

Resilience and mental health: how multisystemic processes contribute to positive outcomes



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More is known about the factors that predict mental disorder than about the factors and processes that promote positive development among individuals exposed to atypically high levels of stress or adversity. In this brief Review of the science of resilience, we show that the concept is best understood as the process of multiple biological, psychological, social, and ecological systems interacting in ways that help individuals to regain, sustain, or improve their mental wellbeing when challenged by one or more risk factors. Studies in fields as diverse as genetics, psychology, political science, architecture, and human ecology are showing that resilience depends just as much on the culturally relevant resources available to stressed individuals in their social, built, and natural environments as it does on individual thoughts, feelings, and behaviours. With growing interest in resilience among mental health-care providers, there is a need to recognise the complex interactions across systems that predict which individuals will do well and to use this insight to advance mental health interventions.

Introduction

Mental health scholars with direct experience of the profound challenges to human health and wellbeing of World War 2 pioneered systematic interest in the human capacity to adapt competently to adverse life circumstances or events.¹ This interest in human resilience has endured, as has interest in global challenges to human health and wellbeing, which have made resilience an even more relevant concept.² Along with recognising the need for human resilience, calls have been made for complex, socioecological explanations of positive human development in contexts of atypically high stress exposure, such as catastrophic climate events and forced migration.³⁻⁵ Rather than narrowly focusing on what an individual contributes to the process of resilience, socioecological explanations define resilience as a process that is cofacilitated by individuals and their physical and social ecologies.⁴ Furthermore, socioecological accounts are sensitive to how contextual realities (eg, households led by women) and cultural norms (eg, hierarchical and extended family structures) influence resilience processes.^{3,4} The focus on the complexities of socioecological resilience introduces new questions to research and clinical practice, specifically, “Which promotive and protective factors or processes are best for which people in which contexts at what level of risk exposure and for which outcomes?”⁶

For mental health practitioners, the outcomes of most concern are invariably mental health (eg, decreased symptoms of depression) or psychological wellbeing (eg, self-efficacy). Indeed, the need for advanced understanding of what protects people against mental illness is pronounced in a world where at least one in five adults reports a common mental health disorder (ie, a mood, anxiety, or substance-use disorder)⁷ and where a substantial number of children are similarly affected.⁸ Unfortunately, the promotive and protective factors and processes (PPFPs) that are typically associated with positive mental health outcomes are too often limited to adaptive psychological systems, such as self-regulation or cognitive coping strategies. This limitation is despite the science of

resilience showing that regulatory capacities and changes to cognitions are unsustainable unless other co-occurring social and physical systems—such as family, housing, and natural environment—are robust enough to support new regimens of adaptive behaviour.^{9,10} Although individual cognitions and attributions filter experience of the external world and exert a direct effect on mental health outcomes,¹¹ studies of resilience show that in contexts with high exposure to adversity (a precondition for a discussion of resilience), individuals with adequate resources show more resilience than rugged individuals do.¹²

The early literature, although groundbreaking, offered relatively narrow explanations of human resilience, which underscored naive notions of individual invulnerability.^{13,14} Although even the first studies of resilience recognised that socioecological resources, such as loving families, contributed to an individual’s resilience, researchers tended to focus most of their attention on so-called internal resiliency factors, such as genetic and biological invulnerability factors,¹³ including ego resiliency.¹⁴ Mental health scholars are now unequivocal that systemic influences matter at least as much as individual factors to positive outcomes. Demonstrating this view, Masten and Cicchetti proposed that “the resilience of an individual child that is manifested and observable at the level of behaviour depends on the operation and interaction of many other systems, both within the child (immune system, stress response system, etc), in relationships or family resilience, or in the larger sociocultural and ecological systems in which that child’s life and development are embedded”.¹ Resilience in adulthood and old age are equally dependent on these multiple systems.^{15,16} Put differently, systemic influences matter for resilience across the life course.

