Chapter 5.1
Disaster Mental Health Research

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Learning objectives

To understand the importance of the following for mental health research relevant to health emergency and disaster risk management (Health EDRM):

- Mental health consequences of disasters.
- Research methods appropriate for assessing mental health.
- The importance of partnerships to support mental health research in disaster settings.
- The role of culture in defining the experience and expression of distress.

Introduction

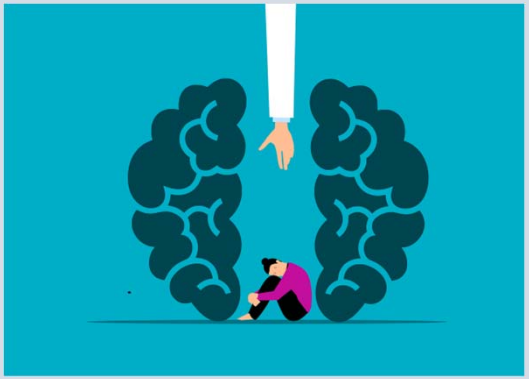
- Disasters and emergencies that result from climate change, natural and technological hazards, and human conflict can have major implications for mental health.
- **Long-term psychological distress** results from exposure to trauma, bereavement, forced displacement, injury and resource loss.
- Mental health is a relatively neglected area in Health EDRM and more focus is needed on the relevant services, funding, human resources and research.

Psychological responses to trauma (1)

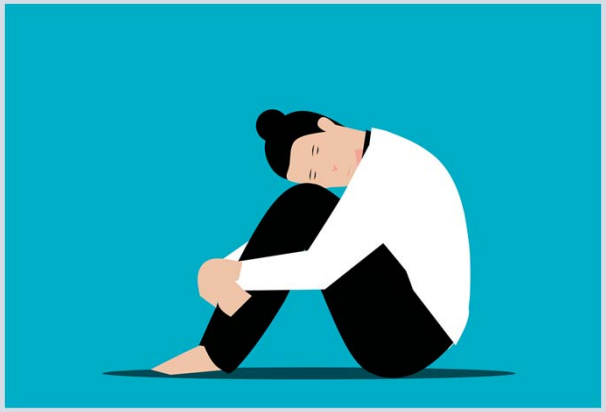
During disasters, people react with:

- Fear
- Horror
- Sadness
- Grief

These feelings sometimes resolve over time, often with the help of psychosocial and community supports that reduce the incidence of severe psychological issues, but, for some people, psychological distress remains high for a long time after a disaster.



Psychological responses to trauma (2)



- Health services primarily focus on treating injuries, infectious diseases and pre-existing chronic conditions, making mental health a second-wave issue during disasters.
- Therefore, careful **long-term planning** and substantial knowledge of the **pattern of response** across affected populations is needed when addressing mental health in the aftermath of disasters.

Psychological responses to trauma (3)

Likewise, when designing research studies, targeted and well-timed research is needed to reliably demonstrate the effect of disasters on mental health, given the size of the burden. For example:

- Up to 1 in 3 disaster survivors develop PTSD.
- Up to 1 in 4 disaster survivors report depression.

Other conditions, including anger disorders, suicide, psychosis and traumatic brain injury also require attention.

Psychological responses to trauma (4)

Risk factors of psychological distress include:

- Severity of trauma exposure
- Female gender
- Pre-existing psychological conditions
- Presence of ongoing chronic stressors in the post-disaster environment

Interpersonal violence and conflict-related disasters have been associated with poorer mental health outcomes than disasters caused by natural or technological hazards.

Psychological responses to trauma (5)

Currently, most of the research in this field relates to the effects of earthquakes, bushfires, windstorms, floods, terrorism and war.

However, with the impact of climate change on the rise, more focus is needed on the effects of:

- Extreme temperatures
- Water insecurity
- Trade disputes
- Civil unrest
- Interaction of climate change with pre-existing vulnerabilities

Assessing mental health in disaster-affected areas

Research methodologies relevant to the assessment of mental health after disasters can be applied to examine the full spectrum of psychological response, including:

- Resilience
- Post-traumatic growth
- Sub-clinical mental health issues
- Acute reactions
- Long-term psychological distress and dysfunction

Quantitative research: cross-sectional survey

In mental health, **quantitative research** is used to study the prevalence of mental health problems, their correlates, symptom course and the effects of interventions.

