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IN DEVELOPMENT

# Mental health, mobility and climate change: a scoping review protocol

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## ABSTRACT

### Objective:

This scoping review aims to map the knowledge gap on mental health – mobilities – climate change nexus. This will allow us to better understand how people cope with their mental health outcomes in a context of a changing climate and their (im)mobilities.

### Introduction:

Mental health related to climate change and (im)mobilities is an emerging field. If more knowledge has been cumulated on the climate change – migration and physical health nexus, there is still a lack of evidence on the relationship between mental health – climate change – mobilities, especially in the case of slow-onset events. Some researchers perceived mobility as an opportunity to adapt to environmental changes as well as a risk factor for developing mental health issues. The underlying causal pathways are yet to be clarified to include the diversity of mobility (seasonal, immobility, planned, constraints, etc.) related to environmental change and their mental health impacts.

### Inclusion criteria:

Inclusion criteria for papers would be: 1) All types of papers: peer-reviewed, non-reviewed, comments and grey literature; 2) focused on the nexus of mental health – climate change – (im)mobilities; 3) published in English, French, Spanish and Bengali; and 4) published from the 1st January of 2000 to the 31<sup>st</sup> of August 2022 which correspond to the most prolific period of publication related to our subject. All papers that do not meet the inclusion criteria will be excluded.

### Methods:

We will conduct a review from three academic search engines (PubMed, Web of Sciences, Dimensions.ai) and add manually papers from grey literature, blogs and comments. We will follow the JBI recommendations to select, extract and analyse the evidence based on a thematic approach with the Mixed-Method Appraisal Tool. Three academic databases will be searched. Grey literature, blogs and comment will be added manually.

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## KEYWORDS

mental health, climate change, mobilities, migration, displacement



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## Introduction

- 1 Climate-induced (im)mobility[1] is a field that has emerged during the 70's(1). It is deeply focused on the consequences of sudden and slow-onset climate hazards(2) on mobilities. Mobility, on the other hand, is perceived as an opportunity to adapt to environmental changes(3), but is more complex for people who do not want to leave their homes and lands(4).  
Initially focused solely on the physical health impacts of climate change, a shift appeared over the last decade. It leads to the rise of a new field that explores combination of scientific data about mental health in relation to climate change. Multiple studies have been conducted in biomedicine and social sciences fields(5,6). Mental health appears to be linked to climate change in two causal pathways. Direct effects could be caused by acute weather events (post-trauma, stress disorder, anxiety, depression, even suicidal ideation). Likewise, indirect effects could be caused by the impacts of climate and environmental changes on the economy, migration, and social structures(6).  
In 2010, Berry et al. shaped the mental health and climate change framework that shows the different pathways without highlighting the mobilities or migration factor(7). The first scoping review on mental health and climate change addressed the mental health outcomes related to climate change according to the five global priorities of the WHO(8). A recent scoping review(9) showed that an important gap is the lack of use of weather data for causal inference when mental health and climate change are studied. However, issues related to migration and mobility remain absent.  
The majority of current analysis are based on the traditional disaster framework that fails to grasp mental health issues related to slow-onset events(10). Yet, migration related to climate events after a disaster is a well-known phenomenon[2]. Indeed, a recent global report indicates that more than 21 billion displacements(13) in 2021 were linked to a natural disaster. 94% of all displacements are caused by climatic events (cyclones, droughts, floods) that are increasing and intensifying each year(13). Mental health outcomes are described in this context mostly in terms of post-traumatic stress disorders. Nevertheless, on chronic changes (heat, drought, decreased air quality, etc.), there is less knowledge about both resources/adaptation and constraints for the population affected.  
While the consequences (direct and indirect) of climate change on mental health outcomes are also linked to physical health(14), mental health appears to be still undervalued in the literature addressing climate change and migration. This increases the social inequalities as vulnerable people - children, women, those with low socioeconomic resources or suffering from discrimination - are even more at risk to be affected by mental health issues. Besides, inequalities in access to care are more preminent for this issue, particularly

in low- and middle-income countries.

In this context, doing a scoping review appears to be the best appropriate method to identify different evidence and map the knowledge gap in this emerging field(15,16). It will also make it easier for future systematic reviews.

A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews and *JBIR Evidence Synthesis* was conducted using these keywords: climate change, mental health, migration. The authors concluded that no current or underway systematic reviews or scoping reviews on the topic were identified. No similar protocols have been registered with Prospero since. Only one review included some articles on climate change – mental health – migration nexus(17). This study was not specifically focused on mental health but more on the physical health impacts of climate change-related migration. Moreover, the concept of migration was included in the sense of mobility response to climate change i.e. in the post-disaster paradigm and was more accurate for acute events.

Our main objective is to map the knowledge gap on mental health and mobilities in the context of a changing climate. We will include all papers that focus on these three concepts: climate change, mobilities and mental health, to better understand their relationships.

A secondary objective of the review is to identify intermediate factors such as coping or constraint that interact with the effects of environmental stresses and mobilities. By doing so, we will be able to distinguish the impacts on mental health regarding environmental and socioeconomic contexts.