Our aim in this Review is to advance mental health practitioners’ understanding of the multiple, interacting systems that facilitate the mental health of individuals challenged by atypical stress. Although chronic exposure to low stress could negatively affect mental health, we are concerned with contexts of substantial stress. Positive

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Panel 1: Systemic, process definitions of human resilience and related terms

Resilience definitions

- For Cicchetti and Rogosch, “Resilience is a dynamic process that encompasses the attainment of positive adaptation within the context of exposure to significant adversity that typically exerts major assaults on biological and psychological development.”¹⁷
- According to Masten, “Resilience can be broadly defined as the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development. The concept can be applied to systems of many kinds at many interacting levels, both living and nonliving, such as a microorganism, a child, a family, a security system, an economy, a forest, or the global climate.”¹⁸
- For Ungar, “In the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their wellbeing, and their capacity individually and collectively to negotiate for these resources to be provided and experienced in culturally meaningful ways.”¹⁹
- For Windle, “Resilience is the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and ‘bouncing back’ in the face of adversity. Across the life course, the experience of resilience will vary.”²⁰

Related terms

Adversity, disturbance, and risk

- Events or circumstances that are associated with poorer behaviour, psychological functioning, or development; the events can be historic or current, chronic or traumatic

Atypical stress

- Levels of stress exposure that go beyond routine frustrations (eg, traffic jams) or expected stress (eg, exam-related)

Successful adaptation or positive outcome

- Accomplishment of expected developmental tasks (ie, positive human development) or human functioning that are deemed appropriate or normative in a given context at a given point in time

responses to low (albeit chronic) stress are typically thought to be a characteristic of coping, and not resilience.²¹ We therefore first show that the concept of resilience is best understood as a process in which PPFs found within relational, sociocultural, and ecological systems work together to support individuals to regain, sustain, or improve their mental wellbeing in contexts of adversity. Next, we caution that contextual and cultural factors can influence PPFs in many ways. Finally, we use this complex understanding to distil pointers for resilience-enabling mental health practices and future research agendas.

Multiple interacting systems account for human resilience

Human resilience depends on a range of biological, psychological, social, and ecological systems interacting, as emphasised in various definitions of resilience within the past decade (panel 1). To illustrate these complex interactions, figure 1 portrays how a single system can be imagined as different levels of the environment

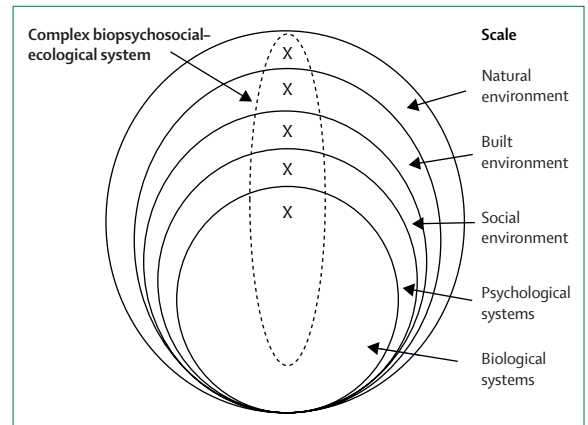


Figure 1: A systemic model of resilience

The Xs represent promotive and protective factors at different scales, gathered into a single multilevel system as symbolised by the dashed ellipse.

(similar to the equally weighted concentric circles in Bronfenbrenner’s²² ecological theory of human development) or as a combination of co-occurring and codependent elements at different systemic levels. In the case of resilience, these elements are the many different PPFs associated with positive development and functioning under stress. The elements are grouped into a whole system made of multiple scales or subsystems that are co-dependent for their functioning if resilience is to occur.

Supporting this multisystemic perspective, in a systematic review of the moderating and mediating resilience factors associated with positive mental health outcomes in children despite exposure to abuse, a range of individual and ecological factors were all shown to be important.²³ At the individual level, evidence suggests that cognitive reappraisal, high rumination, high distress tolerance, low suppression of emotion, low expression of aggression, and a secure attachment can be resilience factors for a child who has been abused. At more social levels, extended family support, family cohesion, parental involvement, positive parenting practices, and household income could also affect resilience. Additionally, at the level of a child’s community, high social support will change psychosocial and behavioural outcomes. It is important to note that studies like this review tend to show that single resilience factors—such as paternal communication or maternal support—do not contribute to resilience on their own but are instead related to the totality of the family experience. Single factors together create an environment of social cohesion and a positive family climate, which are associated with resilience.

