The Mental Health Impacts of Climate Change

A/Prof Fiona Charlson

Queensland Centre for Mental Health Research

University of Queensland Mental Health in Climate Change Research Network
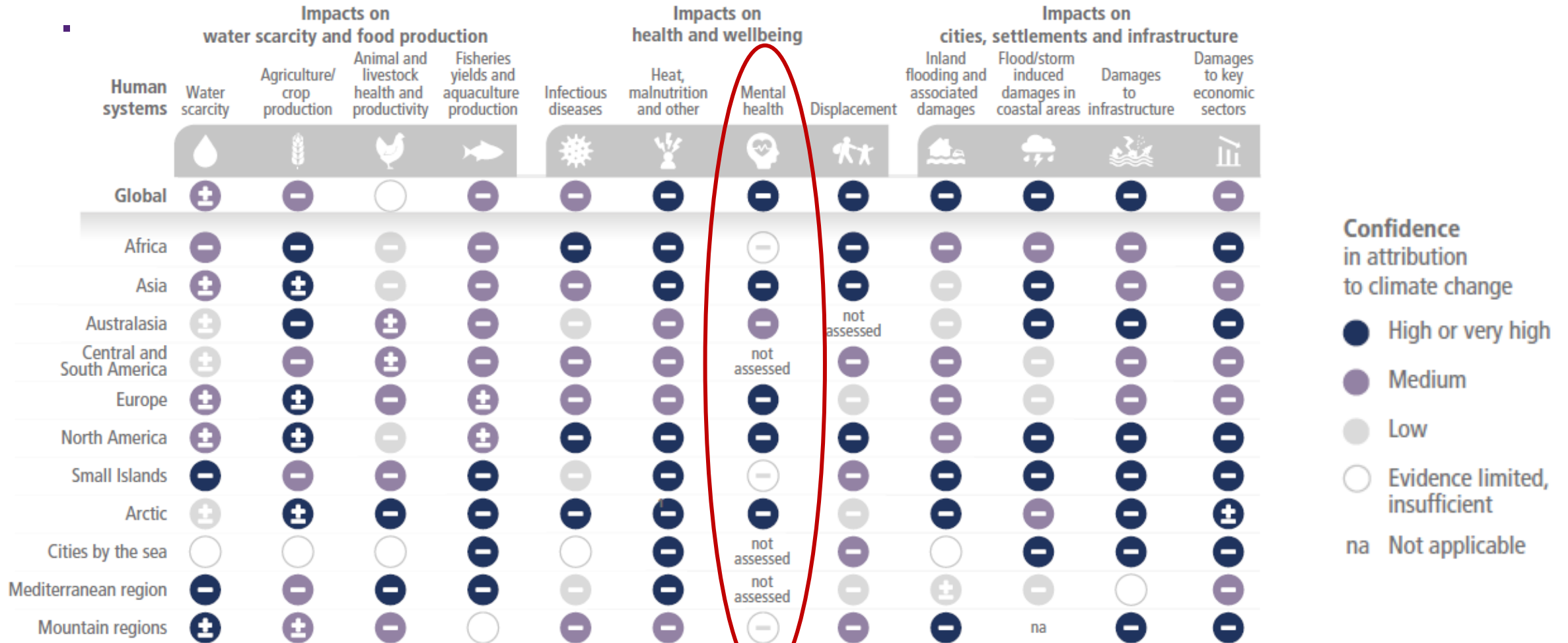
https://public-health.uq.edu.au/MHCC-TRN

Mental health and climate change

Climate change and mental health are two of the greatest global challenges we face.

