Working Paper 425

Psychological resilience

State of knowledge and future research agendas

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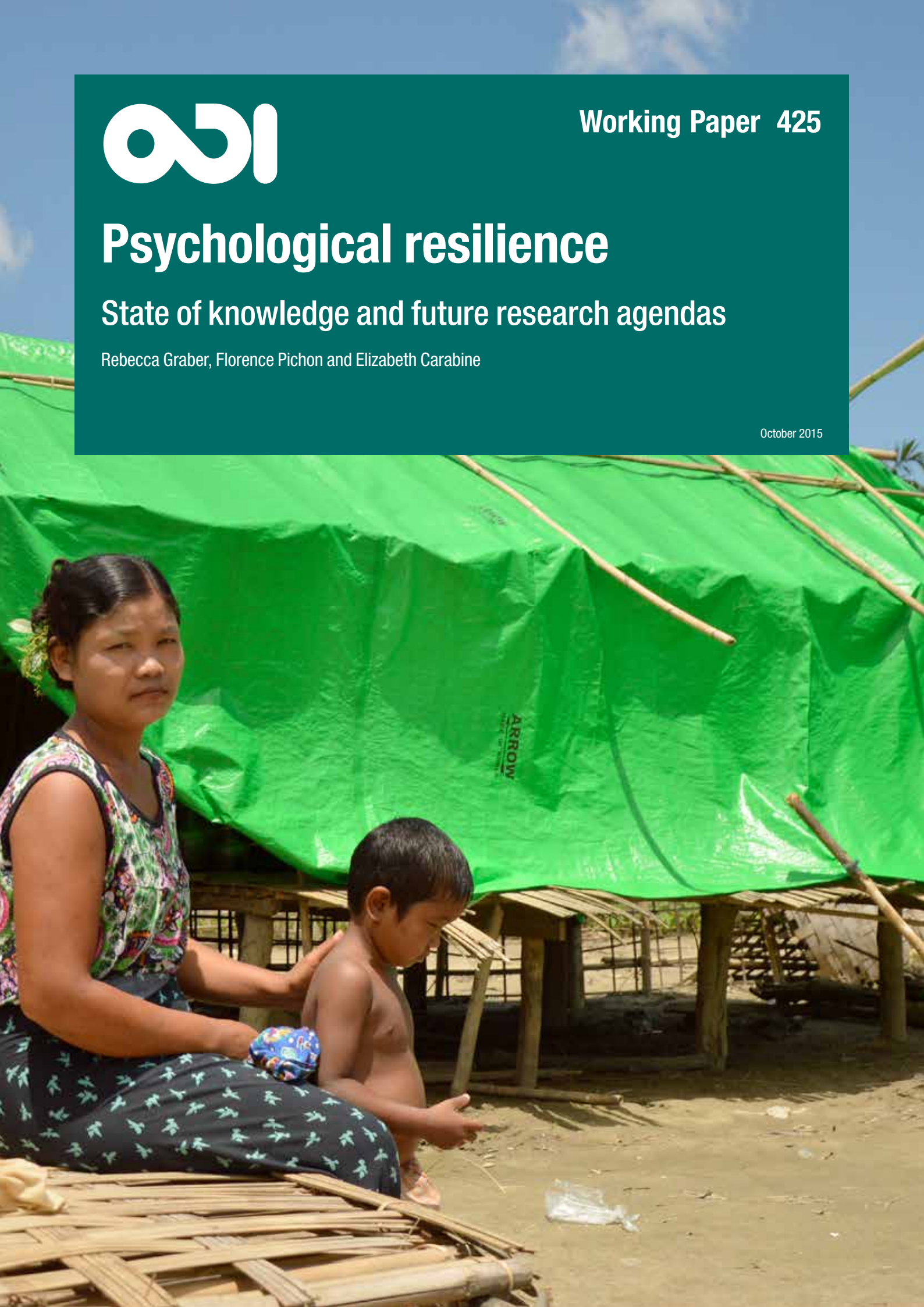

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Cover photo: European Commission: Myanmar/Burma still reeling under the double impact of floods and cyclone

Contents

List of figures and boxes

Figures

Boxes

Abstract

This report investigates new insights in contemporary psychological resilience research. The research draws on peer reviewed studies and articles examining how psychological resilience is built through protective mechanisms, evolves as a dynamic psychosocial process, and can be facilitated through positive adaptation. This research highlights how experiences of coping with traumatic shocks and stresses vary according to age, gender, culture, and socioeconomic status, and how future lines of research can illuminate biological, psychosocial, and lifecycle factors and skills that can support resilience a priori to a shock.

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1. Executive summary

The term resilience has been conceptualised in various different but related ways, across a range of disciplines including engineering, ecology, economics and psychology. Psychological resilience has been defined as a dynamic psychosocial process through which individuals exposed to sustained adversity or potentially traumatic events experience positive psychological adaptation over time. Experts in the field have described psychological resilience as involving the interaction of protective mechanisms across levels, including factors such as supportive family and relationships, effective coping skills, culture and neurobiology. Resiliency has also been described and measured as a set of characteristics that facilitate positive adaptation. However, conceptions of resilience as a dynamic process, a set of characteristics or as activated through protective mechanisms are complimentary rather than mutually exclusive.