Cross-sectional survey designs are most commonly used in disaster mental health studies and provide information on the prevalence of mental health issues evident in affected populations, and the risk and protective factors associated with mental health concerns.

Quantitative research: longitudinal and cohort studies

Longitudinal and **cohort studies** are less common but can be used to show the trajectory of psychological response to disasters and the risk and protective factors associated with *change* in outcomes over time. Two examples are:

- English National Study of Flooding and Health
- Project Ice Storm in Canada

Both of these studied the long-term consequences of disaster exposure across the lifespan, including the longitudinal effects of prenatal disaster stress.

Quantitative research: other statistical methods

Other statistical methods used in disaster mental health research include:

- **Time series data analysis** (example: to assess psychiatric hospital admissions associated with hot temperatures).
- **Multilevel longitudinal analysis** (example: to determine the mental health effects of group involvement following bushfires).
- **Latent class analysis** (example: to assess the psychological factors associated with urban evacuation preparedness).
- **Geospatial patterning** (example: to study vulnerabilities after hurricanes).

Disaster mental health services research (1)

Disaster mental health research is important for:

- Designing strategies to reduce mental health risks
- Delivering support services that facilitate recovery
- Monitoring ongoing mental health care needs, service demand and equitable service access of disaster-affected populations
- Capturing the important outcomes of interventions
- Enhancing the quality and organization of future disaster responses

Disaster mental health services research (2)

Elements for effective disaster mental health disaster response include:

- Effective coordination of multiple disaster response agencies and support services across varying sectors and jurisdictions
- Integration of enhanced disaster mental health services within existing support structures, such as primary care
- Facilitation of ready access to care and creation of pathways between different levels of care
- Targeted capacity building for disaster responders in evidence-informed and scalable interventions.
- Timely and transparent communication among all involved stakeholders and the wider community.

Disaster mental health services research (3)

- Data from stakeholders such as schools, non-profit organisations and community groups is helpful for highlighting short- and long-term needs, as well as treatment outcomes.
- Health services research should be **integrated into disaster preparedness and response** in order to develop effective interventions and supports for people most affected by the disaster.

Qualitative research

Qualitative research gathers in-depth or exploratory data on topics. It may be used to investigate sensitive or taboo topics and broaden inclusivity to populations who are often excluded from research or the evidence base.

Qualitative research: methods

Characteristics of qualitative research:

- Smaller purposive samples and collection of narrative data
- Deep exploration of meanings and relationships
- Focus on describing, exploring and interpreting the participants' frame of reference/worldview.

In disaster research, examples of these methods being applied include:

- Rapid assessment of needs following exposure to trauma
- Social network analysis in communities preparing for hazards
- Exploration of mental health symptoms among cultural groups rarely represented in the literature

Participatory action research (1)

In **participatory action research (PAR)**, study participants are given active co-researcher roles with the aim of:

- Adding new perspectives
- Disrupting dominant paradigms
- Championing inclusive approaches

This approach gives participants ownership of the process and disrupts the power imbalance between researcher and participant.

Participatory action research (2)

- PAR with children and adolescents affected by disasters seeks to dispel the notion of children as passive and vulnerable and instead recognizes their right to be included in decision-making.
- This approach has also been used to develop inclusive policies for marginalized groups and minorities in disaster settings.

Case study: *Working with communities to assess the effects of disasters (1)*

Despite the value of PAR, there are also some particular challenges. For example, post-disaster environments can be chaotic and social networks become fractured. Social bonding that occurs in response to a shared disaster experience can also deteriorate over time into disagreements and conflict.

