



## Climate Change and Its Impact on The Health of Coastal Communities in Bantul District

Belinda Ayu Maharani  
Universitas Ahmad Dahlan, Yogyakarta

\*Corresponding Author: [belindaayumarani@gmail.com](mailto:belindaayumarani@gmail.com)

### ABSTRACT

Climate change has affected the health of coastal communities in Bantul Regency, Yogyakarta Province, particularly through increased frequency of extreme weather events such as floods and heatwaves. This study aims to explore the impacts of climate change on the physical health, mental health, and food security of coastal communities, as well as the adaptation strategies implemented. Qualitative research methods were used with semi-structured interviews, observation, and documentation of 25 families directly exposed to the impacts of climate change. The results showed that extreme weather increases the risk of infectious diseases, respiratory disorders and temperature-related health problems, and worsens food security. In addition, climate change causes anxiety, stress and other mental disorders, especially in vulnerable groups. Coastal communities have developed various adaptation strategies such as maintaining environmental hygiene and seeking alternative livelihoods. However, limited access to health facilities and inadequate government support are obstacles. Therefore, more inclusive policies and more systemic actions are needed to strengthen the resilience of coastal communities in the face of climate change impacts.

**Keywords:** Climate Change, Coastal Public Health, Adaptation

### INTRODUCTION

Climate change is widely recognized as one of the most critical challenges facing humanity in the 21st century, with far-reaching effects that extend beyond environmental damage to have a substantial impact on public health. Its influence on human health is both immediate and long-term. Directly, climate change has caused an increase in the frequency and intensity of heatwaves, which has led to higher incidences of heat-related illnesses and fatalities (Agache, I., et al., 2022; Byg, B., & Shah, A., 2023; Colwell, R., 1996). Additionally, rising temperatures and shifting weather patterns have influenced the distribution of disease-carrying vectors like mosquitoes, resulting in the spread of vector-borne diseases





such as malaria and dengue fever (Agache, I., et al., 2022; S., & Ebi, K., 2019; Colwell, R., 1996). Indirectly, climate change affects food and water security by altering their availability and quality, potentially causing malnutrition and increasing the prevalence of waterborne illnesses (Byg, B., & Shah, A., 2023). Moreover, it worsens air pollution levels, which in turn contribute to respiratory and cardiovascular diseases, further highlighting the extensive public health risks associated with a warming planet (Limaye, V., 2021).

Climate change also has profound social and economic repercussions. Natural disasters like floods and storms, for instance, can lead to large-scale population displacement and significant economic losses, which in turn negatively affect mental health and overall well-being (Palinkas, L., & Wong, M., 2020). Moreover, vulnerable populations, including low-income communities and developing nations, bear the brunt of climate change's effects, worsening pre-existing social and economic inequalities (Opoku, S., et al., 2021; Marten, R., et al., 2020). To mitigate the health impacts of climate change, both mitigation and adaptation strategies are essential. Mitigation focuses on reducing greenhouse gas emissions to curb global warming, while adaptation aims to strengthen the resilience of health systems to cope with the effects of climate change. Research highlights that these strategies not only protect the environment but also offer co-benefits, such as reducing air pollution and improving food security, thereby enhancing public health outcomes (Bikomeye, J., Rublee, C., & Beyer, K., 2021).

The purpose of this study is to review the existing literature on the impact of climate change on the health of coastal communities in Bantul Regency, Yogyakarta Province. The research aims to provide a comprehensive understanding of how climate change—manifested through shifting weather patterns, rising global temperatures, and extreme weather events—affects various aspects of human health, such as the spread of infectious diseases, mental health issues, respiratory conditions, and access to essential resources like clean water and food. Additionally, this study seeks to identify current and potential public health policies and strategies that can be implemented to address the health challenges posed by climate change. It will highlight the primary impacts of climate change on human health and examine how global public health policies are responding to these changes. Understanding the connection between climate change and health is a crucial step in formulating more effective and informed policies (Berry, H., et al., 2018). With a holistic and inclusive approach, such policies can not only reduce the adverse effects of climate change but also enhance well-being and promote health equity for all population groups (Fox, M., et al., 2019).

