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An investigation into the relationship between climate change anxiety and mental health among Gen Z Filipinos

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Abstract

Climate change and mental health concerns are both defining issues of the generation of today. It has been established that the worsening climate causes many environmental disasters and physical health problems. However, its psychological impacts are still not well understood. Climate change has brought about an emerging psychological phenomenon termed 'climate anxiety' or 'eco-anxiety,' which has been described as a "chronic fear of environmental doom" (Clayton et al., 2017, p. 68) due to the impact of climate change. This predictive cross-sectional study investigated the link between climate change anxiety and mental health among 433 Filipinos. A total of 145 males and 288 females aged 18 to 26 completed the Climate Change Anxiety Scale and the Mental Health Inventory (MHI-38). Results show a significant relationship between climate change anxiety and mental health, with climate change anxiety predicting 13.5% of the overall Mental Health Index variance. Significantly, climate change anxiety was associated with the MHI-38's global scale of Psychological Distress but not with the global scale of Psychological Well-being. The findings are discussed concerning the broader context of research on the mental health impacts of climate change.

Keywords Climate change anxiety · Mental health · Filipinos · Generation Z

The consequences of a rapidly changing climate have become a significant source of concern for many people worldwide. Many evidence-based documents show how climate change impacts the planet and the attendant consequences for human physical health (Hathaway & Maibach, 2018). In comparison, knowledge of how climate change affects mental or psychological health is minimal. According to Hayes et al. (2018), climate change's planetary effects and disastrous events can trigger mental health problems. This argument is based on findings from studies linking climate-related events such as extreme temperatures, increased air pollution, flooding, seasonal haze, and rising sea levels with various mental health problems, including post-traumatic stress disorder (PTSD), anxiety, depression, grief, survivor guilt, hopelessness, difficulties in social relationships, and suicidal ideation (Buoli et al., 2018; Cianconi et al., 2020; Hayes et al., 2019; Ho et al., 2014; Lieberman-Cribbin et al., 2017; Xue et al., 2019).

Further, seasonal haze is a phenomenon influenced by climate change, which affects a majority of Southeast Asian Nations, especially during periods with minimal rainfall. This is prone to form due to forest fires or the 'slash-and-burn' technique of farmers, where "burning of carbon-rich peatland would send off acrid smoke, dust and dry particles (2.5 micrometers or smaller) into the atmosphere" (Ho et. al, 2014, p. 1). It was found that healthy individuals are physically and psychologically affected by haze (Ho et. al, 2014). Additionally, diastolic blood pressure and heart rate are both affected after haze exposure. It was found that haze affects cerebral hemodynamics, therefore causing the emergence of new psychosomatic symptoms (Tan et. al, 2019). Climate change can also affect people in subtle and indirect ways. For example, Ogunbode et al. (2021) found that negative emotional responses to climate change correlate negatively with mental health and positively with insomnia symptoms. Similarly, Kabir (2018) found that people whose livelihoods are affected by climate change experience psychological stress because work is essential to their wellbeing. This study showed that the psychological impacts of climate change

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could increase substance usage, increased family stress, suicide ideation, and amplification of past trauma. Further, awareness of ongoing climate change and projected future adverse consequences heightened by growing media coverage underlie an emerging and potentially widespread psychological phenomenon termed eco-anxiety (Hayes et al., 2018). Pihkala (2018) describes eco-anxiety as the different distressing emotions and mental states evoked by knowledge of deteriorating environmental conditions. The terms 'climate anxiety' and 'eco-anxiety' are often used interchangeably in the literature. While anxiety is certainly not the only negative emotion people feel in response to environmental problems, Clayton (2020) suggests that anxiety is particularly significant for capturing the sense of worry and concern people have about climate change.