The same complexity emerges from systematic reviews of resilience at specific systemic levels. For example, psychological resilience has been associated with genetic influences. In one of the few systematic reviews of genetic variants that contribute to the biological capacity for psychological resilience, Niitsu and colleagues²⁴ found

six genes mentioned in ten studies as potentially contributing to resilience. Among the best known of these genes is the long allele genotype of the serotonin transporter-linked polymorphic region. Increasing understanding of genetic influences on resilience is, however, complicated by many confounding factors, including demographic characteristics (eg, risk exposure), epistasis, and epigenetics.²⁴ Although such studies provide a beginning, it is unlikely that a human process as complex as resilience is predicted by a single gene.

In short, it is clear that resilience is more likely to be accounted for by multiple PFFPs across multiple systems, even though few studies are comprehensive enough to capture the interactions between individual biological and psychological processes and the social and ecological conditions that moderate or mediate stress.²³ Even in structurally disadvantaged communities, resilience enablers are just as likely to be external as internal.²⁵ Unfortunately, resilience studies focused on mental health tend to neglect external resilience enablers, particularly those at the community level.^{5,26} When resilience studies are attentive to community-level PFFPs, they offer cogent reminders that the built, natural, and service environments matter for human resilience. For example, a study of 628 older people (with an average age of 68 years) from 32 neighbourhoods in Beijing found that the quality of the neighbourhood was significantly related to psychological wellbeing. Relevant factors included per capita public space, density of older people in that space, and the number of senior services available, mediated by sense of community.¹⁶ Although individual resilience did strengthen the associations between neighbourhood characteristics and positive psychological outcomes, at lower levels of personal resilience the associations were still present. Even preserving natural spaces in an urban environment can have an effect on individual and collective resilience to stress, lessening anxiety by decreasing urban temperatures and providing a calming space for reflection and physical activity.²⁷ Built infrastructure can play a similar role. Studies of the capacity of older people to survive heat waves show that various factors can influence how well the most vulnerable people do during a crisis, both physically and mentally, from the diversification of the power grid (increased local generation of electricity to avoid power outages) to communal cooling facilities (opening neighbourhood schools during a heat wave).²⁸

When resilience studies do consider external resilience enablers, they usually fail to account for more than proximal protective factors, such as the mother's mental health or her engagement in full-time employment. The factors beyond the family that are most likely to improve a child's functioning are left open to speculation.^{29,30} When distal factors are studied, mental health outcomes are influenced by multiple levels of the social ecology, from teaching parenting practices that reduce harsh discipline, to promoting positive interactions with teachers and

neighbours, and encouraging collectivist cultural practices such as rituals that buffer against trauma.³¹

Addressing this problem of inattention to the multiple systems—both proximal and distal—that inform human resilience, various researchers have called for more attention to be given to children's outcomes, seen as a function of the complex weave of family reunification practices, community stigma, social policies, and the availability of institutional resources such as education and training opportunities. Among these researchers are Betancourt,²⁶ who studied children affected by war in Sierra Leone, and Wu and her colleagues,³² who studied young people in China who were migrants. Together, the various resources predict a child's likelihood of experiencing successful demobilisation or migration, and minimising the potential trauma from their exposure to violence or social marginalisation.⁵

Dynamics of human resilience

Studies of resilience underscore the view that psychological resilience cannot be conceptualised solely on an individual level.³³ Across the lifespan, multiple PFFPs at different systemic levels protect people against the diverse forces that threaten their mental health and psychological wellbeing.^{34–36} For instance, personal assets, peer and family support, and the quality of the school environment all showed significant protective effects on the levels of depression reported by Chinese children who were migrants.³⁴

Given this complexity, there have been many attempts to organise PFFPs. Among the best known are Masten's shortlist^{18,37} and the list of resources suggested by Ungar and colleagues³⁸ (table). Regardless of which list is used as the basis for research or intervention, any single PFFP can be the catalyst for a cascade of changes to the other PFFPs on the list. For example, Grossman and colleagues³⁹ studied building resilience to violent extremism among young people who were immigrants. Their study identified complex patterns related to young people's co-construction of powerful identities that respect their diversity, feelings of social cohesion both

	Masten's shortlist ^{18,37}	Ungar et al's tensions ³⁸
Significant others (eg, parents, caregivers, relatives, romantic partners) and social networks	Attachment	Relationships
CNS and stress response system, family and community systems, and culturally valued norms	Self-regulation	Experiences of control and efficacy
Justice systems, spiritual or cultural belief systems, and cognitive appraisal	Faith, hope, and other forms of meaning making	Social justice
Mastery motivation and other reward systems	Agency and mastery	Access to basic resources
CNS and effective schools and education system	Intelligence and problem solving	A powerful identity
Community systems and cultural rituals	Collective efficacy	Sense of cohesion and cultural adherence

Table: Categorising promotive and protective factors and processes: resources and their associated frameworks

within their own ethnoracial group and with cultural outsiders, the meeting of basic needs for safety and trust in authorities, and personal and political efficacy. Such work shows that PPFs are resilience enabling when they express sensitivity to contextual and cultural dynamics.

