental coherency. International studies indicate that individuals with sustained climate anxiety tend to experience emotional exhaustion and feelings of helplessness, which can weaken their ability to actively adapt to environmental change. The findings indicate that strengthening mental coherence needs to be directed not only at the treatment of psychological symptoms but also at the increased sense of control, meaning and adaptive capacities of individuals and communities in the face of an ongoing climate crisis (Pihkala, 2020).

In the context of health policy, studies also emphasize the importance of promoting and preventive approaches to respond to eco-anxiety before it develops into more serious mental disorders. Public-health studies suggest that climate literacy and mental health literacy play an important role in lowering the level of climate-related anxiety, especially through community education and integration of climate issues in health promotion. Such approaches are more sustainable because they are able to build the psychological preparedness of society, not just respond to the effects after a disaster occurs (Berry et al., 2018). In aligning national health policy with the psychological impacts of climate change, recent scoping reviews in global mental health research have highlighted significant gaps in how climate policies address mental health outcomes. Despite a growing body of literature demonstrating the negative effects of climate change on psychological well-being, including increased rates of anxiety, stress, depression, and eco-anxiety, many national adaptation frameworks remain primarily focused on physical health and disaster response, with limited explicit integration of mental health dimensions into climate adaptation planning. This oversight suggests that existing policy responses may not fully capture the breadth of health consequences associated with climate change, particularly for vulnerable

populations whose mental well-being is disproportionately affected by environmental stressors. As a result, scholars argue for the development and implementation of climate adaptation policies that explicitly incorporate mental health considerations, monitoring systems, and resilience-building strategies to ensure a more comprehensive public health response to the long-term psychological impacts of climate change (Hwong et al., 2022).

3.5 The challenge and direction of eco-anxiety research in Indonesia

Research on eco-anxiety in Indonesia is still limited, especially from an empirical perspective that measures the impact it can have on a large society's mental health. A notable exception is the recent large-scale study by (Kaligis et al., 2025), which surveyed 1,108 Indonesian adolescents and young adults, finding that 67.3% of female respondents reported elevated eco-anxiety levels significantly correlated with generalized anxiety ($r=0.697$). Many studies still focus on conceptual aspects or relationships with other social phenomena without giving powerful descriptions of the prevalence and intensity of ecological anxiety in various communities. This is shown by a more bibliometric or descriptive study trend, which identifies the trend of publications and knowledge networks of eco-anxiety in general but has not delved subjective experiences of individuals in the various social and region contexts of Indonesia. Such studies are important as the basis for more powerful empirical research. However, as (Anjum et al., 2026) caution, bibliometric methods risk conflating conceptually distinct eco-emotions such as solastalgia and ecological grief under a single "climate anxiety" label, potentially obscuring rather than clarifying context-specific psychological mechanisms.

Another obstacle is the lack of the use of adaptive instruments to the Indonesian cultural context of measuring valid and religious eco-anxiety. Some studies have attempted to adapt measures such as the climate anxiety scale to young adult populations, but its range is still limited to one demographic without expanding to other groups such as rural communities, informal sector workers, or groups that are directly affected by climate change. The need for a measuring instrument in local context will help produce more representative data and can be used in cross community comparisons (Jaro & Saffana, 2023). On the other hand, eco-anxiety also needs to be discussed in relation to pro-environmental behavior and risk perception in a broader social context. Research has found that perceptions of environmental risk act as a mediator in relationships between eco-anxiety and pro-environmental behavior among the z generation, which suggests that further studies can explore other social and psychological variables that moderate or tax the impact of ecological anxiety in society. The results of such findings are important to understand the more complex psychosocial mechanisms behind the individual's response to climate change in the Indonesian social context (Nasution et al., 2025).

The direction of further research in Indonesia is recommended to use interdisciplinary approaches that focus not only on individual psychological aspects but also enter communication, social and public health perspectives. For example, research that analyzed the links between social media use and climate anxiety suggests that exposure to information via digital platforms can contribute to increased climate anxiety in young adults, which leads to further research on the role of digital media in affecting climate health. Such studies are important for building comprehensive scientific foundations as well as effective policy recommendations for mental health interventions on the effects of climate change (Ardelia & Jaro, 2025). Apart from the cultural development of adaptive instruments and longitudinal studies, eco-anxiety research also faces the challenge of explaining how ecological anxiety interacts with broader mental behavior and well-being. International research indicates that eco-anxiety can contribute to varying behavior responses, including involvement in pro-environmental action and a decrease in satisfaction of life, especially among young populations that are directly exposed to climate issues. Such findings underscore the importance of viewing eco-anxiety not only as a passive emotional response but also as a factor that can affect psychosocial behavior and dynamics, so studies in Indonesia will need to include variables of these behaviors within the