Attention on the mental health impacts of the climate crisis has grown rapidly, with mounting impacts of climate change on people, their lives, communities, livelihoods and cultures.
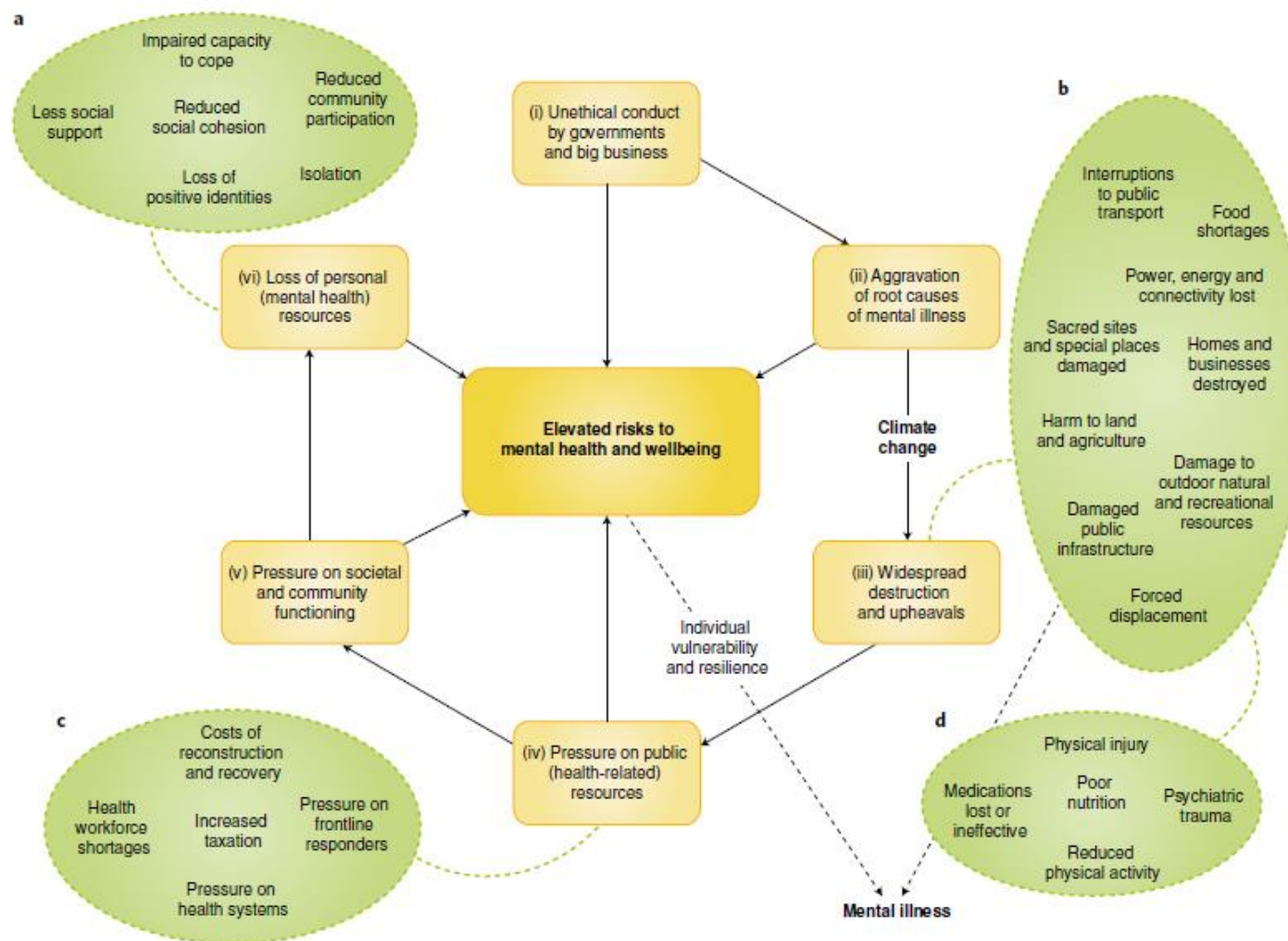
Climate change is compounding the risk of mental health problems by destabilising the conditions needed for good mental health and wellbeing,

IPCC AR6

Complex causal pathways

Berry, H.L.; Waite, T.D.; Dear, K.B.; Capon, A.G.; Murray, V. The case for systems thinking about climate change and mental health. Nature Climate Change 2018, 8, 282.

