Medical Assistance in Dying and Climate Change: Four Potential Scenarios and a Call for Research

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A substantial body of research has long underscored the severe risks that global warming poses to human life, particularly if temperatures rise by 1.5°C (Hoegh-Guldberg et al. 2019). However, the latest reports indicate that the policies adopted to date would lead to a global temperature rise of almost 3°C (Romanello et al. 2023). Beyond the direct hazards, several systematic reviews, meta-analyses, and scoping reviews (Burrows et al. 2024; Thompson et al. 2023; Charlson et al. 2021) highlight a further dimension: the negative impact of climate change on mental health, as well as the risks of suicidal ideation and attempts. In fact, according to a quantitative study by Burke and colleagues (2018), "unmitigated climate change (RCP8.5) could result in a combined 9–40 thousand additional suicides (95% confidence interval) across the United States and Mexico by 2050".

This kind of evidence has led many experts to call for an urgent awareness of the risk that

a constantly warming world poses to the phenomenon of suicide (Giacomini et al. 2022). However, it is noteworthy that this has not occurred with Medical Assistance in Dying (MAiD), despite the fact that this practice is being implemented in an increasing number of countries worldwide. Virtually every year since 2016, except in 2018, a new territory has legalised some form of assisted dying (Hannikainen et al. 2024). There is also evidence of a gradual increase in public acceptance of euthanasia (Inglehart et al. 2021). Moreover, a temporal trend analysis (Hannikainen et al. 2024) suggests that increasing public approval may precede and even contribute to the transition to legalisation in certain countries.

Despite the above data, there is a lack of research exploring the potential links between climate change and MAiD applications. This gap has already been identified by Cholbi and Varelius (2023, xvi): "But this still leaves many angles on the ethics of assisted dying largely unaddressed, including its relationship to (…) climate change and the sufficiency of food, air, and water". Given the urgent and significant nature of the climate crisis, it is important to consider its potential relevance to certain MAiD applications and to call for further research to better understand any possible connections.

Indirect Pathways: Climate Change as a Contributing Factor to MAiD Requests

Prospective Scenario

Medical assistance in dying where a mental disorder is the sole underlying medical condition (MAiD MD-SUMC) is permitted in five countries.[1] According to the latest

[1] It is permitted in the Netherlands, Belgium, Luxembourg, Switzerland, and Canada. In Canada, while it has been legal since 2021, the government has postponed its full implementation until 2027. In Spain, different judicial bodies hold conflicting views on whether MAiD MD-SUMC is legal, with some in favour and others opposed (Espericueta in press).

available official reports, in 2023, there were 138 cases of MAiD MD-SUMC in the Netherlands (Regional Euthanasia Review Committees 2024) and 48 in Belgium (Commission fédérale de Contrôle et d'Évaluation de l'Euthanasie 2024). In contrast, the latest report from Luxembourg, covering 2021 and 2022, indicates that no such cases occurred during that period (Commission Nationale de Contrôle et d'Évaluation 2023), and for the remaining countries, no official data are available. Although none of the reports specify the type of mental disorder that justified the MAiD MD-SUMC applications, a study points to depression, anxiety disorders, and post-traumatic stress disorder as the main causes (Kim, et al. 2016).

Concerning depression, the World Health Organization (2023) estimates that 5% of the world's adult population currently suffers from it. While the aetiology of this disorder is multifactorial, research is beginning to highlight the influence of the effects of climate change on increased rates of depression. For instance, a 2023 study conducted on young people aged 18–23 years in Tanzania found that severe food and water insecurity was associated with increased depression among respondents (Prencipe et al. 2023). In addition, "(y)outh who reported feelings of distress over climate change, especially extreme distress, also had higher depression prevalence" (Prencipe et al. 2023, e882). With regard to air pollution, the meta-analysis by Borroni and colleagues (2022) suggests that increased long-term exposure to PM2.5 and NO2 is associated with an elevated risk of depression.