framework of its analysis (Roldán-Merino et al., 2025). At the conceptual level, a systematic literature study also asserts that eco-anxiety is closely linked with many psychological stress, depression, and general anxiety symptoms, all of which should be considered in comprehensive environmental psych research. According to the review, eco-anxiety does not exist on its own as a separate psychological phenomenon, but is integrated with more common mental health indicators, so studies in Indonesia can use the findings to build a strong theoretical basis for explaining eco-anxiety integration with other psychological frameworks.

Besides empirical deficiencies and measuring instruments, Indonesia's eco-economy research challenge also deals with the minimum longitudinal studies that capture the psychological dynamics of society from time to time. Most of the research is later-cut, so it has not been able to explain how eco-anxiety is developing, surviving, or changing as exposure to the climate crisis and environmental catastrophe increases. The longitudinal study is essential to understanding the long-term effects of eco-anxiety on mental well-being, coping strategies, and the prevalence of individuals and communities. International research suggests that psychological responses to climate change are dynamic and are affected by reoccurring experiences to environmental risks, which can result in a long-term approach to eco-anxiety research (Daeninck et al., 2023).

Another challenge to consider is the limitation of group representation of vulnerable organisms in Indonesia's eco-anxiety research. Such groups as coastal communities, small farmers, fishermen, and tribal communities whose lives depended so heavily on environmental stability are still rarely the major focus of research. Some studies suggest that these groups have higher levels of psychological vulnerability as a result of climate change because of direct threats to their livelihood and social identity. Future research, therefore, will need to adopt both participative and community-based approaches to be able to portray eco-anxiety more inclusive and contextual experiences, while strengthening the relevance of the policies produced (Neria et al., 2008).

4. Conclusions

The climate crisis has proved to affect not only environmental and economic aspects but also have a significant impact on people's mental health. By their discussions, eco-anxiety can be concluded that eco-anxiety is a real and relevant psychological response, especially in the midst of increasing public awareness of the threat of climate change. These concerns arise as a form of anxiety about the future of the environment, a sense of loss to natural conditions, and continually felt uncertainty. Moreover, eco-anxiety is closely linked to psychological disorders, such as anxiety, stress, and a reduction in mental well-being, especially in youth age groups and communities living in high risk areas. This phenomenon is not independent, but is influenced by social and community context, including collective experiences, social support, and information exposure to climate change. Thus, eco-anxiety needs to be viewed as a multidimensional mental health issue and cannot be relieved of the social and environmental conditions of the individual.

Based on the findings, it may be concluded that treatment of the effects of climate change needs to take the mental health aspect more seriously. Comprehensive policy approaches, including prevention efforts, increased awareness, and treatment of mental health problems, become essential to strengthening society's mental resilience. The integration of mental health issues on climate-change adaptation policies is expected to help people cope with the challenges of the climate crisis more continually, both physically and psychologically. Moreover, the article also stresses that eco-anxiety is not just an individual psychological phenomenon but a reflection of human relationships with an increasingly vulnerable environment as a result of the climate crisis. By placing eco-anxiety in the social, community, and public policy context, the study illustrates that people's mental health cannot be separated from the ecological conditions surrounding them. Therefore, the approach to only direct clinical care of individuals is judged insufficient to answer the

complexity of the psychological impact of climate change, especially in developing countries such as Indonesia, which have high environmental vulnerability.

Ultimately, findings in this study are expected to provide the first basis for the development of studies and policies that are more sensitive to the psychological dimensions of the climate crisis. Further research is suggested to expand the empirical approach, involve more diverse communities, and develop a sustainable community-based model of intervention. Therefore, adaptation to climate change focuses not only on the physical and environmental resilience but also on strengthening people's mental resilience in the face of future climate challenges.

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Declaration of Generative AI Use

During the preparation of this work, the author(s) used Grammarly and ChatGPT (OpenAI) to assist in improving grammar, clarity, and academic tone of the manuscript, as well as for language polishing of non-native English expressions. After using these tools, the author(s) reviewed and edited the content as needed and took full responsibility for the content of the publication.

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