[1] For definitions of all terms see Appendix, table 1.

[2] Because of the preeminence of the disaster paradigm in the environmental sciences but also because of the representation of “migration” and human mobilities and how it’s perceived as a danger for the Western States(11). Climate change is analyzed as a substantial trigger of migration(12).

## Review question

- 2 In relation to our objectives, our main review question is:
- 1. What is known about the complex relationship between mental health and mobilities in the context of a changing climate?
- Our secondary question is:
- 2. What are the main adaptive and stressor factors for populations affected by climate changes regarding their mental health outcome?

## Keywords

- 3 Search terms, developed with a research librarian to capture relevant literature, included our three concepts of interest as described below.

**Table 2. Search terms**

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## Eligibility criteria

### 4 Participants

Only humans but all participants regarding their age, gender, and sociocultural contexts will be included. There is no sample size restriction.  
Non-humans will be excluded of our review.

### 5 Concept

The scope of the review is on mental health – climate change – mobilities nexus. All papers that do not include these three concepts will be excluded. Population or communities not affected by mental health impacts will be also included if the data are available.

### 6 Context

Every country will be included. Our interest will encompass low and middle-income countries since they are understudies in the field of mental health related to climate change(18). All levels (individual, community, population) are included. Only papers about mental health outcomes linked to mobilities and climate change would be included.

### 7 Type of sources

This scoping review will consider qualitative, quantitative and mixed methods studies. In addition, systematic reviews that meet the inclusion criteria will also be considered, depending on the research question. Articles, websites, book chapters, opinion papers and grey literature from non-governmental organisations (NGOs) and non-profit organisations (NPOs) will also be considered for inclusion in this scoping review.

## Methods

- 8 The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews(19).

9 Search strategy

The search strategy will aim to locate both published and unpublished studies. An initial limited search of PUBMED and DIMENSIONS.AI was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for PUBMED(see Appendix). The search strategy, including all identified keywords and index terms, will be adapted for each included database and/or information source. The reference list of all included sources of evidence will be screened for additional studies.

Studies published in French, English, Spanish will be included. Studies published from January the 1<sup>st</sup>2000until September the 1<sup>st</sup>2022 (when the date the search will start) will be included.

The full search strategy and selection criteria are presented in the appendix. We will search on PubMed, Dimensions.ai, and Web of Science for papers published and will add manually grey literature.

10 Study/Source of Evidence selection

Following the search, all identified citations will be collated and uploaded into Zotero 6.0.12 (AGPL) © and duplicates removed. Following a pilot test, titles and abstracts will then be screened by two reviewers for assessment against the inclusion criteria for the review. Potentially relevant sources will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment, and Review of Information (JBI SUMARI) (JBI, Adelaide, Australia)(20). The full text of selected citations will be assessed in detail against the inclusion criteria by two reviewers. Reasons for exclusion of sources of evidence in full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion, or with an additional reviewer. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram(21).

11 Data extraction

Data will be extracted from papers included in the scoping review by four researchers and using the JBI qualitative extraction data tool. The data extracted will include specific details about the participants, concept, context, study methods and key findings relevant to the review questions.

The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included evidence source. Modifications will be detailed in the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion, or with an additional reviewer/s. If appropriate, authors of papers will be contacted to request missing or additional data, where required.

12 Data analysis and Presentation

All papers included will be charted in Microsoft ® Excel 365 using the following headings:Author/s; Name of journal; Year of publication; Title; Aim of the study; Focus area; Study method; Study design; Age; Gender; Mental Health outcome; Climate events or chronic changes experienced; mobility settings or response;Sample size; Study setting; Data collection; Data analysis; Major findings; Limitations; and Implications for research and

policy. A table will display the charted data. We will use a thematic analysis and the Mixed Method Appraisal Tool (MMAT)(22) to analyze all papers included in the scoping review. A visual mapping of the conceptual models would be finally produced in order to « stimulate further research in the field and highlight gaps in knowledge »(23).

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## Conflicts of interest

- 15 There is no conflict of interest in this project.

## Appendix

- 16 Table 1. Definition and meaning of our concepts

A	B
Concepts	Definitions and meaning
<b>Mobility</b>	In the context of climate change, the concept of “mobility” is more relevant
<b>Mental health</b>	We refer to Bertolote’s definition of “mental health” as a political and ideolo
<b>Climate change</b>	When we use the term “climate change” (26) we always refers to the direct

Table 3. Search strategy and selection criteria

A	B	C
<b>Search Strategy</b>		

A	B	C
<b>Databases searched</b>	PubMed, Dimensions.ai, Web of Science	
<b>Search strategy</b>	("Climate change" OR "OR "global warming"	
<b>Limits</b>	Title and abstract; Publication date from 1st	
<b>Study Selection Crite</b>		
	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
<b>Population</b>	-All ages, humans only -Study sample >500	-Non-human -Study sampl
<b>Comparison</b>	-Area or population not affected by climate	-Study did not analyze pri
<b>Context</b>	-All countries -Studies at individual, interper	-None
<b>Year Range</b>	Publications from 1st January 2000 to 1st S	Publications prior to 2000

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