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COMMENTARY TO SPECIAL ARTICLE

Disaster, hope, help, reality

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There are increasing concerns about the impact of the large-scale natural disasters across the world. These mass catastrophes have torn apart communities, killed significant numbers of people and resulted in destruction, damage and humanitarian crises. While all sorts of health consequences arise, it is often difficult to provide adequate response and to specifically meet the needs of those affected, both in the emergency and over time.

In this issue of Epidemiology and Psychiatric Sciences, Tol *et al.* (2015) completed a review addressing such issues with recognition of the value of early interventions where these are possible, as well as the utility of models of response developed by the World Health Organisation (WHO) to deal with such profound emergencies. In this context, they have highlighted the importance of a population health and epidemiological framework, rather than a small, limited focus on individual assessment and intervention. This would incorporate the recognition of an encompassing model.

Specifically, in terms of the mental health impacts, these authors have drawn attention to the critical importance of the population health/epidemiological framework which could facilitate systems for response and recovery, across the lifespan from conception to death; and the spectrum of potential interventions from prevention to early intervention, to specific treatment of disorder, to more palliative programmes. This could also encompass pre-existing and new health problems, the varieties of human need and suffering. While excellent epidemiological studies of disaster affected populations have been carried out (Lechat, 1990; Galea *et al.* 2003, 2005; Kessler *et al.* 2008; Galea, 2007), the use of population models can provide a framework which allows response to reach across the lifespan. Such systems could also deal with those most adversity affected, particularly in low-income countries, and those facing humanitarian crises.

A population health approach can encompass many aspects, but particularly emphasises addressing health and well-being issues in the 'big picture'; a more global concept, as well as the specifics of whole communities, specific populations and subpopulations. The understandings built on by studies of disease patterns such as the Global Burden of Disease have been important in recognising the patterns of specific disorders across the world and also their relevance in different nations, sub-populations, age groups and specific regions. It has also led to recognition of new emerging health problems and vulnerabilities, as well as health and life sustainment and improvement.

The population health model is relevant for the majority of disease groupings, but has had less focus for some fields, such as mental health. The model and value for mental health, Population Mental Health model for the provision of mental health care 2000, was accepted in Australia (Raphael, 2000) but has reflected limited utilisation in the culture of this field.

Tol et al's proposal of its relevance to massive adverse events and their consequences has highlighted the value of this framework.

Two major themes carry value in such mass catastrophes particularly those with great areas of humanitarian need.

Firstly there is the value of a stepped care approach that can be encompassed, as identified in the framework of Mrazek & Haggerty (1994), and further developed as above. This model identified the value in multiple stages of and for those so affected, who may have different levels of severity of health problems and need, requiring different levels of response.

Interventions are staged at 'universal', 'selective' and 'indicated' levels. 'Universal' is applied to all

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levels, the most basic and relevant to the broad levels of assessment and need/vulnerability. 'Selective' refers to those groups within the population with identified indicators of risk and vulnerability to be dealt with. 'Indicated' refers to the groups within the population with specific conditions of illness/disease, often serious, requiring specific treatments.

Such models constitute the basic universal needs in affected populations, the first stage of a health response that can address life and survival. Stepped Care models are frequently used where resources are available, for those who can be cared for or treated with relevant resources as required at 'Selective' or 'Indicated' intervention, including specific clinical problems.

This basic and highly relevant population health strategy thus reflects a way forward for the most profoundly affected populations, including those who are resource poor. Furthermore, Tol and his colleagues have demonstrated that there is also the potential to address strengths and capacity for enhanced interventions that can lead as well to more positive processes and outcomes, including mental health promotion and prevention, as highlighted by Tol *et al*. (2015).

Nevertheless there are major challenges in responding to large-scale natural disasters which present with intense, urgent and acute need. Critical first response emphasises this need for survival strategies, emergency action, safety strategies and protection. The nature of the particular disaster will influence the actions to be taken for instance, where there are possibilities for prediction and warning; where 'familiar' disasters occur, such as floods, fires, severe storms, tornados and cyclones, threat and impact may, in some instances, be mitigated. Communities may develop resources and skills to manage, at least to some degree, the emergency and the aftermath, and even the longer term consequences. Depending on the initial state of such disaster affected groups, low-income countries may have multiple health vulnerabilities and poor resources, with associated challenges in terms of health and disease, both pre-existing and as consequences of the disaster. Other natural disasters may have little or no warning, such as earthquakes and tsunami. There may be little opportunity to prepare, and such disasters frequently produce mass deaths and destruction in the acute impact, as well as injury and impairment. There is little time to assess population need and to identify and quantify patterns of health care need.

The recent Nepal earthquake affecting The Kathmandu Valley and related areas, experienced two major quakes, the first, The 25th April (7.8 on the Richter scale) and the 13th May (7.3) with aftershocks leading to massive death and destruction (*Medical Journal of Australia*, 2015). The lack of any opportunity for adequate preparedness, the distance from major resources added complexity. The arrival of skilled experts in response to the first shock provided assistance for special groups such as spinal injuries experts as well as expert, trained groups from other countries, Foreign Medical Teams. Many groups of experts were available to assist, in the complex of damaged and destroyed buildings, and others who came with good intent, could do little with this field of death, damage and no place to go. Similar problems have also occurred with other large-scale disasters, including those such as Haiti, the South East Asian earthquake and associated Tsunami to name only a few.

Understanding the value of population data in terms of health and disease, its importance across the lifespan and the critical role of epidemiology in this picture may not be easy to apply in the moving spectrum of such disasters. There are however, opportunities of considerable value.

Firstly it may be possible, with work in existing World Population Health studies to access core data of this kind from groups who could carry such data, including the WHO. This could provide a basic template, a 'local' picture for background population data sets.

The incorporation of population health and epidemiology into disaster planning and response could provide strengths that could be mobilised to support and facilitate effective outcomes. Utilising core data from World Health data reports could provide the background pictures of existing health and illness patterns. Utilising the population health scenarios of 'Universal', 'Selective' and 'Indicated', could be basses for action, with assessment to shape what could be achieved: Universal response for survival and positive opportunity to promote health and prevention as a strength and positive component of disaster response; would be basic identifying 'Selective' indicators and staging early intervention to mitigate potential negative disease outcomes; Indicated, the stage and response to both existing health problems and new, disaster-related disease/emergency/impairment outcomes. Such broad and stage-specific guidelines could shape the targets for response over time and the realities of the particular disaster, as well as other work and hopes for the future.

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