Primary (direct)

- Heat
- Rainfall and humidity
- Fires
- Floods
- Storms

Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate Change and Mental Health: A Scoping Review. *Int J Environ Res Public Health, 18(9)*. *https://doi.org/10.3390/ijerph18094486*

Secondary (indirect)

- Drought
- Sea-level rise
- Land degradation
- Air pollution
- Physical health
- Water and food security

Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate Change and Mental Health: A Scoping Review. *Int J Environ Res Public Health, 18(9).* *https://doi.org/10.3390/ijerph18094486*

Tertiary (societal)

- Displacement and migration, loss of connection to land

- Health system pressures and reduced access to mental health care

- Reduced economic productivity

- Agricultural losses

- Reduced financial security

- Strain on community cohesion and social capital

- Loss of nature spaces and connection to nature

- Conflict and political instability

Charlson, F., Ali, S., Benmarhnia, T., Pearl, M., Massazza, A., Augustinavicius, J., & Scott, J. G. (2021). Climate Change and Mental Health: A Scoping Review. *Int J Environ Res Public Health, 18(9)*. https://doi.org/10.3390/ijerph18094486

The spectrum of mental health impacts

Environmental and climate specific constructs
- Climate anxiety
- Solastalgia
- Eco-grief

Subclinical conditions
- Psychological distress

Clinical disorders
- Trauma-related disorders
  - Post-traumatic stress disorder
  - Acute stress disorder
- Depression
- Anxiety
- Self-harm and suicide

Exacerbation of pre-existing illness

Psychiatric-related hospitalisations and deaths

Potential neurodevelopmental impacts

Populations most at risk

- Children and youth

- Pre-existing mental Illness

- Low- and middle-income countries and Small Island Developing States

- Indigenous People

- Farmers

- Women

A paradigm shift

- Approach to managing extreme weather events has been a reactive response with the goal being a 'recovery' to pre-disaster conditions.

- Particularly for mental health, responses are targeted, short-term mental health support to an affected population.

- Expired narrative of (1) single events, (2) unexpected events and (3) the notion that 'recovery' from them is time-limited with a clear end point.

- Could usefully adopt an anticipatory adaptation approach to planning ahead rather than adapting as a reactive response

Longman J, Patrick R, Bernays S, Charlson F. Three Reasons Why Expecting 'Recovery' in the Context of the Mental Health Impacts of Climate Change Is Problematic. International Journal of Environmental Research and Public Health. 2023; 20(10):5882.

Adaptation measures

Table 7.8 | Summary of adaptation options for key risks associated with mental health.

Key Risk	Geographic region	Consequence that would be considered severe and to whom	Hazard conditions that would contribute to this risk being severe	Exposure conditions that would contribute to this risk being severe	Vulnerability conditions that would contribute to this risk being severe	Adaptation options with high potential for reducing risk	Selected key references
Mental health impacts in response to floods, storms, and wildfires	– Global; some areas at greater risk for storms, flooding, or wildfires	– Substantial increase in mental illness compared to base rate	– Increased frequency of major storms, weather-related flooding or wildfires	– Low-lying areas, dry areas, urban areas	– Physical infrastructure that is vulnerable to extreme weather, inadequate emergency response and mental health services, social inequality	– Improved urban infrastructure, warning systems, and post-disaster social support – Improved funding and access to mental healthcare – Improved surveillance and monitoring of mental health impacts of extreme weather events – Climate change resilience planning in the mental health system (including at a community level – Mental health first aid training for care providers and first responders	Ali et al. (2020); Ayano (2018); Buckley et al. (2019); Clayton et al. (2017); Hayes et al. (2019); James et al. (2020); Sijbrandij et al. (2020)

Many adaptation measures that benefit health and well-being are found in other sectors

- improved air quality through renewable energy sources,
- active transport
- sustainable food systems that lead to healthier diets
- nature-based solutions reduce a variety of risks to both physical and mental health and well-being.

IPCC AR6

The research gaps are substantial

- Compared with other health areas, social and emotional wellbeing and climate change has received little research attention.

- To date, >80% of research explores the mental health impacts of climate change.

- Poor understanding of which factors increase vulnerability and resilience to the mental health impacts of climate change.

- Very little research related to interventions or policies designed to safeguard mental health in the face of climate change.

- Research on the impacts of climate change on mental health and mental health-related systems will assist decision-makers to develop robust evidence-based mitigation and adaptation policies and plans with the potential for broad benefits to society and the environment.

Charlson, F.; Ali, S.; Benmarhnia, T.; Pearl, M.; Massazza, A.; Augustinavicius, J.; Scott, J.G. Climate Change and Mental Health: A Scoping Review. Int J Environ Res Public Health 2021

Which way forward?

