Adaptation with robustness: the case for clarity on the use of 'resilience' in health systems and global health

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In the last 3 years, the concept of resilience has received much attention in the health systems and global health literature, triggered by the Ebola outbreak in West Africa (which, in 2014, exposed a lack of health system and global health resilience) and followed in 2016 by the Global Symposium on Health Systems Research (with the theme 'Resilient and responsive health systems in a changing world'). Resilience has been widely embraced in the literature,[1–5] and also by the immediate past[6] and current[7] WHO Director General. *BMJ Global Health* has also published several reports applying the concept of resilience to how health systems respond to acute shocks and chronic stress.[8–10]

But there has also been persistent discomfort in the literature about the concept of resilience.[11–13] While we find things to agree and disagree with in debates on and use of the concept of resilience by both its enthusiasts and critics, in our view, such debates and applications have been constrained by a lack of clarity on what resilience really means. The purpose of this editorial is therefore to propose a clear and intuitive definition of resilience that may inform future applications, and to ensure that future discussion and debates in the literature on what this concept brings to health systems and global health are based on a common understanding of the meaning of resilience.

In the wake of the 2014–2016 Ebola outbreak, the global health governance system and the health systems in the three affected West African countries were described as vulnerable.[2] In the face of acute shock, the global and national health systems lacked the reserves to draw on and so enable appropriate response to the outbreak. They lacked resilience. For us, resilience implies adaptability in a context of robustness.[14] But only the first half of this definition—adaptability—has dominated conversations among both enthusiasts and critics. To be resilient,

a system must have both, that is, a resilient system is adaptable by being robust. Adaptability without robustness is not resilience.

Robustness is the capacity of a system to absorb and recover from shocks and stress, without major negative consequences.[15] Adaptability is the capacity of a system to adjust, reorganise, transform or modify in response to shocks and stress (including shifting demographic health patterns).[15] We argue that when adaptation takes place without an existing context of robustness, what happens is coping and not resilience, and when adaptation takes place within a context of robustness, what happens is resilience. With resilience, a system's response to shocks and stress may lead to corrections in the institutional design errors that rendered it vulnerable to shocks and stress in the first place.[14–16]

However, adaptation or corrections of institutional design errors are not always good. The concept of 'over-optimisation'[15] refers to the idea that responding (ie, optimising or adapting) a system to a known or anticipated shock or stress may go too far that it leaves the system more vulnerable (than before such optimisation) to an unknown or unanticipated shock or stress.[14 15] Thus, a response that confers resilience may also lead to vulnerability.[14–16] While this risk of 'over-optimisation' has been hinted at by critics of the resilience agenda in health systems and global health,[11 12] it has so far not received its due attention in the literature. We use the constitution of the USA as an example of institutional design to facilitate resilience, but with the risk of over-optimisation.

Having experienced exploitation by the British monarchy, the framers designed the institutions that would govern their new county with the presumption that 'all men are knaves'[17 18] (ie, all men—and women, of course—are dishonest and unscrupulous). And in doing this, they recognised a

trade-off; that designing institutions to ensure that 'bad men and women' do the least harm would also ensure that 'good men and women' were not allowed to do good unchecked. Limiting the bad also meant limiting the good.[17 18] Think, for those who like the idea, of the (im)possibility of having a national health system (or Universal Health Coverage) in the USA.

They constructed a decentralised, polycentric order with two main features: (1) horizontally, having multiple arms of government—that is, executive, legislature and judiciary—to check one another; and (2) vertically, having multiple levels of government—that is, national, state and local—essentially with the horizontal arms of government replicated at each level. The system was designed to function in such a way that, within a local jurisdiction, a service (say health services) may be provided by three levels of government, with oversight from three arms of government, thus creating ample back-up space with the involvement of as nine different centres of governance. If one centre of governance were to fail, there are many opportunities for others to step in; whether in their capacity to hold the failed centre accountable or to provide services that the failed level ought to have delivered.