## LITERATURE REVIEW

Climate change stands as one of the most pressing challenges of our time, with far-reaching and serious consequences for human health. Understanding the intricate relationship between climate change and health is essential for crafting more effective and informed policies. The health impacts of climate change are both direct and indirect. Directly, it leads to an increase in heat-related illnesses, such as





heatstroke, and intensifies the frequency and severity of natural disasters like floods and storms, which result in physical injuries and fatalities (Crowley, R., Moyer, D., & DeLong, D., 2016; Patz, J., 2014). Indirect effects include the spread of infectious diseases due to changes in the distribution of disease vectors, such as mosquitoes, and worsening air quality, which can aggravate respiratory conditions like asthma (Viegas, S., 2021). Understanding these diverse health impacts is key to creating policies that address both the environmental and health challenges posed by climate change.

Climate change intensifies existing health disparities, especially in low- and middle-income countries (LMICs). Vulnerable groups, including women, children, and marginalized communities, are particularly hard-hit due to their limited access to healthcare services and resources, making them more susceptible to the adverse health effects of climate change. This highlights the necessity for policies that prioritize health equity, ensuring that all groups can adapt and thrive in the face of climate-related challenges (Khanal, S., Ramadani, L., & Boeckmann, M., 2023). Addressing the impacts of climate change on mental and physical health requires a systemic, multi-sectoral approach that integrates various disciplines. An example of this is the One Health approach, which acknowledges the interconnectedness of human, animal, and environmental health, providing a more comprehensive foundation for developing effective mitigation and adaptation strategies (Viegas, S., 2021).

Climate change mitigation policies not only reduce greenhouse gas emissions but also offer substantial health benefits. For instance, clean energy initiatives that lower air pollution can significantly decrease the incidence of respiratory and cardiovascular diseases (Limaye, V., 2021). Furthermore, promoting healthier and more sustainable diets can reduce emissions from the agricultural sector while simultaneously improving public health outcomes. Health workers play a crucial role in communicating climate change-related health risks to both the public and policymakers, helping to raise awareness and drive actions that mitigate these health impacts. Additionally, integrating health perspectives into climate policy planning ensures that adaptation and mitigation strategies are more attuned to public health needs, ultimately enhancing their effectiveness (Fox, M., et al., 2019).

Climate change has severe negative impacts on human health, particularly through extreme weather events, worsening air quality, and the increased spread of vector-borne diseases, with vulnerable populations like the elderly, pregnant women, and newborns being disproportionately affected (Alamgir & Shan, 2023). In addition to physical health issues, climate change also contributes to mental health problems such as anxiety, depression, and post-traumatic stress, with the severity of these effects depending on an individual's exposure to extreme or prolonged weather events (Cianconi, Betro', & Janiri, 2020). Respiratory health is also a critical concern, with rising cases of chronic respiratory diseases and higher premature mortality, especially among children and the elderly who are more susceptible (Bayram et al., 2023). Beyond the immediate impacts of storms, floods, and wildfires, climate change induces sub-acute effects like drought and heat stress, along with long-term consequences such as rising global temperatures





and sea level rise, all of which contribute to both mental and physical health challenges (Palinkas & Wong, 2020).

Trusting relationships between national authorities and public health programs are essential for effectively managing global health crises and implementing preventive measures (Goniewicz et al., 2022). In addressing global challenges such as the Russia-Ukraine conflict and climate change, international institutions like the IMF, World Bank, EU, UN, OECD, and NATO play crucial roles, working collaboratively through international relations (Mbah et al., 2023). The COVID-19 pandemic has provided valuable lessons for climate change mitigation, including the high costs associated with delays, the importance of policies that tackle bias, the need for timely action, and the critical role of international cooperation. It also highlighted the necessity of reorganizing crisis response mechanisms and health system operations, emphasizing the importance of international benchmarking, preparedness, and sufficient funding to support these efforts.