On the other hand, more and more research is looking at the association between environmental degradation and certain types of anxiety disorders. In a survey of US adults conducted by the American Psychological Association (2020), 47% of those aged 18–37 said that the stress they feel from climate change is affecting their daily lives. For

populations living in ecologically vulnerable areas, this negative effect may be even more pronounced. For example, after conducting face-to-face structured interviews in a Pacific atoll nation, Gibson and colleagues (2020) found that 79.27% of the participants reported impairment in at least one area of daily life due to distress caused by climate change. In addition, a recent study identifies symptoms of generalised anxiety disorder as the main predictor of eco-anxiety (Asgarizadeh et al. 2023). Furthermore, Searle and Gow (2010) suggest that eco-anxiety may maintain and develop pre-existing anxiety symptoms.

In this regard, it has been found that young adults are particularly susceptible to eco-anxiety (Whitlock 2023), with a prevalence of females over males (Mei et al. 2024). This gender disparity has also been noted in MAiD MD-SUMC applications. A retrospective analysis of the first 100 consecutive MAiD MD-SUMC applications in Belgium between 2007 and 2010 revealed that 77% of applicants were women (Thienpont et al. 2015). In the Netherlands, the proportion stood at 70% between 2011 and 2014 (Kim et al. 2016).

For these reasons, it is important to ask to what extent some MAiD applications related to mental disorders such as depression or anxiety may be influenced by climate change in the future. In other words, how many of these applications could be avoided if the global ecological landscape were different?

There is certainly a need for research to investigate the relationship between environmental degradation and the desire to die, and whether or not there are populations that are more susceptible to suffer from it. For instance, a survey of practising mental health professionals found that 22% of respondents reported evidence of suicidal ideation or attempts in their patients as a result of climate change (Hoppe et al. 2023). Similarly, a study based on questionnaires completed by participants recruited from a German university found a significant positive association between climate change distress,

impairment, and suicidal ideation (Brailovskaia and Teismann 2024).

Retrospective Scenario

However, the association between climate change and MAiD could not only be prospective, but also retrospective. In other words, it is necessary to consider not only the possibility that MAiD MD-SUMC requests may be influenced by depression or anxiety about an ecologically unfavourable future, but also that such requests may be due to an experienced climatic event. According to a systematic review by Beaglehole and colleagues (2018), most studies agree that the rate of psychiatric disorders increases after natural disasters. There is a broad consensus in the literature that people who survive these catastrophic events may suffer from post-traumatic stress disorder (PTSD). For instance, a study of survivors of the 2004 Indian Ocean disaster found an incidence of 11.3% six years after the event, as well as high rates of suicidal ideation (Arnberg et al. 2013). In this respect, research suggests that PTSD is a strong predictor of suicidal ideation and attempts (Cougle et al. 2009). A systematic review has also identified women, adolescents, and older adults as groups at higher risk of suicide following natural disasters (Jafari et al. 2020).

Although some believe that those who apply for MAiD and those who commit non-assisted suicide are not necessarily part of the same profile, neither are they mutually exclusive characteristics. In fact, a systematic review of the literature reported that between 34 and 52% of people applying for MAiD MD-SUMC in the Netherlands had a history of suicide attempts (Calati et al. 2021). In the same country, a study found that between 2015 and 2017, PTSD was the second most common diagnosis for which patients received MAiD MD-SUMC (van Veen et al. 2019).

Thus, another way in which MAiD applications could be motivated by climate change is

through the disorders resulting from surviving natural disasters, particularly PTSD. Given the predicted increase in both the frequency and severity of such disasters in the future, it is reasonable to explore this possible relationship.

Direct Pathways: Climate Change as a Primary Motivation for MAiD

Explicit Scenario

So far, I have identified two scenarios in which climate change could potentially affect MAiD MD-SUMC applications: as a catalyst for depressive or anxiety disorders in the face of a future climate threat, and as a generator of post-traumatic stress disorder resulting from a past natural disaster. Both pathways can be interpreted as indirect, in that climate change would not be the actual cause of the request, but a relevant factor in the health condition that might prompt the patient to seek MAiD. It is important to remember that each of the conditions discussed earlier in this letter is currently eligible for aid in dying in some countries if the patient also meets other criteria (such as decision-making capacity and unbearable suffering with no prospect of improvement).