Demonstrating the effects of context and culture, South African studies of young peoples' resilience to chronic structural disadvantage and associated mental health risks have shown that both young men and women are more likely to show resilience through connections to women rather than men.^{40,41} This tendency is associated with contextual dynamics, through the high number of households led by women in sub-Saharan Africa,⁴² as well as cultural dynamics, whereby African women are traditionally tasked with caring for the younger generation.⁴³ Similarly, studies have shown that a community's efforts after political violence to promote cultural narratives of strength, female leadership, and cultural rituals will increase community resilience as a whole.⁴⁴ The celebration of cultural narratives as a factor in resilience is particularly strong in research with Indigenous and ethnic minority populations.⁴⁵⁻⁴⁸

Beyond these cultural factors, other research has emphasised different combinations of ecological factors that predict adjustment in contexts of adversity, such as housing, education, employment, community safety, engagement in community activities, and a family's financial security.⁴⁹⁻⁵¹ Importantly, these combinations are likely to be conceptualised differently by young people and adults,⁵² with different resilience enablers being prioritised as people mature.²⁵

Intervening to enable psychological resilience

A description of psychological resilience must include details of an individual's risk exposure, including the quality of adverse experiences, their severity and chronicity, the systemic level at which they occur, the individual's attribution of causality, and the cultural relevance of the challenges faced (figure 2).⁵³ PPFs can be distinguished as either internal or external, both of which are dependent upon social considerations that place more or less value on each aspect of resilience in

different contexts. Finally, resilience is not the goal; it is the means to achieve functional outcomes such as sustained mental health.

Figure 2 provides a guide for mental health practitioners to advance their clients' resilience to experiences or circumstances that heighten the chance of mental illness. As a first step, clinicians should routinely assess risk exposure and the availability of PPFs. Given the multisystemic nature of resilience and time constraints, however, useful measurement would probably be easiest to achieve by using validated, brief scales that are not limited to measuring individual PPFs but capture instead at once individual, social, and ecological factors.⁵⁴⁻⁵⁶ A structured and standardised clinical interview protocol that includes resilience is likely to advance clinicians' capacity to assess for risk exposure and contextually and culturally meaningful PPFs. Once they are informed, those intervening to build resilience can draw on the wide range of evidence-informed, manualised, resilience-enabling interventions that can be used one to one or with groups.⁵⁷ Many of these resilience interventions are being adapted for virtual therapy or teletherapy.

Regardless of the intervention path, clinicians concerned with resilience should consider contextual, cultural, life course, and other dynamics that are likely to influence which PPFs matter more or less. They should also consider the form that interventions should take and how to advance multiple individual and systemic capacities at the same time. Although further empirical work is required to confirm its usefulness, one such approach to enhancing resilience is the multidimensional Resilience Portfolio Model developed by Grych and colleagues.⁵⁸ A pilot study with 2565 adolescents and adults from a rural, disadvantaged community in southern Appalachia, USA, showed the value of enabling what were termed polystrengths for mental health and psychological wellbeing.⁵⁹ Polystrengths are a compendium of diverse and dense supports, including regulatory strengths, meaning-making strengths that reflect relevant faith and cultural processes, social support from immediate family, peers and adults, and community supports. In many ways, polystrengths reflect Masten's¹⁸ contention that resilience is scaffolded