Most systematic reviews indicate that climate change is linked to a decline in human health, contributing to various adverse health outcomes (Rocque, 2021). The mental health impacts of climate change include acute events, subacute changes, and long-term effects such as rising temperatures and sea levels, all of which cause psychological stress in different regions (Palinkas & Wong, 2020). These impacts manifest through both immediate and delayed psychopathological responses, depending on the severity and duration of exposure to climate change (Cianconi, Betro', & Janiri, 2020). Additionally, ecosystem changes in the Polar regions could significantly affect the global environment, biodiversity, and overall human well-being (Ayanlade et al., 2020).

Climate change is profoundly affecting the lives of coastal communities, particularly in terms of food security. Environmental changes are exacerbating food shortages, which, in turn, lead to rising food prices, placing additional economic strain on these communities, which are already vulnerable. To mitigate these challenges, it is crucial for coastal communities to adopt a range of adaptation strategies. These strategies include enhancing access to healthcare services, such as facilitating travel to hospitals to manage emerging health problems, as well as prioritizing hygiene practices to prevent the spread of diseases to which they are becoming more susceptible due to climate change. Studies by Fanneh (2021), Hodgson, Fernando, and Lansbury (2022), and Kay et al. (2023) highlight the importance of these adaptation measures in helping coastal communities manage the escalating impacts of climate change and build resilience against future environmental disruptions.

## METHOD

This study employed a qualitative approach to examine the impact of climate change on the health of coastal communities in Bantul Regency. Data were gathered through semi-structured interviews, observations, and documentation. A purposive sampling method was used to select 25 families based on their exposure to climate change impacts such as flooding and sea level rise. The interviews focused on





community perceptions of weather changes, their effects on both physical and mental health, and the adaptation strategies employed by the residents. Observations documented the environmental conditions, infrastructure, and health practices in the coastal areas, while secondary data, including health reports and photographs, were collected through documentation. Thematic analysis was applied to identify key themes related to climate change's health impacts. Triangulation was performed by comparing the findings from interviews, observations, and documentation, and member checks were utilized to ensure the validity of the results. The goal of this research is to provide a comprehensive understanding of how climate change affects the health of coastal communities and to explore the adaptation strategies they employ in response to these challenges.

## RESULT AND DISCUSSION

### 1. Impact of Climate Change on the Physical Health of Coastal Communities

Interviews conducted with 25 families residing in the coastal areas of Bantul District revealed that climate change has had a significant impact on their physical health, particularly through the rising frequency of extreme weather events like flooding and tidal waves. Participants noted that frequent flooding not only causes extensive damage to their homes but also heightens the risk of infectious diseases, including diarrhoea, skin conditions, and respiratory infections. Additionally, extreme temperature fluctuations, particularly heatwaves, were linked to increased physical exhaustion and dehydration, affecting vulnerable groups such as the elderly and children more severely.

Ground-level observations further validated these findings, as many homes showed signs of damage from recurring floods, and environmental sanitation conditions were visibly deteriorating, contributing to the wider spread of diseases. Several families reported a decline in the quality of drinking water, especially during the rainy season, which significantly raised the risk of waterborne illnesses. This situation is exacerbated by limited access to healthcare services, with some families needing to travel considerable distances to receive medical treatment, highlighting the growing strain on local health systems in the face of climate-induced challenges.

### 2. Food Price Increases

Climate change is also impacting food availability and prices in coastal areas. Many families report that they experience food shortages, especially during floods or extreme weather events that damage farmland and fisheries, which are the main sources of livelihood for coastal communities. The impact of this damage to the agricultural and fisheries sectors also leads to an increase in food prices, which worsens the economic conditions of families.

Many participants said that the increase in food prices has forced them to reduce their nutritional intake, which has a direct impact on the health of family members, especially children and the elderly.