While the previous scenarios refer to potential indirect links between climate change and certain MAiD applications, it is also possible to consider a more direct pathway—one in which the primary driver would not be a mental disorder but environmental degradation itself. This would no longer be about a person who could not go on living even if they wanted to, but someone who, while being able to live despite suffering, would prefer to die because of climate change.

Searle and Gow (2010), in their study on negative emotions generated by climate change, argue that it is methodologically appropriate to distinguish “climate change hopelessness” from eco-anxiety. In this respect, one paper found that young individuals aged 15–24 with a higher level of knowledge about climate change tend to exhibit greater levels of

hopelessness (Ediz and Yanik 2023). This lack of hope could, in certain catastrophic circumstances, translate into a desire to die. This wish could derive from a will to avoid a torturous life due to food and water shortages or environmental diseases. In other words, in this scenario, the person would be aware that they could still actually live, but would know that their condition would keep getting worse, and that all hope for improvement was lost.

While this may sound a little speculative, it is important to note that there has already been a case of a formal application for MAiD based on climate change. Indeed, in 2022, 68-year-old Canadian activist Howard Breen applied for MAiD for this reason (Hook 2022). Although the argument for his official request was eco-anxiety, he explained in an interview that his decision was based on "having autonomy over his body and a dignified death in the face of impending climate catastrophe" (Hook 2022). Despite initial approval from his general practitioner, the application was rejected by the independent medical assessor.

The outcome might have been different in Switzerland, where assisted suicide is decriminalised and whose lax legislation would, in principle, accept a request such as Breen's. In fact, there have been cases in Switzerland where people have been assisted to commit suicide on the grounds of "existential suffering" or "tired of living" (Libération 2022). Both terms are highly ambiguous, but essentially agree that they are not life-threatening conditions. In this sense, it is relevant to know that in a qualitative study carried out with Swiss doctors who have been in direct contact with such cases, it was found that out of eight dimensions associated with existential suffering, "fear of the future" was the third most constant, while "loss of hope for a better future" ranked fifth (Gaignard and Hurst 2019). According to the authors, the "fear of the future" dimension

is mainly related to the fear of living in a constant and unbearable state of personal deterioration. They also point out that “not only was there a fear of potential future suffering but this anticipation itself was a source of current suffering that would lead to a wish to die” (Gaignard and Hurst 2019, p. 5). This kind of anticipatory suffering is consistent with Breen's statements: “I’m afraid of what could happen if we don’t act on climate change” (Hook 2022). While some have suggested that his petition was a political protest to highlight environmental degradation, he claims that he wants to have the option of MAiD in case the outlook worsens, as some type of contingency plan.

Implicit Scenario

On the other hand, although the grounds for Breen's request may be rejected in other countries outside Switzerland, it is undeniable that a person seeking assisted dying to avoid the effects of environmental degradation could still justify their request by referring to a legally recognised disease, if they suffer from one. For example, they can formally apply for MAiD on the grounds of a serious and incurable illness or disease. So, to put it in Aristotelian terms, their application would be motivated by a formal cause (the legally recognised illness) and a final cause (to avoid suffering the effects of climate change).

A Call for More Research

In this letter, I have mentioned four scenarios in which the climate crisis could influence the decision to apply for MAiD. Through this examination, I have not sought to justify their moral acceptability but rather to highlight the complexity involved. Indeed, although these scenarios are hypothetical, their potential to raise significant bioethical challenges justifies careful consideration and further analysis. Properly addressing and delineating these scenarios will require more in-depth research into the reasons behind requests for

assisted dying and a better understanding of the factors influencing decision-making in this context (Vallès-Poch et al. 2023).