Climate anxiety is an important phenomenon to study because its effects are not limited to people experiencing first-hand biophysical impacts from climate change. Instead, anyone with access to climate change information through modern communications technology is potentially susceptible to experiencing this anxiety response (Pihkala, 2019; Whitmarsh & Capstick, 2018). In the present study, climate change anxiety is about climate/eco-anxiety, which refers to fear, frustration, and concern over environmental and ecological issues, which stems from the awareness of the increasing life threats from climate change.

Research suggests that climate change anxiety is a very relevant issue in many parts of the world. For example, a study conducted by Mercado (2016) found that climate change awareness is positively related to distress, concern, and perceived risk from climate change. Searle and Gow (2010) also found that concern about climate change was positively associated with symptoms of depression, anxiety, and stress among a sample of Australians. Further, a study of US adults by Helms et al. (2018) showed that concern about adverse environmental impacts on nature, plants, and animals—otherwise termed biospheric crisis—was related to ecological stress related to depressive symptoms.

Moreover, the increasing global awareness of climate change and its life-threatening impacts have reminded humans of their inevitable death, which causes changes in their behavior. Terror Management Theory (TMT) explains such changes in behavior and attitude. For example, Fitri et al. (2020) stated that "death anxiety stimulates intolerance of uncertainty" (p. 3). Humans are uncomfortable with uncertainty, which causes them to worry and stress, which drives them to overcome death anxiety. Furthermore, Terror Management Theory suggests that climate change threats and mortality defenses influence the attitudes and behavior of humans, which could produce both negative and positive outcomes (Fritsche et al., 2010; Fritsche et al., 2012; Fritsche & Häfner, 2012).

According to Routledge and Vess (2019), "fear drives people to avoid situations that pose threats to their life" (p. 304), which includes both external and internal challenges. It was also stated that although humans can adapt and survive different environmental challenges, humans experience internal challenges when there is a need to adapt to external changes. With that said, psychological buffers help people overcome internal challenges. For example, death awareness causes anxiety, but psychological protectors prevent this from negatively affecting psychological wellbeing (Juhl & Routledge, 2016).

As exemplified by the study of Routledge and Vess (2019), they argued that "humans need a properly functioning anxiety buffer system that provides a sense of self-worth and meaning in life" (p. 303); otherwise, it would lead to feelings of anxiety and affect psychological well-being. For instance, to avoid the awareness of death, humans identify themselves with cultural belief systems, which enables them to believe that they are essential members of society, increasing their self-esteem and sense of self-worth (Arndt & Goldenberg, 2017).

In an article by Major et al. (2016), they explored the relationship of Terror Management Theory to mental health. Terror mismanagement or being unable to regulate death anxiety can result in a wide range of psychopathology. For example, anxiety disorders, mood disorders, maladaptive eating, and neuroticism can stem from the lack of anxiety buffering mechanisms. This study was supported in another article by Yetzer and Pyszczynski (2019), in which they stated that "TMT suggests that psychopathology occurs when one is unable to use one's cultural worldview, self-esteem effectively, and close relationships to manage existential terror" (p. 421). Thus, the three are essential parts of a person's anxiety-buffering system.

Furthermore, Routledge and Vess (2019) suggest that humans need a coherent and structured world because this gives them comfort amidst death concerns. However, because of the changing climate, today's generations are forced to endure it along with its risks (Hansen et al., 2017). People who are vulnerable to experiencing anxiety from this are those with a high need for structure.

Lastly, it was found that generous and compassionate acts on behalf of others make individuals feel that they are essential members of society. Therefore, death-related anxiety is lessened when considering the needs of future generations and by engaging in prosocial behaviors (Wade-Benzoni & Tost, 2009; Hirschberger et al., 2008).