This leads to malnutrition and undernourishment, which further deteriorates their physical health. Documentation shows that prices of staple foods such as rice and fish spike during periods of extreme weather, exacerbating the food crisis in coastal areas.

### 3. Mental Health Impacts

In addition to its physical health effects, climate change also significantly impacts the mental well-being of coastal communities. Many families reported experiencing chronic anxiety and stress, particularly during the rainy season or when the threat of flooding and tidal surges looms. This constant uncertainty contributes to a heavy psychological burden, which was felt by nearly all participants. Concerns about the safety of loved ones and the potential loss of property left many families living in a state of continuous stress.

Several participants shared that repeated natural disasters, such as flooding, have caused lasting trauma, particularly among children. Those who had endured severe flooding or homelessness displayed signs of post-traumatic stress disorder (PTSD), including nightmares, trouble sleeping, and an overwhelming fear whenever the weather turned bad. Moreover, some older participants reported symptoms of depression linked to the loss of their livelihoods, which were heavily reliant on the environment. These mental health challenges are compounded by the ongoing disruptions in daily life, highlighting the psychological toll climate change takes on vulnerable communities.

### 4. Adaptation Strategies of Coastal Communities

Interview results also showed that coastal communities have developed various adaptation strategies to cope with the impacts of climate change on their health. Some of the strategies adopted include improving environmental hygiene to prevent the spread of diseases, although many of them face constraints of limited resources such as clean water. Some families also try to gain access to health facilities when flooding or extreme weather causes acute health problems, although the distance to health facilities is often a challenge.

As a form of economic adaptation, some families try to find alternative sources of income when agriculture and fisheries are affected, such as working in the informal sector or temporarily moving to areas not affected by flooding. However, these strategies are not always successful, and some families report that these adaptations are only temporary solutions that cannot solve their health and economic problems in the long term.

### 5. Government Support and Health Infrastructure Readiness

Interviews also revealed that coastal communities felt that support from local governments in terms of climate change impact mitigation and health management was limited. Many of them felt that the government's efforts in providing emergency health services during extreme weather have not been optimal, especially due to limited infrastructure in remote areas. Observations in the





field show that some health facilities such as community health centres are not always easily accessible, especially when roads are flooded. Some families reported that they had to wait days for health assistance after the disaster.

Documentation shows that some mitigation programmes conducted by local governments such as food aid distribution and health counselling have not sufficiently reached all coastal communities. As a result, many families had to rely on their own ability to cope with emerging health issues.

## Discussion

The findings of this study show that climate change has a significant impact on the health of coastal communities in Bantul Regency. This impact is not only limited to physical health, but also mental health and family food security. Changes in extreme weather, such as floods and heatwaves, result in an increased risk of infectious diseases and worsen environmental conditions. Poor sanitation, infrastructure damage and degraded water quality are factors that exacerbate the spread of disease in coastal areas. In addition, coastal communities have developed various adaptation strategies to cope with health problems during variable and extreme climates, including going to the hospital, maintaining hygiene, eating healthy, and using herbal medicine as an alternative treatment (Fanneh, M., 2021). These strategies are important in an effort to maintain health amid increasingly uncertain environmental conditions due to climate change.

Rising food prices due to disruptions to the agriculture and fisheries sectors also put great economic pressure on coastal families. This leads to a decline in the quality of nutritional intake, which in turn has a negative impact on physical health, especially for vulnerable groups such as children and the elderly. These findings are in line with previous research showing that climate change increases the risk of malnutrition and food shortages in vulnerable communities. Moreover, climate change and rising global temperatures will put children's food security and nutritional health at particular risk, affecting their physical and cognitive development (McMahon, K., & Gray, C. 2021). This suggests that the impacts of climate change are not only limited to current physical health aspects, but also to the long-term development of young people who are vulnerable to nutritional problems.