In particular, studies on MAiD MD-SUMC applications could provide valuable insights into how climate change might influence decisions regarding assisted dying (Hawke et al. 2024). In this sense, the development of new (inter)disciplines, such as "Climate Mental Health" (Nature Mental Health 2024), which explore the intersections between climate change, mental disorders, and the desire to die, could help advance this task. Moreover, gaining a deeper understanding of the emotions triggered by climate change, such as eco-anxiety and eco-grief (Coffey et al. 2021), is also of paramount importance. This call is all the more urgent given that, according to a leading large-scale quantitative study in the United States, "1°C of 5-year warming associates with a 2% point increase in the prevalence of mental health issues" (Obradovich et al. 2018, p. 10953).

References

American Psychological Association. 2020. Majority of US Adults Believe Climate Change Is Most Important Issue Today. Last Modified March 31, 2023. https://www.apa.org/news/press/releases/2020/02/climate-change#:~:text=WASHINGTON%20%E2%80%94%20As%20the%20effects%20of,new%20poll%20by%20the%20American Accessed June 22, 2024.

Arnberg, F.K., K. Bergh Johannesson, and P.O. Michel. 2013. Prevalence and duration of PTSD in survivors 6 years after a natural disaster. *Journal of Anxiety Disorders* 27(3): 347–352. https://doi.org/10.1016/j.janxdis.2013.03.011

Asgarizadeh, Z., R. Gifford, and L. Colborne. 2023. Predicting climate change anxiety. *Journal of Environmental Psychology* 90: 102087. https://doi.org/10.1016/j.jenvp.2023.102087

Beaglehole, B., R.T. Mulder, C.M. Frampton, J.M. Boden, G. Newton-Howes, and C.J. Bell. 2018. Psychological distress and psychiatric disorder after natural disasters: systematic review and meta-analysis. *British Journal of Psychiatry* 213(6): 716–722. https://doi.org/10.1192/bjp.2018.210

Borroni, E., A. C. Pesatori, V. Bollati, M. Buoli, and M. Carugno. 2022. Air pollution exposure and depression: A comprehensive updated systematic review and meta-analysis. Environmental pollution 292(Pt A): 118245. https://doi.org/10.1016/j.envpol.2021.118245

Brailovskaia, J., and T. Teismann. 2024. Climate change distress, entrapment, and suicidal ideation. *Climatic Change* 177:127. https://doi.org/10.1007/s10584-024-03784-5

Burke, M., F. González, P. Baylis, et al. 2018. Higher temperatures increase suicide rates in the United States and Mexico. *Nature Climate Change* 8: 723–729. https://doi.org/10.1038/s41558-018-0222-x

Burrows, K., C.A. Denckla, J. Hahn, et al. 2024. A systematic review of the effects of chronic, slow-onset climate change on mental health. *Nature Mental Health* 2: 228–243. https://doi.org/10.1038/s44220-023-00170-5

Calati, R., E. Olié, D. Dassa, et al. 2021. Euthanasia and assisted suicide in psychiatric patients: A systematic review of the literature. *Journal of Psychiatric Research* 135: 153–173. https://doi.org/10.1016/j.jpsychires.2020.12.006

Charlson, F., S. Ali, T. Benmarhnia, et al. 2021. Climate Change and Mental Health: A Scoping Review. *International Journal of Environmental Research and Public Health* 18(9): 4486. https://doi.org/10.3390/ijerph18094486

Cholbi, M., and J. Varelius, eds. 2023. *New Directions in the Ethics of Assisted Suicide and Euthanasia*. Cham: Springer.

Coffey, Y., N. Bhullar, J. Durkin, et al. 2021. Understanding eco-anxiety: A systematic scoping review of current literature and identified knowledge gaps. *Journal of Climate Change and Health*, 3: 100047. https://doi.org/10.1016/j.joclim.2021.100047

Commission fédérale de Contrôle et d'Évaluation de l'Euthanasie. 2024. EUTHANASIE – Chiffres de l'année 2023 (Communiqué de presse). https://organesdeconcertation.sante.belgique.be/sites/default/files/documents/cfcee-communiquepresse20240227-chiffreseuthanasie-2023.pdf Accessed December 4, 2025.