In the Philippines, various accounts of ecological calamities have been reported throughout the years. In 2012, Sapir et al. (2012) discussed that the Philippines was among the top five most frequently hit by natural disasters over the past 10 years. Typhoon Bopha (known as typhoon Pablo) was said to be one of the deadliest disasters to have occurred, with a death toll of 1901 Filipinos. It was also reported that there are 2.5 deaths per 100,000 Filipinos due to meteorological and hydrological disasters. Also, a magnitude 7.2 earthquake struck the central Philippines in 2013, which caused hundreds

of injuries and 93 deaths. The said earthquake also affected several infrastructures—destroying the Church of San Pedro built in 1602 and 10 other historic churches (Whaley, 2013). Further, the Philippines was one of the countries reported to have experienced several typhoons in 2018. A total of 6,490,216 Filipinos suffered from the impact, making the Philippines rank 2nd in the top 10 countries by the number of people affected (Sapir, 2018).

In 2020, the Taal volcano erupted and damaged citizens' houses and livestock. Regan and Jorgio (2020) reported that the volcano has been emitting ash in the air that reached about 9 miles (14 km). The surrounding areas within the range experienced a shortage of power and fresh water supply. This calamity resulted in 300 evacuation centers serving as temporary shelters for over 70,000 Filipinos. With the Taal volcano being in the Pacific Ring of Fire, the report states, "a series of deadly earthquakes between October and December rattled the southern Philippines, leaving 600,000 people in need of assistance. Two typhoons in December killed at least 26 people and caused millions of dollars of damage" (para. 56) as well. With that said, plus the damage in agriculture costing 74,549,300 Philippine pesos due to the ash fall, the economy and people are negatively affected (Regan & Jorgio, 2020).

In a study conducted by Hugelius et al. (2017) on the health effects of disasters in the Philippines, mental health impacts are significantly higher and more enduring than physical problems after an environmental catastrophe. Thus, Hugelius and colleagues emphasized the importance of assessing health's psychological and social aspects to provide proper interventions. Furthermore, the American Psychological Association (2018) reported that 68% of Generation Z (Gen Z), individuals ages 10–26 (Schawbel, 2016), feel a significant amount of stress about the future, which includes the problem of climate change. Gen Z is more likely than the older generations to report their mental health concerns. As future primary caretakers of the planet, the current study's participants involved Filipinos who belong to Gen Z. This generation of Filipinos will benefit the most from exploring how climate change anxiety relates to mental health's vulnerability to adverse impacts from climatic and environmental change.

Studies on climate change anxiety still have many gaps, and the prevalence of the phenomenon is difficult to investigate because of these gaps. Furthermore, its clinical definition and measurement method are not well established; as such, it must be explored more intently (Manning & Clayton, 2018). Thus, the present study intends to establish an evidence-based connection between climate change anxiety and mental health. Our results will provide a more in-depth understanding of these psychological constructs and fill a critical knowledge gap. Since climate change anxiety is still a relatively new concept, more focus is given to this emerging phenomenon by verifying its presence, particularly in the Philippine setting.

It is important to note that this study was conducted during the COVID-19 pandemic. According to Tee, Salido, et al. (2020a), Filipinos reported moderate-to-severe feelings of anxiety, stress, and depression during the early phase of the pandemic. Another study supported this result, which concluded that Filipinos experience increased stress, anxiety, and depression than Chinese people (Tee et al., 2021). Various factors such as gender, age, marital status, occupation, experiencing physical symptoms (such as headache, coughs, and chills), quarantine, staying at home, negative cognitions about personal health and COVID-19, concern for relatives, and feeling discrimination from other countries influence stress and anxiety (Tee, Salido, et al., 2020a). The COVID-19 pandemic is also a challenge to vulnerable groups, specifically Filipinos with rheumatoid arthritis and systemic lupus erythematosus. Being labeled as weak may cause their experience of moderate to severe stress, anxiety, and depression (Tee, Tee, et al., 2020b).

Method

Design

A predictive cross-sectional design was utilized in this research. It intends to anticipate an outcome without manipulating the variables, and data were collected from research participants at a single or brief period (Belli, 2008; Johnson, 2001). This research design was used to determine if a significant association exists between climate change anxiety and mental health and if climate change anxiety can predict mental health among a sample of Generation Z Filipinos.