Case study: *Working with communities to assess the effects of disasters (2)*

Beyond Bushfires: Community Resilience and Recovery is a ten-year longitudinal study conducted in Victoria, Australia after the 2009 'Black Saturday' bushfires. Development and implementation of the study involved input from:

- Government, emergency, and health sector partners through investigator/partner meetings
- Community expertise (25 rural communities were included as study sites to represent high, medium, and low-impact communities)

Rather than including just a few community spokespersons in the decision-making, the study involved a wide range of individuals and organizations through community visits, local meetings and seminars.

Case study: *Working with communities to assess the effects of disasters (3)*

- This allowed the community to influence study decision-making at all stages of the research process and reflected the complexity of individual and community-level experiences.
- This greatly enhanced the relevance and impact of the findings.
- This case study demonstrates that, when done with genuine commitment, PAR can have great value for those involved.
- However, when it is merely tokenistic, there is potential for harm.

Considerations for working with disaster-affected populations (1)

Conducting research with traumatized populations

- Mental health research often involves working with people who are experiencing distress or are required to recall difficult times.
- This can sometimes exacerbate stress, irritation or fatigue.
- Investigators must therefore be mindful of how they conduct their research and ensure that participants are protected from distressing or ethically compromised situations.

Considerations for working with disaster-affected populations (2)

Some ways to address this include:

- Training the research team with a focus on research ethics, confidentiality, sensitivity, risk assessment, and building rapport
- Developing a referral network before starting the research, so that higher-risk cases may be referred to specialist care
- Engaging community stakeholders to guide research design and data collection
- Speaking with participants about their social support networks and ways that they can access further information and assistance

Considerations for working with disaster-affected populations (3)

Mental health stigma

- Mental health conditions are often associated with stigma, which means that the research must be planned thoughtfully.
- Scientific evidence has the potential to reduce stigma around psychological responses to trauma.
- On the other hand, it can also increase stigma if the findings inadvertently reinforce community concerns.

Considerations for working with disaster-affected populations (4)

- An example of such reinforcement includes findings that demonstrate associations between psychological symptoms and weakness or danger.
- Thus, stereotypes should be challenged through positive messages of change, associating help-seeking with strength, and normalizing trauma reactions.

Considerations for working with disaster-affected populations (5)

Cultural expressions of distress

- Culture is important for understanding how people experience distress, psychological and behavioral phenomena.
- These experiences are shaped by cultural expectations and socialization processes.
- Qualitative research can explore common descriptions of stress, mood and behaviour change.
- This can highlight symptom clusters and idioms of distress.

Considerations for working with disaster-affected populations (6)

A '**cultural lens**' should be adopted to understand the influence of the following factors on the expression and experience of psychological distress:

- Gender
- Age
- Family composition
- Coping
- Social determinants
- Developmental stages

Considerations for working with disaster-affected populations (7)

- **Culturally appropriate terms** should be used to describe psychological expressions, which will improve the validity of the research.
- Without considering culture, aspects of research such as paradigms, sampling strategies, methods of data collection and interpretations of findings will be flawed.

Case study: *Expressions of distress among disaster-affected adolescents in China and Nepal (1)*

- After earthquakes in China and Nepal, adolescents from both nations experienced traumatic stress which had potential to affect their mental health, physical health, development and education.
- **The Study on Adolescent Resilience after Disasters** was conducted in China and Nepal and focused on the range of expressions of psychological distress and behavioural change arising from exposure to disasters caused by natural hazards.

Case study: *Expressions of distress among disaster-affected adolescents in China and Nepal (2)*

Participants included adolescents, caregivers, teachers and experts in disaster affected districts. They were interviewed and attended focus group discussions. There were:

- 79 participants from China
- 62 participants from Nepal

Findings showed that key indicators of distress emerged across four domains:

- Anxiety and stress
- Mood difficulties
- Somatic complaints
- Changes in behaviour

Case study: *Expressions of distress among disaster-affected adolescents in China and Nepal (3)*

- Young people were often fearful of the earthquake recurring, had anxiety triggered by trauma reminders, nightmares and hypervigilance.
- On the other hand, post-traumatic growth, agency, a sense of coping, and mastery along with self-efficacy and strengthened connections between adolescents and their families were described by many participants.
- The researchers concluded that there is a need for psychological and community services that promote **evidence-based** and **culturally-aware** interventions for adolescents suffering from mental health issues.