Commission Nationale de Contrôle et d'Évaluation. 2023. Septième rapport de la loi du 16 mars 2009 sur l'euthanasie et l'assistance au suicide (années 2021 et 2022). https://sante.public.lu/fr/publications/r/rapport-euthanasie-2021-

2022.html#:~:text=Partager%20sur%20Facebook-,Septi%C3%A8me%20rapport%20de%20la%20loi%20du%2016%20mars%202009%20sur,suicide%20(ann%C3%A9es%202021%20et%202022)&text=Ce%207%C3%A8me%20rapport%20de%20la,de%20la%20Chambre%20des%20D%C3%A9put%C3%A9s. Accessed December 4, 2025.

Cougle, J.R., H. Resnick, and D.G. Kilpatrick. 2009. PTSD, depression, and their comorbidity in relation to suicidality: cross-sectional and prospective analyses of a national probability sample of women. *Depression and Anxiety* 26(12): 1151–1157. https://doi.org/10.1002/da.20621

Ediz, Ç., and D. Yanik. 2023. The effects of climate change awareness on mental health: Comparison of climate anxiety and hopelessness levels in Turkish youth. *International Journal of Social Psychiatry* 69(8): 2157–2166. https://doi.org/10.1177/00207640231206060

Espericueta, L. In press. La prohibición de la eutanasia por trastornos mentales en España: análisis sobre la vulneración del principio de igualdad y no discriminación. *Revista de Bioética y Derecho*.

Gaignard, M.E., and S. Hurst. 2019. A qualitative study on existential suffering and assisted suicide in Switzerland. *BMC Medical Ethics* 20(1): 1-8. https://doi.org/10.1186/s12910-019-0367-9

Giacomini, G., A. Aguglia, A. Amerio, et al. 2022. The Need for Collective Awareness of Attempted Suicide Rates in a Warming Climate. *Crisis*, 43(2): 157–160. https://doi.org/10.1027/0227-5910/a000763

Gibson, K.E., J. Barnett, N. Haslam, et al. 2020. The mental health impacts of climate change: Findings from a Pacific Island atoll nation. *Journal of Anxiety Disorders* 73: 102237. https://doi.org/10.1016/j.janxdis.2020.102237

Hannikainen, I. R., J. Suárez, L. Espericueta, M. Menéndez-Ferreras, and D. Rodríguez-Arias. 2024. Legal provisions on medical aid in dying encode moral intuition. *Proceedings of the National Academy of Sciences of the United States of America* 121(42): e2406823121. https://doi.org/10.1073/pnas.2406823121

Hawke, L. D., H. Bastidas-Bilbao, V. Cappe, et al. (2024). Medical Assistance in Dying for Mental Illness as a Sole Underlying Medical Condition and Its Relationship to Suicide: A Qualitative Lived Experience-Engaged Study. *Canadian journal of psychiatry*. 69(5) : 314–325. https://doi.org/10.1177/07067437231209658

Hoegh-Guldberg, O., D. Jacob, M. Taylor, et al. 2019. The human imperative of stabilizing global climate change at 1.5°C. *Science* 365(6459): eaaw6974. https://doi.org/10.1126/science.aaw6974

Hook, R. 2022. This Man Is So Anxious About the Climate, He Wants Medically Assisted Suicide. *Vice News*, May 12. https://www.vice.com/en/article/k7wd4e/canada-assisted-suicide-climate-anxiety Accessed June 22, 2024.

Hoppe, B. O., L. Prussia, C. Manning, et al. 2023. It's Hard to Give Hope Sometimes: Climate Change, Mental Health, and the Challenges for Mental Health Professionals. *Ecopsychology* 15(1): 13–25. https://doi.org/10.1089/eco.2022.0032

Inglehart, R.C., R. Nash, Q.N. Hassan, et al. 2021. Attitudes Toward Euthanasia: A Longitudinal Analysis of the Role of Economic, Cultural, and Health-Related Factors. *Journal of Pain and Symptom Management* 62(3): 559–569. https://doi.org/10.1016/j.jpainsymman.2021.01.009