The uncertainty brought about by climate change greatly increases the psychological stress experienced by coastal communities. The persistent threat of flooding and the potential loss of livelihoods contribute to elevated levels of anxiety, stress, and even trauma, highlighting the need for targeted mental health support and intervention. Particularly vulnerable to these psychological effects are children and the elderly, as they are more susceptible to the emotional toll of climate-related changes. This aligns with other research indicating that climate change exacerbates mental health issues, particularly among vulnerable groups who are exposed to extreme weather events. Climate change contributes to mental health problems





such as anxiety, depression, and post-traumatic stress disorder (PTSD), especially in populations already facing socio-economic hardships (Cianconi, P., Betro', S., & Janiri, L., 2020). This underscores the fact that the impact of climate change extends beyond physical health, deeply affecting the psychological well-being of coastal communities, particularly those who are already struggling with economic and social challenges.

The adaptation strategies adopted by coastal communities, while useful, are often temporary and not always effective in dealing with long-term challenges. Although people try to maintain hygiene and find alternative income, limited access to resources, health facilities and government support are major barriers to achieving greater resilience. More robust adaptation strategies for coastal areas include hard constructions such as dykes and wave-retaining walls, as well as managed retreats, which can lead to greater resilience in the long term (Long, N., Cornut, P., & Kolb, V., 2020). These efforts are needed to provide more permanent protection against the impacts of climate change, especially in the face of long-term threats such as sea level rise and increased frequency of extreme weather.

Limited government support in mitigating climate change impacts is a prominent issue, especially for coastal communities. These communities feel that health infrastructure preparedness, especially in emergency situations such as flooding, is still inadequate. Unequal support and limited access to health services during extreme weather further exacerbate the situation. Therefore, existing mitigation programmes need to be expanded and improved, especially to reach families living in hard-to-reach areas. In addition, adaptation options for coastal communities can include several important measures, such as awareness raising, better planning, strong political articulation to encourage proactive policies, and financial incentives and insurance to provide economic protection. Professional upskilling is also part of the effort to increase community capacity to manage climate change risks (Sinay, L., & Carter, R., 2020). The combination of these approaches can strengthen the resilience of coastal communities in the face of intensifying climate change impacts.

From the results of this study, it appears that there is a need for more comprehensive interventions from the government in terms of mitigating climate change impacts, improving access to health services, as well as providing long-term solutions to increase the resilience of coastal communities. These efforts could involve infrastructure improvements, increased access to clean water, and more comprehensive health education and counselling programmes.

## CONCLUSION

This study concludes that climate change has a significant impact on the health of coastal communities in Bantul Regency, both physically and mentally. Immediate impacts such as infectious diseases, respiratory problems and dehydration, as well as longer-term impacts such as threatened food







security, greatly affect community wellbeing. Coastal communities face difficulties in accessing health services, especially during natural disasters such as floods and heatwaves, which further worsen their health conditions. In addition, the uncertainty brought about by climate change increases the psychological burden, especially for vulnerable groups such as children and the elderly. Although coastal communities have developed various adaptation strategies, resource constraints and limited access are major barriers to achieving greater resilience. Therefore, it is important for the government and relevant stakeholders to develop more effective and comprehensive policies to address the health impacts of climate change on coastal communities.

Based on the results of this study, some suggestions to improve the resilience of coastal communities in facing the impacts of climate change include: First, the government needs to strengthen health infrastructure, especially in hard-to-reach coastal areas, and provide emergency health services more quickly and evenly. Second, there needs to be more intensive health education and counselling programmes to increase public awareness about the impacts of climate change and the importance of adaptation. Third, more comprehensive adaptation strategies should be prioritised, including the development of agricultural and fisheries systems that are more resilient to extreme weather changes, as well as providing economic incentives to support alternative livelihoods of coastal communities. Fourth, community-based approaches in mitigation and adaptation planning need to be improved, by involving communities in every stage of policy planning and implementation. Thus, it is expected that coastal communities can be better prepared to face the impacts of climate change and improve their quality of life in a sustainable manner.

