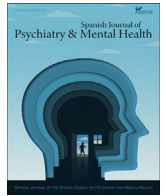




Available online at www.sciencedirect.com

Spanish Journal of Psychiatry and Mental Health

journal homepage: <http://http://www.elsevier.es/sjpmh>



Letter to the Editor

Climate change and mental health: The urgent warning of Brazil and Spain's 2024 catastrophic floods

Natural disasters have escalated at an alarming rate in recent decades. International data indicate a rise in the annual number of people affected by such events, from 19.33 to 102.88 million between 1960 and 2020, reflecting a 5.58-fold increase in those requiring immediate assistance.¹ In Brazil, climate emergencies and environmental disasters have surged over the past three decades, yet their impact on mental health remains under-researched. In May 2024, Rio Grande do Sul, Brazil's southernmost state, experienced its most severe climatic disaster on record, affecting 476 out of 496 municipalities and displacing 581,643 individuals.² Similarly, since October this year, Valencia state in Spain has also experienced extreme flooding. According to government reports, 227 fatalities have been confirmed, with over 36,000 people rescued to date,³ positioning this event as one of Europe's most catastrophic natural disasters this century. These events highlight that climate change impacts extend beyond economically vulnerable regions, affecting diverse populations worldwide.

Flooding in the regions of Rio Grande do Sul and Valencia caused extensive damage, severely impacting infrastructure, including homes, roads, and bridges. These events led to community isolation and disrupted essential services such as water supply, electricity, and health and social support. Preliminary official data collected from DATASUS (Department of Informatics of the Brazilian Unified Health System) revealed that during the May floods, outpatient mental health consultations in the most affected cities of Rio Grande do Sul decreased by more than 75.6% compared to expected estimates.⁴ However, two months later, outpatient emergency crisis interventions increased by 136% compared to expected estimates, reflecting an unmet demand resulting from service interruptions and restricted access routes.⁴ This situation disrupts the dynamics of social capital—defined as the resources and benefits individuals' access through social networks and interpersonal relationships—requiring individuals to rely more heavily on the quality and breadth of their pre-existing networks. In this context, social capital becomes crucial for facilitating immediate recovery, optimizing disaster response, and mitigating the long-term psychological and social impacts on affected populations.

Natural disasters are a direct consequence of climate change and have significant and lasting impacts on people's health. Beyond the losses from cardiorespiratory complications, infectious diseases, and food insecurity, there is growing evidence of the mental health impacts following events such as floods. Compared with other extreme weather events, floods might be associated with mental health disorders instead of overall or cardiac mortality.⁵ These include depression, anxiety, post-traumatic stress disorder (PTSD), and suicide.⁶ Moreover, rates of PTSD and anxiety

disorders among those exposed to floods exceed lifetime prevalence rates in the general population⁶ and can last up to 17 years post-flood.⁷ In 2022, the World Health Organization published a policy brief expressing concern about the repercussions of climate change on psychosocial well-being and mental health, noting that certain populations are disproportionately vulnerable to climate change-related hazards, particularly females and individuals with pre-existing psychiatric conditions.⁸

The similarities between the flooding events in Valencia and Rio Grande do Sul highlight the significant mental health impacts of climate crises and the critical role of economic factors and psychological support in recovery. Although data on the 2024 floods in Spain are not yet available, previous studies on a major 2012 flood in southern Spain reported that the prevalence of mild-to-moderate depression and anxiety disorders was expected to double within 12 months.⁹ Economic losses were identified as a major factor contributing to PTSD. In southern Brazil, a study during the 2024 catastrophic flood found a high prevalence of depressive, anxiety, and acute stress symptoms, with early access to psychological support most strongly associated with a significant reduction in these symptoms.¹⁰ However, access to psychological care during climate disasters varies considerably across populations, revealing health inequities and the vulnerability of traditional health support systems, which often become overwhelmed during catastrophic events. These findings are critically important and should be widely disseminated within the scientific community, promoting the rapid integration of psychological support into disaster response protocols and ensuring early access to treatment.

Recent extreme weather events underscore the critical need to establish psychological support systems to prevent and mitigate their mental health impacts. Empowering communities and promoting social capital are promising strategies to foster individual coping mechanisms, strengthen small community networks, enhance community resilience, and address unrecognized mental health issues following natural disasters. Policymakers must prioritize the early integration of mental health services into disaster responses and invest in the mental healthcare workforce. These efforts will assist in creating more resilient communities capable of addressing the psychological consequences of climate-related disasters.

Ethical disclosure

This *Letter to the Editor* is a commentary based on publicly available data and does not involve primary research, human participants, or animal subjects. Therefore, no ethical approval or informed consent was required for its preparation. The authors declare adherence to ethical standards in the writing and submission of this manuscript.