System dynamics modelling

- Extreme weather events such as floods, bushfires, and droughts have varied effects on interconnected dynamics in socio-cultural, economic, environmental, political, and healthcare delivery systems.

- Accordingly, methodologies that rely on statistical analysis alone may fail to capture causal interactions that influence and drive system behaviour.

- Methodological approaches that capture dynamic complexity have been suggested as necessary additions to the discourse surrounding mental health and climate change

- Understanding the system structure is paramount to understanding how the system is generating problems.
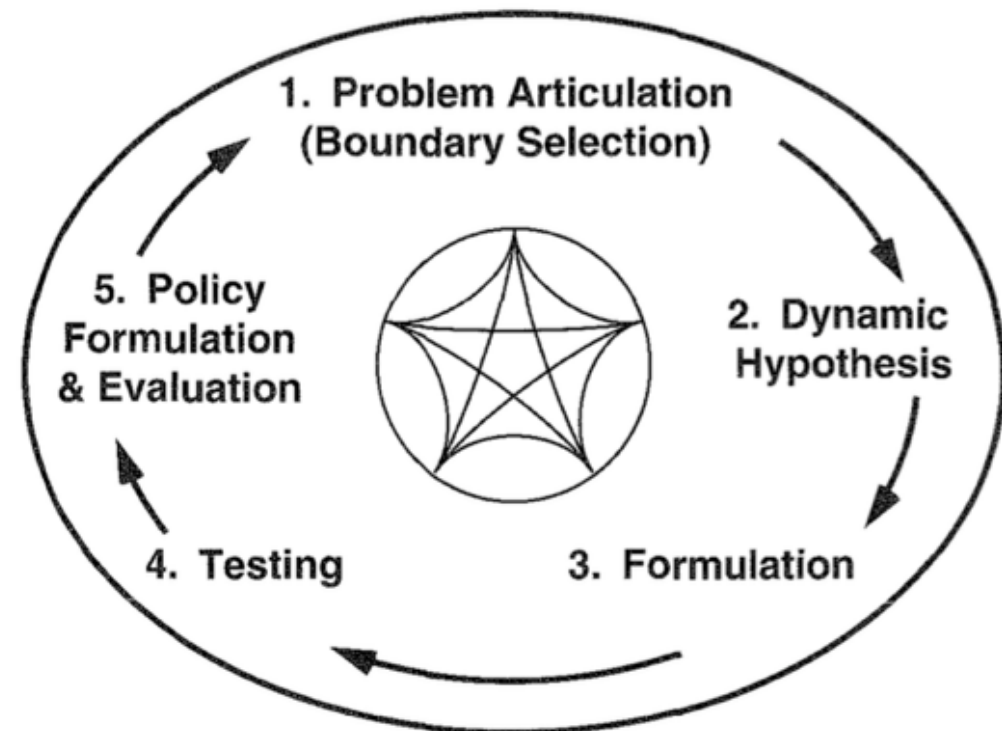
The 'iceberg' model showing the four levels of systems thinking
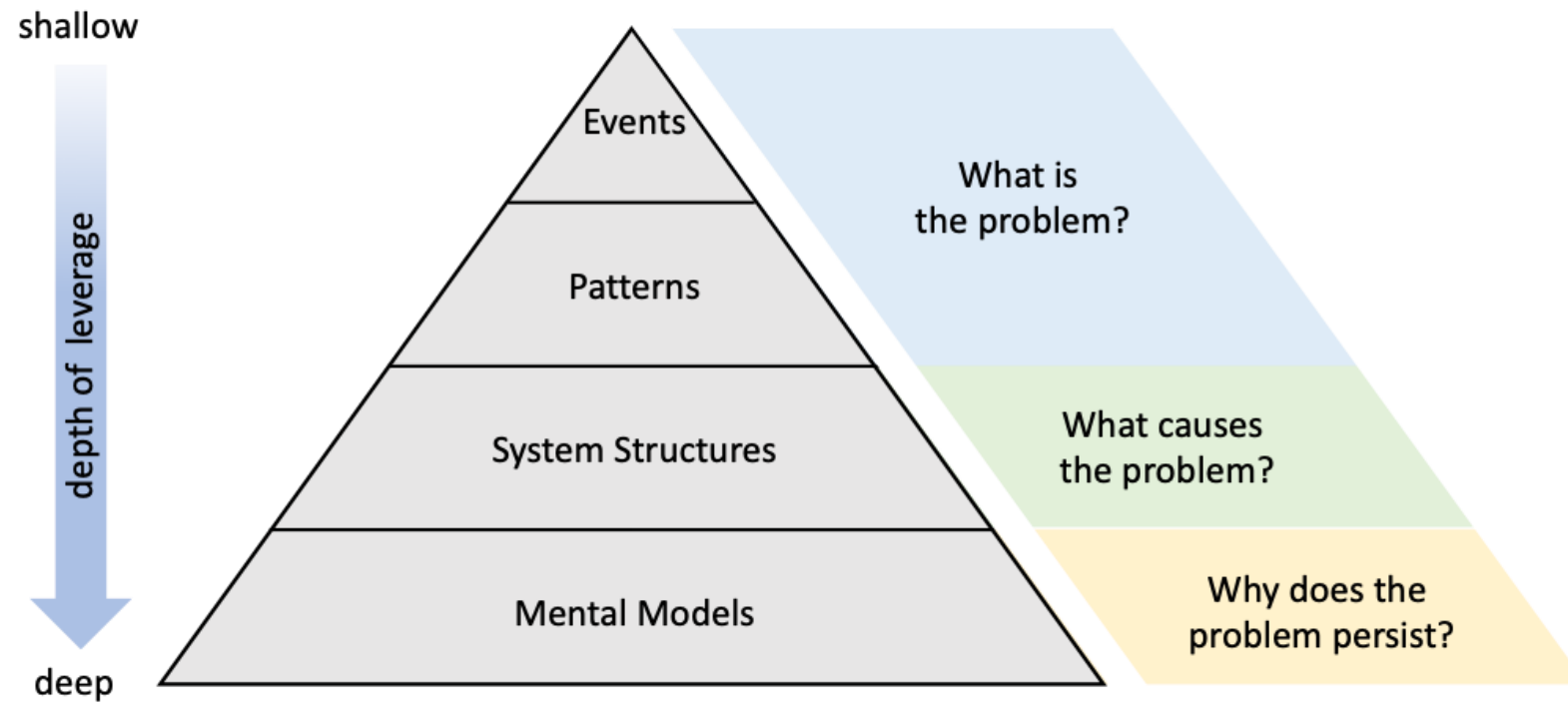
What if we could use system dynamics modelling to:

