Climate Change, Natural Disasters, and Suicide: A Systematic Review

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Introduction

Natural disasters affect millions of people throughout the world, annually.

In the U.S., natural disasters affect 1.5 million people every year.

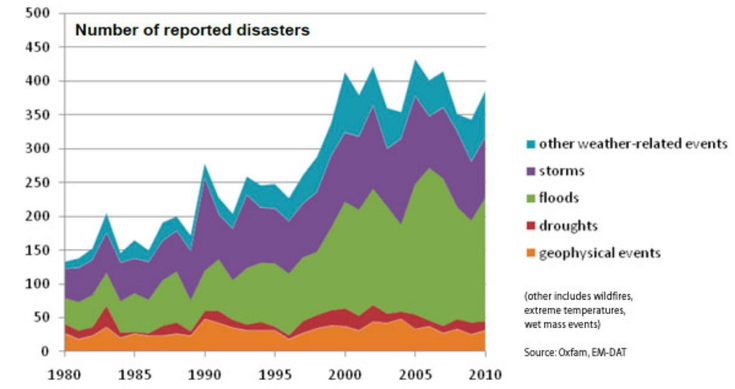
Climate Change is projected to increase frequency and severity of natural disasters.

The relation between mental health, particularly suicide, in the aftermath of natural disasters is not clearly understood.

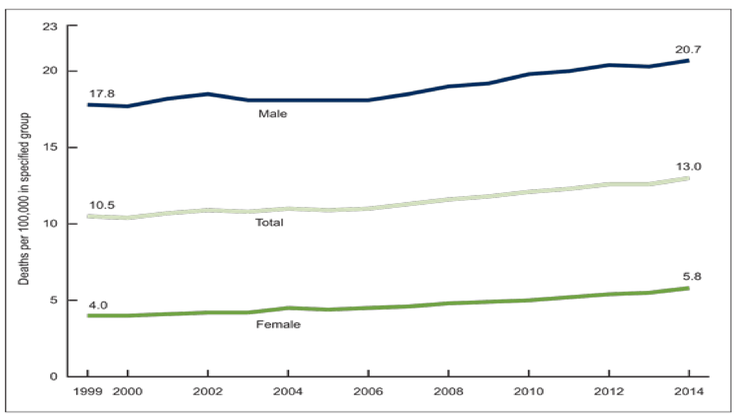
Suicide already is the 10th leading cause of mortality in the U.S.

Research Question.
Is there a relation between suicide and natural disasters?

Number of Natural Disasters Over Time from 1900-2010:
Source: EM-DAT (The International Disasters Database), 2016



Suicide Rates in the United States:
National Center for Health Statistics, National Vital Statistics System Mortality Data



Abstract

Objectives.
To explore the relation between natural disasters and suicide rates among the affected population in the aftermath of major natural disasters.

Methods.
This research was produced thorough a systematic literature review following PRISMA methodology. Four digital databases, PubMed, Scopus, Cochrane, PsycINFO, were utilized to conduct a thorough, systematic literature review. After applying the predetermined inclusion and exclusion criteria and reviewing the literature in detail, seven studies were included in the final literature review.

Results.
Most of the studies (n=5) included in this review found a positive correlation between suicide rates and natural disasters. The suicide rates varied for different natural disasters and some studies found an increase of up to 40% after certain natural disasters such as recurring floods. Natural disasters found to be most associated with increased suicide rates included heatwaves, flooding, and droughts. Other studies exploring tsunamis and hurricanes found no significant increase in suicide rates.

Limitations.
With only seven articles, it limits confidence in a strong association between disasters and suicide rates. Another major limitation is the inclusion of English-Language-Only articles.

Conclusion.
This literature review found some evidence of an association between natural disasters and suicide. Further research with better study designs is recommended to understand and prepare for increasing natural disasters as a result of climate change and their impact on mental health and suicide. We also recommend funding allocation for mental health services in emergency preparedness plans.

Methods

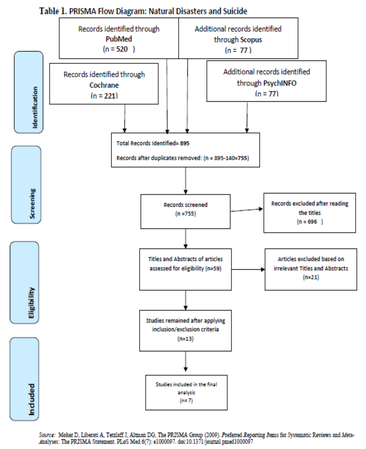
Search Strategy.
- Systematic literature review.
- *Databases:* Scopus, PubMed, Cochrane, and PsychINFO
- Only the electronic databases.
- Hand-searched abstracts.

Inclusion Criteria.
English language, Civilian population, Natural disasters, Suicide

Exclusion Criteria.
Workers, Other than suicide mental health outcomes, Industrial or occupational disasters, Terrorist Attacks, War Zones, Non-digital literature.

- 890 articles identified and seven were included in the final analysis.

Table 1. PRISMA Flow Diagram: Natural Disasters and Suicide



Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009): Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

PECOS Statement

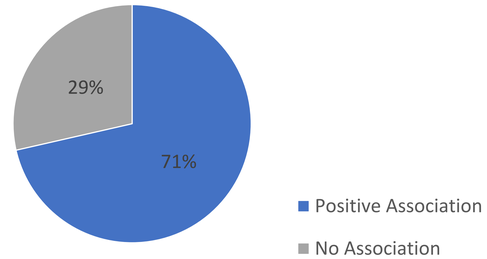
Population	Survivors of major natural disasters
Exposure	Natural disasters
Comparator	Study population before disasters
Outcome	Suicide
Study Type	Various

Results

- Five studies found positive association between (n=5 | 71 %)
- Two studies found no significant association (n=2 | 29%)

Disasters with Significant Impact on Suicide.
Heatwaves, Flooding, and Droughts.

Disasters with No Significant Impact on Suicide.
Tsunamis, Hurricanes.



Results (Studies included)

Conclusions & Recommendations

Conclusions.
- Some evidence of a positive association between natural disasters and suicide.
- Not sufficient enough to conclude a true association due to biases and a small sample size.

Recommendations.
- Further Research: Robust research with strong study designs is needed.
- FEMA Funding: We recommend FEMA allocates funding for mental health services in post-disaster response.

Acknowledgments

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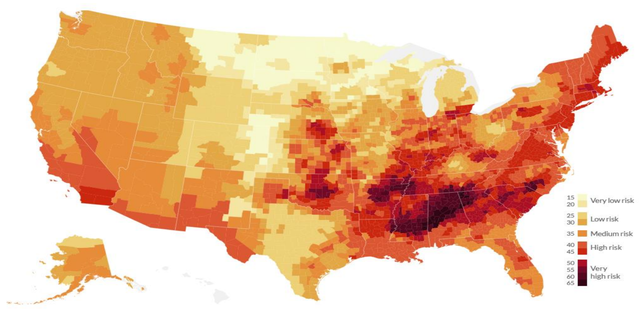
Pun Fact

Likelihood of getting impacted by a disaster in the U.S. (*Source: RealityTrac*)



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