<https://doi.org/10.1016/j.sjpmh.2024.12.001>

2950-2853/© 2024 Sociedad Española de Psiquiatría y Salud Mental (SEPSM). Published by Elsevier España, S.L.U. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Please cite this article as: D. Prates-Baldez, F.R. Ornell, J.N. Scherer et al., Climate change and mental health: The urgent warning of Brazil and Spain's 2024 catastrophic floods, *Spanish Journal of Psychiatry and Mental Health*, <https://doi.org/10.1016/j.sjpmh.2024.12.001>

Conflicts of interest

Flávio Kapczinski has received personal fees as a speaker/consultant from Janssen (Johnson & Johnson), Daiichi-Sankyo, and Teva Pharmaceutical Industries. The other authors declare no conflict of interest.

References

1. Our World in Data. Natural disasters. Available from: <https://ourworldindata.org/natural-disasters> [cited 20.11.24].
2. State of Rio Grande do Sul. Bulletins on the impact of rains in RS [Internet]. Porto Alegre: State of Rio Grande do Sul. Available from: <https://www.estado.rs.gov.br/boletins-sobre-o-impacto-das-chuvas-no-rs> [cited 10.11.24].
3. La Moncloa. Monitoring Data on Government Actions Related to DANA 2024. Government of Spain; 2024. Available from: <https://www.lamoncloa.gob.es/info-dana/Paginas/2024/101124-datos-seguimiento-actuaciones-gobierno.aspx> [cited 20.11.24].
4. Brazilian Ministry of Health, Department of Informatics of the Unified Health System (DATASUS). SUS Outpatient Information System – SIA/SUS; 2024. Available from: <http://www.datasus.gov.br> [cited 03.11.24].
5. Weill-Engerer V, Schmid J, Mittermeier I, et al. Extreme weather events in Europe and their health consequences: a systematic review. *Int J Hyg Environ Health*. 2021;233:113688, <http://dx.doi.org/10.1016/j.ijheh.2021.113688>.
6. Cruz J, White PCL, Bell A, Coventry PA. Effect of extreme weather events on mental health: a narrative synthesis and meta-analysis for the UK. *Int J Environ Res Public Health*. 2020;17:8581, <http://dx.doi.org/10.3390/ijerph17228581>.
7. Dai W, Kamminga AC, Tan H, et al. Long-term psychological outcomes of flood survivors of hard-hit areas of the 1998 Dongting Lake flood in China: prevalence and risk factors. *PLOS ONE*. 2017;12:e0171557, <http://dx.doi.org/10.1371/journal.pone.0171557>.
8. World Health Organization. Mental Health and Climate Change: Policy Brief. Geneva: WHO; 2022. Available from: <https://www.who.int/publications/item/9789240047788> [cited 20.11.24].
9. Fontalba-Navas A, Lucas-Borja ME, Gil-Aguilar V, Arrebola JP, Pena-Andreu JM, Perez J. Incidence and risk factors for post-traumatic stress disorder in a population affected by a severe flood. *Public Health*. 2017;144:96–102, <http://dx.doi.org/10.1016/j.puhe.2016.11.012>.
10. Diefenthaler SM, Cacilhas A, Hartmann ML, Prates-Baldez D, Hauck S. Assessing mental health during an extreme weather event in southern Brazil. *Trends Psychiatry Psychother*. 2024, <http://dx.doi.org/10.47626/2237-6089-2024-0926>.

Daniel Prates-Baldez^{a,b,c,*}, Felipe Rech Ornell^d,
Juliana Nichterwitz Scherer^e,
Santiago Madeira Diefenthaler^{b,c}, Flávio Kapczinski^{b,c,d,f},
Vicent Balanzá-Martínez^{g,h,i,j}, Simone Hauck^{b,c}

^a Faculdade de Medicina, Universidade Federal do Rio Grande (FURG), Rio Grande, RS, Brazil

^b Hospital de Clínicas de Porto Alegre (HCPA), Porto Alegre, RS, Brazil

^c Faculdade de Medicina, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil

^d Programa de Pós-Graduação em Psiquiatria e Ciências do Comportamento, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil

^e Programa de Pós-Graduação em Saúde Coletiva, Universidade do Vale do Rio dos Sinos, São Leopoldo, RS, Brazil

^f Department of Psychiatry and Behavioral Neurosciences, McMaster University, Hamilton, Canada

^g Department of Medicina, University of Valencia, Valencia, Spain

^h Centro de Investigación Biomédica en red de Salud Mental (CIBERSAM), Madrid, Spain

ⁱ INCLIVA Health Research Institute, Valencia, Spain

^j VALSME (VALencia Salut Mental i Estigma) Research Group, University of Valencia, Valencia, Spain

* Corresponding author.

E-mail address: danielpratesbdz@gmail.com (D. Prates-Baldez)