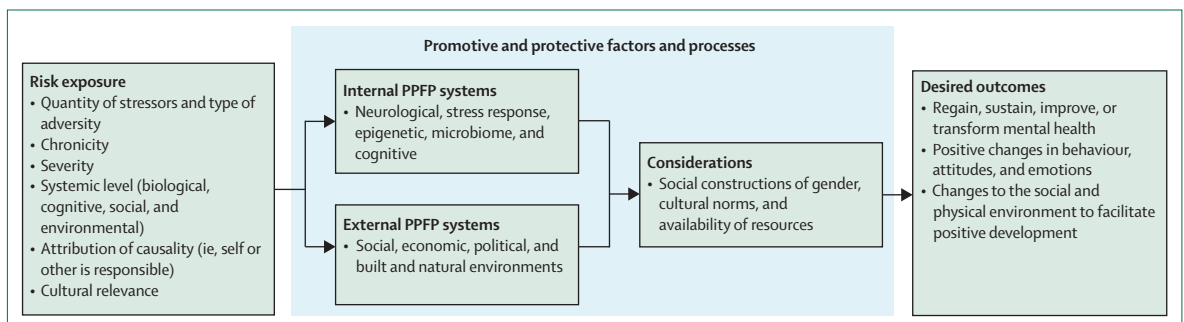


Figure 2: Multiple considerations when researching resilience and designing interventions
PPFP=promotive and protective factor.

by ordinary or everyday resources at the level of the individual and beyond.

In contrast, interventions that try to change only one system—such as a programme to improve a child's sense of self-esteem at school that focuses on changing only a child's cognitions—tend to show few long-term effects at follow-up.⁶⁰ For this reason, interventions such as social prescribing⁶¹ are becoming established among mental health and medical services providers who are concerned with improving the resilience of patients experiencing complex sources of individual and social stress. When change is facilitated in a patient's social environment, patients' outcomes are better than expected, compared with interventions focused exclusively on psychopharmacological or cognitive treatments. More multidimensional and multilevel interventions also reduce concerns that a focus on resilience serves neoliberal agendas by blaming those who do not thrive for their low level of success.^{62,63} Interventions that enable or sustain the ecological, social, and structural determinants of resilience reduce the social injustices that are frequently associated with mental illness.⁶⁴

Implications for research

Despite the accumulating evidence that multiple systems play a role in individual resilience, epistemological problems with assessing resilience across systems remain, especially when cultural and contextual (horizontal) variability are added to within-person and within-community (vertical) differences in the factors that predict coping better under stress. These challenges could account for the persistent bias in resilience studies towards a narrow set of variables that increase sample homogeneity and control for risk exposure. For example, Johnson and colleagues⁶⁵ did a systematic review of 38 papers, drawing on data from 46 studies that report on the factors that predict resilience to failure. The papers chosen were exclusively those including data from experimental designs that reported on discrete failure experiences that manipulated participants emotionally through unsolvable tasks. Oddly, the review purposefully excluded studies of people's reactions to genuine, non-experimentally derived experiences of social failure or rejection, judging such social interactions too complex to measure. Furthermore, differences in levels of risk exposure were never accounted for. In highly artificial laboratory settings, three individual factors were found to enhance resilience most: higher emotional intelligence, lower trait reappraisal, and lower socially prescribed perfectionism. Although the predictive power of each characteristic increased as risk of failure was experimentally induced, the controlled environments in which the studies took place were not optimally helpful for understanding people in real-life contexts, in which these traits probably interact with social processes and exposure to multiple risk factors at different systemic levels.

A similar challenge can be found in studies of mindfulness-based stress reduction (MBSR) programmes

that are intended to improve mental health resilience. Goyal and colleagues⁶⁶ evaluated 47 randomised clinical trials to determine the protective value of MBSR programmes. Notwithstanding some methodological limitations (eg, most evaluated trials were not registered or did not measure participants' meditation practices, or both), the authors concluded that mindfulness meditation programmes had only small to moderate protective effects for psychological stress. This conclusion might have been different, had the programmes not focused solely on changing individual-level factors. Similarly, in a systematic review and meta-analysis of 25 randomised trials of resilience training programmes with adults, using various therapeutic approaches that focus on the individual rather than also on systems around the individual (eg, including cognitive behavioural therapy, stress inoculation, and attention and interpretation therapy), Leppin and colleagues⁶⁷ found a small to moderate positive effect on resilience for programmes with manualised protocols. In general, however, the population samples could be considered a limitation (eg, they were small and preselected for homogeneity, such as cancer survivors who were peer mentors to those who had been newly diagnosed). Even more troubling, although study samples have sometimes been chosen for their exposure to risk, few studies have analysed outcomes by the frequency, chronicity, or cumulative effect of risk factors over time. As Joyce and her colleagues⁶⁸ note in their meta-analysis of resilience training programmes that used cognitive behavioral therapy or MBSR techniques, or a combination of both, "None of the included studies investigated the impact of adverse situations following intervention." And yet closer readings of the research in disciplines such as psychoanalysis show resilience to be a process that is influenced by the social context in which it is measured.⁶⁹