Participants

The study sample included 433 Filipino (145 male and 288 female) participants belonging to Gen Z with ages ranging from 18 to 26 years ($M = 20.4$; $SD = 1.60$). The convenience sampling technique was used to gather Gen Z Filipinos residing in the Philippines who voluntarily participated online with no remuneration. All the participants completed the Climate Change Anxiety Scale (Clayton & Karazsia, 2020) and the Mental Health Inventory (Veit & Ware, 1983) after giving their informed consent. Four hundred eighty-seven participants were recruited, but 54 cases were omitted from analysis due to missing responses. Table 1 shows a profile of the 433 valid participants' sociodemographic characteristics.

Measures

Climate Change Anxiety Scale (CCAS) The CCAS developed by Clayton and Karazsia (2020) measures the emotional responses to climate change, specifically climate change

Table 1 Sociodemographic characteristics of participants

Sociodemographic characteristics	Full sample	
	n	%
Gender		
Male	145	33.5%
Female	288	66.5%
Events Experienced		
Typhoon/ Tropical storms	401	–
Flood	254	–
Tsunami	3	–
Landslide	27	
Drought/ Heatwave	59	–
Volcanic eruptions	25	–
Wildfires	5	–
N/A	16	–

Note. $N = 433$

anxiety. The scale contains 13 items that are answered by a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Almost Always). The CCAS has two subscales. The Cognitive-Emotional Impairment subscale covers items 1–8. Of these eight items, items 1–4 measure the impact of climate change on concentration and emotion (e.g., Thinking about climate change makes it difficult for me to concentrate), while items 5–8 measures if the extent of thinking about climate change is unhealthy (e.g., I go away by myself and think about why I feel this way about climate change.) which is based on the Ruminative Response Scale by Treynor et al. (2003). The Functional Impairment subscale comprising items 9–13 is based on the Functional Impairment Rating Scale by Weiss (2000). It measures if the person's emotions related to climate change interfere with their daily activities (e.g., My concerns about climate change interfere with my ability to get work or school assignments done). The CCAS overall score is calculated by getting the total score of all items and dividing it by 13, with higher scores indicating higher levels of climate change anxiety. Responses to items 1–8 are added and divided by 8 to compute the Cognitive-Emotional Impairment subscale score. On the other hand, the Functional Impairment subscale score is computed by dividing by five the total responses for 9–13. In the present study, the overall CCAS score and the Cognitive-Emotional Impairment and Functional Impairment subscale scores obtained Cronbach's alpha reliabilities of .90, .86, and .83.

Mental Health Inventory (MHI-38) The MHI-38 developed by Veit and Ware (1983) is a test to measure an individual's mental health index (psychological distress and wellbeing) during the past month. It contains 38 items answered on a six-point scale, except items 9 and 28, scored on a five-point scale. The MHI-38 measures two global scales: Psychological Distress and Psychological Well-being in terms of 6 subscales: (1) Anxiety (e.g., How much of the time, during the past month, have you been a very nervous person?), (2) Depression (e.g., Did you feel depressed during the past month?), (3) Loss of Behavioral/Emotional Control (e.g., During the past month, have you been in firm control of your behavior, thoughts, emotions or feelings?), (4) Emotional Ties (e.g., During the past month, how much of the time have you felt loved and wanted?), (5) General Positive Affect (e.g., During the past month, how much of the time have you felt that the future looks hopeful and promising?), and (6) Life Satisfaction (e.g., How happy, satisfied, or pleased have you been with your personal life during the past month?). Higher scores are equivalent to higher anxiety levels, depression, loss of behavioral/emotional control, general positive affect, emotional ties, and life satisfaction. Higher scores on the General Positive Affect, Emotional Ties, Life Satisfaction subscales indicate positive mental health states (Psychological Wellbeing). In comparison, higher scores on Anxiety, Depression, Loss of Behavioural/Emotional Control indicate negative mental health states (Psychological Distress). After the test items are scored, item scores are summed to calculate the Mental Health Index (MHI-Index) score. High scores on the MHI-Index indicate greater Psychological Well-being and less Psychological Distress. The MHI-38 in the present study obtained the following Cronbach's alphas: Psychological Wellbeing (.92), Psychological Distress (.87), MHI-Index (.78).

