Project Details	
Project Code	MRCPHS25Ba Halligan
Title	An investigation of the factors that influence post-disaster mental health in a Brazilian birth cohort study
Research Theme	Population Health Sciences
Summary	Exposure to traumatic events like disasters is a major risk factor for poor mental health. However, understanding of the pre-existing factors that contribute to better or worse mental health following such experiences is limited. This PhD will focus on a study of more than 4000 individuals who were born in Pelotas, Brazil, in 2004 and have been tracked over time. Study participants were exposed to catastrophic flooding in Pelotas in May 2024, allowing for a unique examination of post-disaster mental health. The focus of this PhD will be on understanding risk/resilience to poor mental health in this post-disaster context.
Description	BACKGROUND Natural disasters (e.g., floods, hurricanes) are traumatic stressors that can trigger significant mental health and adjustment problems, including PTSD, depression and anxiety. Understanding individual differences in how people respond to such severe stressful life events is at the centre of stress-vulnerability models that have been applied to multiple mental disorders. However, to date, evidence in this field is limited by the fact that it is exceptionally hard to study vulnerability and resilience factors that are present prior to trauma exposure in the general population, given the fundamentally random nature of such experiences. Understanding the factors that contribute to risk and resilience in the context of climate-related natural disasters is particularly important, given their escalating role in human experience and the emergence of climate-specific anxiety as a particular mental health concern. In May 2024, states in Southern Brazil experienced unprecedented and disastrous flooding. Severely affected areas included the city of Pelotas, which is home to the Pelotas 2004 birth cohort, a major scientific study that has been tracking all children born in 2004. Through repeated assessments, this study has gained detailed information on mental health, as well as a range of potential risk and resilience factors, for more than 4000 children. The fact that all study participants, now aged 20 years, experienced the same climate related disaster at the same time presents a unique opportunity to identify predictors of associated mental health outcomes. The proposed studentship will harness the wealth of existing information that is already available for study participants to identify predictors of post-disaster mental health. It will thereby achieve much needed understanding of the factors that underpin resilience to trauma among low-and-middle-income-country youth. AIMS The overall objective of the studentship will be to examine the impact of exposure to a climate-related trauma on mental health among youth in the 2004 Pelotas Birth Cohort Study. Specific objectives will be developed with the student, but potential objectives are: 1. To examine associations among severity of exposure to the 2024 disaster in Pelotas, mental health symptoms and climate related distress.

2. To identify pre-existing factors that could serve as risk/resilience factors, influencing associations between exposure and mental health outcomes, examining psychological (e.g., cognitive capacities, emotion regulation style), social (e.g., parenting factors, social support), and/or physiological (e.g., autonomic activity, cortisol output) domains.

3. To identify possible intervening pathways that link already established risk factors for poor posttrauma mental health (e.g., history of childhood adversity) to disaster responses.

APPROACH

The project will capitalise on longitudinal measures of trauma exposure, mental health, and potential psychological, social and physiological risk factors already available in the 2004 Pelotas Birth Cohort. Participants have completed repeated assessments perinatally and in early childhood, with follow-ups at 6 years, 11 years, 15 years, and 18 years. The project is a 'quasi-experimental' type of 'before and after' an event that occurred for all cohort participants, i.e., the flooding disaster in Pelotas. The study will focus on 3,500 participants who were evaluated at child age 18 years old in 2022, all of whom were living in Pelotas in May 2024 and exposed to the extreme flooding event.

MEASURES

Pre-event mental health measures, indices of climate-related distress, and many other measures of health, well-being and social/psychosocial/biological functioning beginning in infancy, are already available for adolescents. Flood exposure and post-exposure responses among participants are currently being captured.

Exposure: Flood event-related variables will capture extent and severity of exposure to the May 2024 disaster, including extent and duration of personal disruption (e.g., due to closure of places of work/study, removal from homes, time in shelters) and loss (e.g., damage to the home or personal belongings; loss of job or income; loss of family members or friends; or loss of access to food, water or other necessities).

Outcomes: Post-disaster mental health symptoms will be the main outcome for this PhD, including post-disaster measures of depression, anxiety, PTSD and climate-anxiety. These symptoms are being screened using the same instruments administered at age 18 years, to maintain comparability of assessments and isolate impacts of disaster exposure.

Moderators and Mediators: Risk and resilience factors will be derived from a wealth of pre-existing data available for the entire cohort since birth, according to the scientific evidence and the interests of the student. Existing longitudinal data captures key aspects of social/psychological/biological functioning since birth, as well as prior experiences/mental health.

STUDENT OWNERSHIP

Robust evidence of the pre-exposure factors that influence post-trauma mental health is exceptionally limited, and absolutely no studies exist that capture a population-wide exposure in an already highly studied, representative sample. This dearth of existing evidence combined with exceptionally rich data on a range of possible risk/protective factors means that there is major capacity for a student to develop their own

	specific area of interest and produce high quality outputs, which we will be happy to support.
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