Unfortunately, much of the work done to show the efficacy of interventions to bolster psychological resilience is weak by design.⁵⁷ Many studies mistakenly include resilience as the outcome variable instead of as the moderator between risk and mental health, show an over-reliance on change in mental health outcomes without controlling for differences in stressor load, poorly match the aspects of resilience being measured and the measures that are chosen, and fail to account for external drivers of resilience. A reductionistic approach that simplifies the study of resilience to the study of only genes, cognitions, family functioning, or even a single ecological factor like neighbourhood cohesion will not be enough to explain human resilience. As Infurna and Luthar¹⁵ put it, resilience is never just one dimension of a person's life.

Given these shortcomings in resilience research, greater attention is needed to how factors such as gender, developmental stage, race, and systemic disadvantage intersect (panel 2). Heightened awareness of how resilience interventions can meaningfully respond to such

Panel 2: Future directions for research and intervention

Intervention

- Increase focus on promoting people's access to the resources that increase resilience, rather than interventions aimed at suppressing mental disorders, which can leave people without the resources they need to experience wellbeing
- Tailor interventions that promote resilience to the cultural and contextual norms of different populations
- Encourage policy makers to consider the factors that promote resilience in addition to those that prevent disorder
- Encourage multidisciplinary teams to work together to promote resilience to ensure multiple systems are influenced simultaneously
- Learn from local strategies for resilience in low-income and middle-income countries, including where evidence for their effectiveness has not been documented
- Pay attention to gender differences in the factors that promote resilience and the impact of risk on developmental outcomes

Research and knowledge mobilisation

- Promote a systemic understanding of resilience to avoid overemphasis on resilience as rugged individualism
- Include multiple systems in studies of resilience to document the interacting processes across systems at different scales that influence positive developmental outcomes under stress
- Put culturally and contextually specific processes associated with resilience into operation
- Develop better measures of resilience that are sensitive to culture and context
- Encourage new perspectives on resilience by promoting south-south and south-north exchange of models of resilience to avoid ethnocentric bias
- Encourage research designs that explain the differential effect of protective processes on diverse populations at different levels of risk exposure
- Study resilience as a multisystemic process rather than as a trait

Search strategy and selection criteria

This Review of resilience science is based on primary and synthesis studies. To identify relevant studies, we searched PsychARTICLES, PsychINFO, MEDLINE, and CINAHL for linked full texts with specific search terms in the title or abstract. The search terms comprised: *resil** and *mental health or wellbeing, and context** or *cultur** or *ecolog**. We applied no language or time restrictions. Given the number of studies that this search yielded, we restricted our selection of papers to peer-reviewed papers that discourage monosystemic explanations of resilience, or advance appreciation for the differential, protective value of specific resources. We supplemented the search results with important resilience publications that we, or prominent resilience researchers, reference regularly.

intersectionality has the potential to enable mental health practitioners to better support positive mental health outcomes for individuals from varying social positions. With this expanded focus, research on resilience will be able to shift clinical work away from building rugged individualism (emphasising personal recovery and

adaptation), and towards interventions that create individuals with adequate resources and the external supports required to manage adversity well.¹²

Conclusion

Resilience is not solely a quality within individuals; it grows from access to and use of the resources needed to support mental health and wellbeing. Culture and context both affect what resilience looks like and the factors and processes that make individuals better able to manage situations in which stress is atypically high. The science of resilience is teaching us that enabling mental health outcomes requires more than treating people who seek professional mental health care without paying attention to their context. Although this approach to treatment can be important, treating people's social and physical ecologies is an equally important pathway to resilience and sustainable psychological wellbeing. To this end, mental health professionals will need to work in multidisciplinary teams that include professionals who can facilitate access to protective socioecological supports while treating disorders. The more systems that resilience-enabling interventions influence at the same time, the more likely they are to build the psychological capacity that individuals require to cope well with severe or chronic exposure to adversity now and in future.

Contributors

MU conceived the idea with input from LT. LT did the literature search and initial review. MU and LT drafted and edited all versions of the manuscript.

Declaration of interests

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