## REFERENCE

- Agache, I., Sampath, V., Aguilera, J., Akdis, C., Akdiş, M., Barry, M., Bouagnon, A., Chinthrajah, S., Collins, W., Dulitzki, C., Erny, B., Gomez, J., Goshua, A., Jutel, M., Kizer, K., Kline, O., LaBeaud, A., Pali-Schöll, I., Perrett, K., Peters, R., Plaza, M., Prunicki, M., Sack, T., Salas, R., Sindher, S., Sokolow, S., Thiel, C., Veidis, E., Wray, B., Traidl-Hoffmann, C., Witt, C., & Nadeau, K. (2022). Climate change and global health: A call to more research and more action. *Allergy*, *77*, 1389 - 1407. <https://doi.org/10.1111/all.15229>.
- Alamgir, W., & Shan, H. (2023). The Multifaceted Consequences of Climate Change on Human Health. *Life and Science*. <https://doi.org/10.37185/343>.
- Ayanlade, A., Sergi, C., Carlo, P., Ayanlade, O., & Agbalajobi, D. (2020). When Climate Turns Nasty, What Are Recent and Future Implications? Ecological and Human Health Review of Climate Change Impacts. *Current Climate Change Reports*, 1-11. <https://doi.org/10.1007/s40641-020-00158-8>.
- Bayram, H., Rice, M., Abdalati, W., Elci, M., Mirsaeidi, M., Annesi-Maesano, I., Pinkerton, K., & Balmes, J. (2023). Impact of Global Climate Change on Pulmonary Health: Susceptible and Vulnerable Populations.. *Annals of the American Thoracic Society*. <https://doi.org/10.1513/AnnalsATS.202212-996CME>.





- Berry, H., Waite, T., Dear, K., Capon, A., & Murray, V. (2018). The case for systems thinking about climate change and mental health. *Nature Climate Change*, 8, 282-290. <https://doi.org/10.1038/s41558-018-0102-4>.
- Bikomeye, J., Rublee, C., & Beyer, K. (2021). Positive Externalities of Climate Change Mitigation and Adaptation for Human Health: A Review and Conceptual Framework for Public Health Research. *International Journal of Environmental Research and Public Health*, 18. <https://doi.org/10.3390/ijerph18052481>.
- Byg, B., & Shah, A. (2023). Heating up: climate change and the threat to human health. *Current Opinion in Nephrology and Hypertension*, 33, 78 - 82. <https://doi.org/10.1097/MNH.0000000000000933>.
- Cianconi, P., Betro', S., & Janiri, L. (2020). The Impact of Climate Change on Mental Health: A Systematic Descriptive Review. *Frontiers in Psychiatry*, 11. <https://doi.org/10.3389/fpsy.2020.00074>.
- Colwell, R., Epstein, P., Gubler, D., Maynard, N., McMichael, A., Patz, J., Sack, R., & Shope, R. (1996). Climate Change and Human Health. *Science*, 279, 963 - 963. <https://doi.org/10.1093/OBO/9780199756797-0077>.
- Crowley, R., Moyer, D., & DeLong, D. (2016). Climate Change and Health. *Annals of Internal Medicine*, 165, 747-748. <https://doi.org/10.7326/L16-0411>.
- Fanneh, M. (2021). Socioeconomic Study of Climate Change and its Impacts on Livelihoods of People Living Around the Coastal Areas of the Gambia. *Journal of Accounting, Business and Finance Research*. <https://doi.org/10.20448/2002.131.26.36>.
- Fox, M., Zuidema, C., Bauman, B., Burke, T., & Sheehan, M. (2019). Integrating Public Health into Climate Change Policy and Planning: State of Practice Update. *International Journal of Environmental Research and Public Health*, 16. <https://doi.org/10.3390/ijerph16183232>.
- Goniewicz, K., Burkle, F., Hall, T., Goniewicz, M., & Khorram-Manesh, A. (2022). Global public health leadership: The vital element in managing global health crises. *Journal of Global Health*, 12. <https://doi.org/10.7189/jogh.12.03003>.
- Hodgson, L., Fernando, G., & Lansbury, N. (2022). Exploring the Health Impacts of Climate Change in Subsistence Fishing Communities throughout Micronesia: A Narrative Review. *Weather, Climate, and Society*. <https://doi.org/10.1175/wcas-d-21-0169.1>.
- Kay, S., Avillanosa, A., Cheung, V., Dao, H., Gonzales, B., Palla, H., Praptiwi, R., Queirós, A., Sailley, S., Sumeldan, J., Syazwan, W., Then, A., & Wee, H. (2023). Projected effects of climate change on marine ecosystems in Southeast Asian seas. , 10. <https://doi.org/10.3389/fmars.2023.1082170>.
- Khanal, S., Ramadani, L., & Boeckmann, M. (2023). Health Equity in Climate Change and Health Policies: A Systematic Review. *Sustainability*. <https://doi.org/10.3390/su151310653>.
- Limaye, V. (2021). Making the climate crisis personal through a focus on human health. *Climatic Change*, 166. <https://doi.org/10.1007/s10584-021-03107-y>.