Establishing research partnerships (1)

Engaging local partners in field-based research is important for international studies and for those conducted in the researcher's home setting.
These partners include:

- Local organizations
- Service providers
- Government advisors
- Community representatives

Establishing research partnerships (2)

Local partners play an important role in the research process, including:

- Advising on study feasibility and acceptability
- Developing methodology
- Recruitment and sampling
- Obtaining ethics approvals
- Data collection
- Managing risk
- Interpreting results
- Disseminating findings within and beyond the community

Establishing research partnerships (3)

Open communication and **trust** are vital for successful partnerships. These can be fostered through:

- Regular team meetings
- Agreements about the research plan and data ownership
- Mutual respect
- Understanding of the political, economic, social, environmental and technical realities that shape interactions
- Transparency
- Clearly delegated roles
- Shared vision

Establishing research partnerships (4)

Without collaborating with local partners, disaster research is at risk of duplicating processes, drawing false conclusions or failing to have a meaningful impact on policy and practice.

Dissemination and impact

Early engagement of partners and community members is vital for the sustainability of new mental health initiatives. It is also important that the needs of all partners be met in order to support community engagement and research validity. A knowledge translation plan is helpful to ensure that research findings are disseminated and tailored to a wide range of audiences and contexts. This can be achieved through:

- Scientific manuscripts and academic products
- Community seminars and workshops
- Promotion through social and traditional media
- Presenting findings in community forums

Conclusions (1)

- Mental health research is an important part of Health EDRM and plays a critical role in determining the health needs, trajectories of adjustments and outcomes for disaster affected populations.
- Clinical and non-clinical support services are important for improving adult and child mental health.
- Mental health research requires careful attention to inclusive sampling, ethical processes, social determinants of risk, and culture.

Conclusions (2)

Collaborative partnerships are necessary for mental health research.

If done well, this research can help:

- Inform and prevent mental health difficulties
- Deliver timely evidence-based interventions
- Support the long-term resilience of disaster-affected communities

Key messages

- Rigorous mental health research is needed to determine the specific needs of disaster-affected populations and effectiveness of interventions in the months following a disaster.
- Consideration of the timeframe for psychological adjustment, sample characteristics and cultural expressions of distress will inform the research design.
- Partnerships with local community stakeholders, agencies and research collaborators are vital for valid research, capacity building and long-term uptake of the evidence from Health EDRM research.

Further readings (1)

Beaglehole B, et al. Psychological distress and psychiatric disorder after natural disasters: systematic review and metaanalysis. British Journal of Psychiatry. 2018: 213: 716-22.

A systematic review and meta-analysis that presents a synthesis of evidence highlighting the increased rates of psychological distress, post-traumatic stress disorder (PTSD) and depression following disaster exposure.

Berry HL, et al. The case for systems thinking about climate change and mental health. Nature Climate Change. 2018: 8: 282.

A clear and comprehensive review of literature examining the relationship between climate change and mental health in global settings.

Bryant RA, et al. Longitudinal study of changing psychological outcomes following the Victorian Black Saturday bushfires. Australian & New Zealand Journal of Psychiatry. 2018: 52: 542-51.

Examines mental health outcomes among communities with low, medium and high levels of exposure to the Victorian Black Saturday bushfires in 2009.

Further readings (2)

Newnham EA, et al. The Asia Pacific Disaster Mental Health Network: Setting a mental health agenda for the region. International Journal of Environmental Research and Public Health. 2020: 17: 6144-53.

Report on the Asia Pacific Disaster Mental Health Network, which identified key priorities for regional disaster mental health.

Newnham EA, et al. Long term mental health trajectories after disasters and pandemics: A multilingual systematic review of prevalence, risk and protective factors. Clinical Psychology Review, 97, 102203.

A systematic review of longitudinal evidence to determine psychological trajectories following disasters. Patterns by age and disaster type are illustrated. Risk and protective factors are outlined to demonstrate the strength of associations with mental health outcomes over time.

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