This is what it means to govern for resilience; to design governance structures in anticipation of the worst; to govern with a sense of defence or security. Notably, a polycentric system of governance is not efficient—at least not in the short term. It is like insurance. It is an investment in anticipation of uncertain shock or stress. There are many decision centres in a polycentric system (including at the community level), each exercising a level of independence to make, change, monitor and enforce rules in a jurisdiction.[19] The absence of such polycentrism featured prominently in analyses of the limitations of various national responses to the West Africa Ebola outbreak, including weaknesses at the 'collective level of governance' (ie, community engagement in governance)[20] the activities of which could foster ongoing trust and partnership between services users and providers.[21–23]

In addition to enabling a back-up mechanism in times of trouble, a polycentric order can also reduce the potential spread of the impact of shocks or stress beyond a local jurisdiction that is under attack, increase the likelihood that a neighbouring local jurisdiction may be able to step in and support, and as governance is local, increase potential opportunities for experimentation and learning from other jurisdictions, while also reducing the cost of turning back from errors that may lead to vulnerability. These errors may result from over-optimised response to shocks or stress that narrowly concentrate attention and resources.[15] Thus, polycentrism, by strengthening governance at multiple centres in a manner that is agnostic to the nature of potential shocks or stress, fosters resilience and can also limit its negative consequences, such as over-optimisation, which may occur as systems are fitted for acute shocks (eg, an Ebola outbreak), but are left vulnerable

to unanticipated or poorly attended chronic stressors (eg, the 'slower burning' non-communicable diseases).

While we want health systems that are prepared for, and can adapt to, environmental, disease and conflict-related shocks and stress, being able to cope with challenges is different from being resilient to shocks or stress. Resilience is a desirable quality in a health system. Building resilience, especially in fragile, weakly governed systems such as post-conflict settings, is important. But there are other worthy aspirations for health systems that go beyond resilience. Health system strengthening—in a comprehensive sense, which includes efforts to achieve Universal Health Coverage—often requires a reimagining of established orders of how systems are governed. Resilience is one of the principles that must inform reforms to achieve these goals, but there are others. Resilience is not quality, it is not rights, it is not coverage, it is not equity and it is not financial protection.

There is a tendency among enthusiasts of the concept to frame resilience as coping (ie, adaptation *without* robustness) and at the individual level—that is, as people digging deep as they draw on internal strengths and resources to make up for weaknesses in the health system in the face of acute shocks or chronic stress. But this framing is susceptible to the critique that resilience condones weaknesses, and that it distracts from focusing on health system strengthening, and the design and nurturing of robust governance structures and relations in local health systems and global health governance.[11 12] Those who argue against framing resilience as coping are therefore right to be concerned that when people with power expect the poor and disadvantaged to stretch themselves so that a system is able to cope in the face of challenges, it takes away from any determination to address those challenges. Indeed, framing resilience as coping may have specific appeal to powerful actors for this reason.

Even when we define and frame resilience as *adaptation with robustness*, we must be aware that 'over-optimisation' may arise from an uncritical approach to promoting health system strengthening through resilience. The focus such an agenda brings on anticipating, preparing for and responding to acute shocks may stymy our capacity or willingness to be bold in our vision, as efforts to strengthen health systems are refocused away from the hard grind of responding to chronic stresses that do not manifest as acute shocks. Despite its conceptual alignment with systems thinking, a focus on resilience may thus paradoxically increase the risk of ignoring the way in which current alignments of interconnected actors and structures underpin dysfunctional health systems. We urge advocates of health system strengthening to deliberately promote resilience as *adaptation with robustness*; with health system strengthening as a precondition for resilience—not the other way around.[24]

This is by no means the final word on the definition of resilience. However, we urge researchers, practitioners and policy-makers in health systems and global health

to adopt a definition of resilience that goes beyond coping (important as it is to highlight); to emphasise health system strengthening as a precondition for health system resilience; to explore how to design and nurture polycentric governance structures and relations that promote resilience; and to investigate the different ways in which over-optimisation that sometimes results from governing for resilience may function to the detriment of health systems and global health, the distinction and overlap between the two constructs—adaptability and robustness—by which we have defined resilience, and the emerging conceptual maturity of resilience in the health system and global health literature.[25] *BMJ Global Health* is keen to receive, consider and support such works for publication.

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