Jafari, H., M. Heidari, S. Heidari, et al. 2020. Risk Factors for Suicidal Behaviours after Natural Disasters: A Systematic Review. *Malaysian Journal of Medical Sciences* 27(3): 20–33. https://doi.org/10.21315/mjms2020.27.3.3

Kim, S.Y., R.G. De Vries, and J.R. Peteet. 2016. Euthanasia and Assisted Suicide of Patients With Psychiatric Disorders in the Netherlands 2011 to 2014. *JAMA Psychiatry* 73(4): 362–368. https://doi.org/10.1001/jamapsychiatry.2015.2887

Libération. 2022. Sa décision. Jean-Luc Godard a eu recours au suicide assisté: «Il n'était pas malade, il était simplement épuisé». September 13. https://www.liberation.fr/culture/jean-luc-godard-est-mort-20220913_LLEGXZFQSFDC3FBJCP7AWXSYWI/ Accessed June 22, 2024.

Mei, S., C. Gao, N. Brennan, et al. 2024. Climate change concerns impact on young Australians' psychological distress and outlook for the future. *Journal of Environmental Psychology* 93: 102209. https://doi.org/10.1016/j.jenvp.2023.102209

Nature Mental Health. 2024. Climate mental health — making connections. *Nature Mental Health* 2: 119–120. https://doi.org/10.1038/s44220-024-00212-6

Obradovich, N., R. Migliorini, M.P. Paulus, et al. 2018. Empirical evidence of mental health risks posed by climate change. *PNAS* 115(43): 10953. https://doi.org/10.1073/pnas.1801528115

Prencipe, L., T.A.J. Houweling, F.J. van Lenthe, et al. 2023. Climate distress, climate-sensitive risk factors, and mental health among Tanzanian youth: a cross-sectional study. *Lancet Planetary Health* 7(11): e882. https://doi.org/10.1016/S2542-5196(23)00234-6

Regional Euthanasia Review Committees. 2024. Annual Report 2023. https://english.euthanasiecommissie.nl/the-committees/documents/publications/annual-reports/2002/annual-reports/annual-reports Accessed December 4, 2025.

Romanello, M., C.D. Napoli, C. Green, et al. 2023. The 2023 report of the Lancet Countdown on health and climate change: the imperative for a health-centred response in a world facing irreversible harms. *Lancet* 402: 2346–2394. https://doi.org/10.1016/S0140-6736(23)01859-7

Searle, K., and K. Gow. 2010. Do concerns about climate change lead to distress? *International Journal of Climate Change Strategies and Management* 2(4): 362–379. https://doi.org/10.1108/17568691011089891

Thienpont, L., M. Verhofstadt, T. Van Loon, et al. 2015. Euthanasia requests, procedures and outcomes for 100 Belgian patients suffering from psychiatric disorders: a retrospective, descriptive study. *BMJ Open* 5(7): e007454. https://doi.org/10.1136/bmjopen-2014-007454

Thompson, R., E. Lawrance, L. Roberts, et al. 2023. Ambient temperature and mental health: a systematic review and meta-analysis. *Lancet Planetary Health* 7(7): e580–e589. https://doi.org/10.1016/S2542-5196(23)00104-3

Vallès-Poch, M., I. Parra-Jounou, R. Ortega-Lozano, et al. 2023. End-of-Life Narratives of Patients who Request Medical Assistance in Dying: A Qualitative Study Protocol. *International Journal of Qualitative Methods*, 22: 1–8. https://doi.org/10.1177/16094069231202196

van Veen, S.M.P., F.W. Weerheim, M. Mostert, et al. 2019. Euthanasie van Nederlandse psychiatrische patiënten in 2015-2017 [Euthanasia of Dutch psychiatric patients in 2015-2017]. *Tijdschrift voor Psychiatrie* 61(4), 241–247.

Whitlock, J. 2023. Climate change anxiety in young people. *Nature Mental Health* 1: 297–298. https://doi.org/10.1038/s44220-023-00059-3

World Health Organization. 2023. Depressive disorder (depression). Fact sheets. Last Modified March 31, 2023. https://www.who.int/news-room/fact-sheets/detail/depression Accessed June 22, 2024