- Long, N., Cornut, P., & Kolb, V. (2020). Strategies for adapting to hazards and environmental inequalities in coastal urban areas: what kind of resilience for these territories?. *Natural Hazards and Earth System Sciences*. <https://doi.org/10.5194/nhess-2020-323>.
- Marten, R., Yangchen, S., Campbell-Lendrum, D., Prats, E., Neira, M., & Ghaffar, A. (2020). Climate change: an urgent priority for health policy and systems research. *Health Policy and Planning*, 36, 218 - 220. <https://doi.org/10.1093/heapol/czaa165>.
- Mbah, R., Mbah, E., Hultquist, L., & Repp, R. (2023). The 2020s Global Crises: A Discussion of How International Institutions are Responding to the Russia-Ukraine Crisis and Climate Change Crisis. *Advances in Social Sciences Research Journal*. <https://doi.org/10.14738/assrj.104.14382>.
- McMahon, K., & Gray, C. (2021). Climate change, social vulnerability and child nutrition in South Asia. *Global environmental change : human and policy dimensions*, 71. <https://doi.org/10.1016/j.gloenvcha.2021.102414>.
- Opoku, S., Filho, W., Hubert, F., & Adejumo, O. (2021). Climate Change and Health Preparedness in Africa: Analysing Trends in Six African Countries. *International Journal of Environmental Research and Public Health*, 18. <https://doi.org/10.3390/ijerph18094672>.
- Palinkas, L., & Wong, M. (2020). Global climate change and mental health. *Current opinion in psychology*, 32, 12-16 . <https://doi.org/10.1016/J.COPSYC.2019.06.023>.
- Patz, J., Frumkin, H., Holloway, T., Vimont, D., & Haines, A. (2014). Climate change: challenges and opportunities for global health. *JAMA*, 312 15, 1565-80 . <https://doi.org/10.1001/jama.2014.13186>.
- Rocque, R., Beaudoin, C., Ndjaboué, R., Cameron, L., Poirier-Bergeron, L., Poulin-Rheault, R., Fallon, C., Tricco, A., & Witterman, H. (2021). Health effects of climate change: an overview of systematic reviews. *BMJ Open*, 11. <https://doi.org/10.1136/bmjopen-2020-046333>.
- Sinay, L., & Carter, R. (2020). Climate Change Adaptation Options for Coastal Communities and Local Governments. *Climate*, 8, 7. <https://doi.org/10.3390/cli8010007>.
- Tong, S., & Ebi, K. (2019). Preventing and mitigating health risks of climate change. *Environmental research*, 174, 9-13 . <https://doi.org/10.1016/j.envres.2019.04.012>.
- Viegas, S. (2021). Climate change and the need of a one health approach: from science to policy. *European Journal of Public Health*, 31. <https://doi.org/10.1093/EURPUB/CKAB164.271>.