- understand the key drivers of poor mental health outcomes in populations experiencing increased adversity due to a changing climate

- identify optimal intervention points that may lie within or outside the health sector.

Study site: Stanthorpe

- The research was focused on the rural region of Stanthorpe in the Southern Downs Local Government Association of Queensland, Australia.

- The economy of the Southern Downs region is fundamentally underpinned by the agriculture sector, owing to its historically ideal climate well-suited for a range of crops and livestock.

- This location was chosen for its experience with compound extreme weather events, including long-lasting drought, intense bushfires, and periodic flooding.

Key processes

Different stakeholders in the community, including local government officials, healthcare providers, social workers, and community leaders, were engaged in identifying factors relating to extreme weather events that affect social and emotional wellbeing.

Group Model Building (GMB) workshops taking place between May and December of 2021 to understand local perspectives of how natural disasters impact mental health and experiences of current support systems.

Assimilate workshop outputs and other research outputs to develop a causal loop diagram that reflects the system around mental health and natural disasters in participating communities.

Significance

- We may be missing opportunities to provide effective mental health responses by not recognising that mental health exists within complex systems made up of social, political, economic, physical, and environmental factors.

- Our lack of understanding about how these factors and other system elements interact to influence mental health is almost certainly concealing more effective intervention targets than currently exist.

- This new knowledge could identify interventions not previously considered for mental health and which may lie outside of the health system, reducing expenditure on interventions, services or programs that are unlikely to improve mental health outcomes

Thank you

Associate Professor Fiona Charlson, BPharm MPH PhD

Queensland Centre for Mental Health Research
School of Public Health, The University of Queensland

Email: f.charlson@uq.edu.au

https://researchers.uq.edu.au/researcher/8895

Twitter @FionaCharlson

https://public-health.uq.edu.au/MHCC-TRN

CRICOS code 00025B