Procedure

Ethical approval for this study was granted by the UST College of Science Ethics Review Committee. Gen Z Filipino participants were sought through referrals from family, friends, and participants via social media posts using a convenience sampling strategy. Data were gathered using an online research questionnaire containing the informed consent, demographic information questions, and the test battery (Mental Health Inventory and Climate Change Anxiety Scale). Participants voluntarily completed the two scales in randomized order (MHI-CCAS or CCAS-MHI) to control possible systematic order effects. A debriefing section that presented the full description of the current study and a number to a crisis hotline was provided at the end of the online research questionnaire. A total of 487 Gen Z Filipinos were gathered, after which data were reviewed, and incomplete responses were excluded ($n = 54$); the final 433 data were then scored and statistically analyzed using the IBM Statistical Package for Social Sciences (SPSS). The (1) Pearson's Correlation and (2) Linear Regression Analysis were the main statistical treatments utilized in analyzing the data.

Results

Descriptive statistics revealed the following: Climate Change Anxiety Scale ($M = 2.38$, $SD = .77$), and Mental Health Inventory ($M = 127.71$, $SD = 24.42$). Likewise, the correlational analysis showed that climate change anxiety and mental health are significantly negatively correlated at the .001 level ($r = -.37$, $p < .001$). Thus, the hypothesis that a significant relationship between our two research variables is accepted. This result signifies that an increase in climate change anxiety is associated with a significant decrease in overall mental health.

Moreover, as shown in Table 2, we also found that climate change anxiety has a significant positive correlation with the MHI-38 global scale of Psychological Distress ($r = .39$, $p < .001$), but no correlation with the MHI-38 global scale of Psychological Wellbeing ($r = -.05$, $p = .140$). These results indicate that climate change anxiety is associated with higher psychological distress and has no association with our sample's psychological wellbeing.

The data was subjected further to regression analysis while controlling the variables: age, sex, and severe calamities experienced to determine whether climate change anxiety can predict mental health. With the value of $r^2 = .135$ of the MHI-Index, our result indicated that 13.5% of the mental health index variance could be explained by an individual's level of climate change anxiety. Hence, we accepted our hypothesis that higher climate change anxiety predicts significantly lower mental health among our Gen Z Filipino participants.

Discussion

Since climate change anxiety is still a relatively new concept, very little research has been conducted on the phenomenon, particularly in the Philippines. This study intends to understand this psychological construct and fill a gap in knowledge in local literature by investigating the relationship between climate change anxiety and mental health. The results indicate a significant but weak negative relationship between climate change anxiety and mental health among the Gen Z Filipino participants; to some extent, lower mental health is likewise attributed to and is predicted by higher climate change anxiety.

Psychological distress in eco-anxiety is caused by environmental changes (Pihkala, 2018). This distress is measured by considering an individual's level of anxiety, depression, and loss of behavioral/emotional control (Veit & Ware, 1983). Schäfer et al. (2016) found that maladaptive regulation of emotions is linked to symptoms of anxiety and depression. Those who worry are reported to have low levels of positive wellbeing since this is an ineffective coping strategy that does not solve problems (Iani et al., 2019). As such, those who experience symptoms of depression tend to view stressors negatively (Huebschmann & Sheets, 2020). This result is supported by the studies of Keyes et al. (2010) and Vaingankar et al. (2013), where it was found that good mental health serves as a defense against mental illness, including anxiety, and people with anxiety have lower Positive Mental Health scores.

On the other hand, positive wellbeing did not yield a significant result with low climate change anxiety. This result is explained by the study of Massé et al. (1998), which stated that psychological wellbeing does not need to be high to avoid psychological distress. The study of Winefield et al. (2012) likewise exemplified our results, where they concluded that "psychological wellbeing is not exactly the opposite end of the continuum to psychological distress" (p. 1).

This study's findings align with Clayton's (2020) suggestion that climate anxiety is not inherently indicative of a mental health problem. Instead, various other factors can moderate the likelihood that climate anxiety has a negative effect on mental health. Some populations such as women, the elderly, children, people with existing mental health conditions, people with low income, and native communities who are more exposed to extreme weather events may be more vulnerable. Indigenous communities may be the most susceptible to experience climate anxiety, considering that they reside in areas most affected by climate change (Cianconi et al., 2020; Clayton, 2020). This statement is supported by the study of Gibson et al. (2020), who found that those in vulnerable

Table 2 Linear regression analysis of climate change anxiety with mental health index, psychological distress and psychological well-being

Variable	*B*	r	r^2	*SE*	*p*	95% CI
Mental Health Index	147.137				<.001	[115.846, 178.428]
Climate Change Anxiety	−8.419	.368	.135	22.72	<.001	[−11.287, −5.550]
Psychological Distress	64.395				<.001	[59.416,69.374]
Climate Change Anxiety	8.929	.390	.152	16.19	<.001	[6.934,10.924]
Psychological Well-Being	49.167				<.001	[45.90,52.44]
Climate Change Anxiety	−.723	.052	.003	10.64	.140	[−2.033,.580]

Note. $N = 433$. *CI* confidence interval, *LL* lower limit, *UL* upper limit, *SE* standard error of the estimate

communities exposed to severe ecological conditions experience psychological distress.

However, Bollettino et al. (2020) conducted a study on Filipino perception of climate change and discovered that Filipinos have an overall low public awareness about climate change. Only 12% of the respondents were found to be well-informed about the worsening climate. Furthermore, the study of Ortega and Klauth (2017) of UNICEF confirmed that Filipino knowledge regarding climate change adaptation is not enough. In line with this, Pihkala (2020) noted that experiences could lead to climate anxiety and understanding regarding the climate and the natural world. Further, Kelly (2017) concluded that those enrolled in environment classes reported higher stress and anxiety levels than those who are not, implying that awareness about the environment contributes to their distress and negative emotional states. Thus, although a weak relationship is observed between climate change anxiety and mental health, the level of awareness of climate change may influence the study results. The relationship may be contingent on people's understanding of climate change.

Moreover, coping strategies of people to climate change anxiety may have reduced its impact on mental health. The Terror Management Theory (TMT) suggests that climate change threats and mortality defenses influence humans attitudes and behavior (Fritsche et al., 2010; Fritsche et al., 2012; Fritsche & Häfner, 2012). To overcome internal challenges, humans need psychological buffers that prevent anxiety caused by the awareness of death and compromise psychological wellbeing (Juhl & Routledge, 2016). These statements are exemplified by the study of Routledge and Vess (2019), which found that humans will experience feelings of anxiety without a "properly functioning anxiety buffer system that provides a sense of self-worth and meaning in life" (p. 303). For instance, to avoid death awareness, humans identify themselves with cultural belief systems, which enables them to believe that they are essential members of society, increasing their self-esteem and sense of self-worth (Arndt & Goldenberg, 2017). Further, Yetzer and Pyszczynski (2019) stated, "TMT suggests that psychopathology occurs when one is unable to use one's cultural worldview, self-esteem effectively, and close relationships to manage existential terror" (p. 421). With that said, Baticula et al. (2014) reported that Filipinos cope with the effects of environmental disasters using preventive measures, receiving social support, and turning to faith.

The Philippines is known to have a collectivist culture. Thus, having close ties with friends and family helps Filipinos deal with the aftermath of typhoons, calamities, and the like. Filipinos often practice *bayanihan* or *pakikipagkapwa* (an act of helping one another or community involvement), lessening the burden of those around them. Interpersonal relationships with relatives and friends are highly valued due to the belief that those they help will also help them in return (Rilveria, 2018; Tuason, 2010). Apart from the Philippines has a collectivist culture, the country is also known to have diverse religions. Hence, Filipinos highly use religious coping as this generates growth and encourages feelings of significance amidst stressful situations (as cited in Baticula et al., 2014). This statement was further supported by Rilveria's (2018) study, where Filipinos are found to be religious people who have faith that God will protect them. Their belief helps them endure both internal and external difficulties. Thus, it was found that more religious people are less susceptible to having mental health problems (Castillo & Alino, 2020). This statement is consistent with Talik's (2013) report, where it was found that religious coping is associated with better adjustment and does not indicate psychological distress. Lastly, it was concluded that Filipinos also use mitigating measures which save lives, livelihood, and household assets they find significant. When cleaning, scrubbing, and fixing activities are also done after experiencing a typhoon, the participants' anxieties decrease (Baticula et al., 2014). Such activities may be a facstor in addressing anxieties brought by natural disasters due to climate change.

Overall, climate change anxiety was found in our study to be associated with the MHI-38's global scale of Psychological Distress but not with its global scale of Psychological Wellbeing. The significant but weak association between climate change anxiety and mental health can be explained due to other factors. Factors such as the individual's gender, age, socioeconomic status, awareness of environmental conditions, and coping strategies can also influence one's mental health. Nevertheless, higher climate change anxiety significantly predicts lower mental health among our Gen Z Filipino participants.

On a positive note, climate change anxiety allows people to adapt and prepare for future events. Such emotional responses should not be immediately seen as pathological—instead, a motivation to find solutions to combat climate change. Effects of climate change awareness on wellbeing will not be adverse if individuals are aware of the possible actions to mitigate climate change (Chukwuorji et al., 2017). Additionally, technological advancements have allowed the delivery of psychotherapy through the internet. Internet-based cognitive behavioral therapy has demonstrated effectiveness in treating people with psychiatric and mental health disorders and people with medical conditions. It can also become more cost-effective with the use of Moodle as its platform of implementation (Zhang & Ho, 2017). In the meta-analysis of Soh et al. (2020), digital cognitive behavioral therapy for insomnia (CBT-I) has shown significant efficacy in treating insomnia. Psychotherapies like these became accessible and available through digital implementation. These advancements in technology can help deliver support at a low cost to people suffering severe effects from climate anxiety.

To recapitulate, the results in this study indicating a relationship between climate change anxiety and mental health provided data to this emerging phenomenon on climate anxiety, eco-anxiety, or climate change anxiety, particularly in the Philippine setting.

Limitations and Future Directions

Existing studies in Environmental Psychology, particularly about climate change and its impact or association with mental health, are limited in the Philippines. Furthermore, our attempt to investigate these psychological constructs is limited since other variables were not considered. Thus, further research is needed to establish a more accurate explanation for our results. Future studies may explore the following: (1) investigate demographic variables that could affect the relationship between climate change anxiety and mental health, such as the participants' educational background, religion, and specific region where they reside, (2) explore climate change mitigation behaviors or pro-environmental behaviors and their association with climate change anxiety, (3) investigate coping strategies of Filipinos to ecological concerns, and (4) explore the effects of both the COVID-19 pandemic and climate change on mental health.

Code Availability Not applicable.

Data Availability Not applicable.

Declarations

Ethics Approval All procedures performed in the present study that involved human participants were in accordance with the ethical standards of the Ethics Review Committee (ERC) of the College of Science, University of Santo Tomas.

Consent to Participate Each participant in the current study signed informed consent before voluntary participation. In addition, participants were briefed on the nature of the study, were assured that all data collected will be kept confidential, and that participation was purely voluntary without remuneration.

Consent for Publication not applicable.

Conflict of Interest The authors have no conflicts of interest to declare relevant to the content of this article.

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