This report illuminates key insights in contemporary resilience research, based on a narrative review of peer-reviewed journal articles representing the core of the field, key contesting voices and future trends. Methods of investigation include longitudinal cohort studies, cross-sectional thematic qualitative studies and randomised control trials. Resilience research is particularly challenging due to the non-linear nature of resilience development, the use of subjective and objective indicators of resilience, and the difficulties recording baseline and pre-trauma functioning. Across the literature, there is a need for clarity between resilience outcomes and resilience processes.

Resilience unfolds over a lifetime, and has been shown to express differently according to gender, culture and age. In childhood and adolescence, resilience is greatly underpinned by family processes and the not un-related development of effective coping skills. In adulthood and later life, resilience may be differentially affected by entrenched patterns of coping, physiological stress responses and other social relationships. Prior adversity may steel individuals against later traumas as they develop resources, relationships and effective coping skills. Resilience research is clear that change and adaptation is always possible.

While 'resilience' may refer to a general capacity to thrive in challenging circumstances, there is increasing interest evident in the literature towards delineating domain-specific forms. What it means to be resilient in the face of excessive alcohol use may be surprisingly different – though has clear parallels – to what it means to be resilient in the face of family separation due to migration.

Contemporary resilience research is expanding in interesting ways as it strives to:

1. include culturally-variant concepts of resilience
2. incorporate the voices and strengths of marginalised groups
3. expand the lens of resilience research to new applications, such as immigration and acculturation
4. account for a multi-level approach to resilience
5. develop innovative new paradigms to 'hold' complex biopsychosocial operationalisations of resilience.

Psychologists increasingly understand there is no single form for an effective resilience-promoting intervention. The strongest interventions aim to develop psychosocial skills and support key relationships, such as positive parent-child relationships or mutually-supportive social networks. A successful intervention depends on deep knowledge of context, in terms of both risks and strengths. Emerging evidence shows that resilience interventions may have effects on not only behavioural choices but also physiological functioning. Interventions in trauma and disaster have long been underway, but inconsistently evaluated.

Resilience is therefore recognised as a multi-faceted process, and its complexity is explored in this paper through reference to specific case study examples. The case study of the resilience of African Americans after Hurricane Katrina highlights the importance of parent-child interactions and spirituality as protective

mechanisms. Comparisons with the Southeast Asian Tsunami show how prior education and material resources also impact resilience. A case study of resilience processes among children and adults during protracted conflict in Palestine illustrates the importance of prior exposure to conflict and adversity, gender differences in resilience, interventions with children in conflict zones, and relational and political meaning-making in response to violence. Comparisons with cultural understandings of resilience in Afghanistan have indicated intergenerational processes and the importance of social hope.

The indications are that the next 10 to 15 years of psychological resilience research will increasingly look to identify protective mechanisms, expand application to pressing social and health problems, and delineate the complex multi-level processes impacting on a person's resilience. Social ecology frameworks, cross-cultural research, research with marginalised voices and neurobiological links are likely to become primary areas of inquiry. Based on this review, some major fields of application in the future are likely to include complex substance use, cardiovascular disease and chronic illnesses, practitioner resilience, education, conflict, disasters and climate change.

2. Report overview

2.1 Aim and key research questions

The term resilience has been conceptualised in various different but related ways across a range of disciplines, including engineering, ecology, economics and psychology. In recent years, the concept of resilience has grown rapidly in both policy and academia. As a result, the term has been operationalised in a range of ways in practice. Engineers have tended to think of resilience as the ability of a system to return to equilibrium after a perturbation and use this principle to ensure stability in design. In ecology and biodiversity conservation, efforts have focused on the resilience of dynamic, complex and non-linear social-ecological systems to shocks and stresses, recognising that there may be more than one steady state to maintain structure and function. This definition has been adapted by the humanitarian and development communities, which have united around the concept as a method of bridging disciplines in the face of increasing risk, recognising that recurrent crises undermine long-term development and intensify the need for humanitarian relief. In these disciplines, resilience is seen as the ability of individuals, communities and systems to absorb, adapt and transform in the face of climate risks.

Currently, there are multiple efforts across these communities of practice to find convergence in ways of thinking about resilience. But nonetheless, as a consequence of the concept's diverse origins, there is still little agreement over how resilience should be defined and measured, not least because of the different theoretical and practical contexts in which it is being applied.

Psychologists have particular understandings of resilience, focusing on positive psychological adaptation through the development and use of strengths, support and meaning-making. There have been few efforts to learn from these in climate and disaster communities. Responding to this gap, this literature review aims to summarise the extent of the evidence, framed around the following questions:

- How has the concept of resilience been defined and applied by leading academic researchers in the field of psychology in recent years?
- What protective mechanisms are important in promoting wellbeing and protecting against risk in individuals?
- What are the most important lifecycle factors contributing to an individual's resilience in the long term?
- How can resilience in individuals be measured? What are the primary tools and frameworks that are being used?
- How can an individual's resilience be strengthened through interventions?
- What is the future of psychological resilience research and practice

This report is structured to address the research questions listed here section by section.

2.2 Methodology

The review captures key academic literature from several disciplines, focused on psychological resilience. It has employed a search strategy combining systematic keyword searching of Web of Science and PsycINFO (see Appendix 2 for search protocols). The review does not attempt to be systematic or exhaustive, but rather to provide a rapid assessment of the evidence and main areas of enquiry on psychological resilience pertaining to responses to shocks and stresses.

Two in-depth case studies illustrate the range of individual and social mechanisms identified through the literature review in the context of one major shock, Hurricane Katrina, in comparison with the Southeast Asian Tsunami, along with longer term stresses connected to the protracted conflict in Palestine. These case studies have also been selected on the basis of available literature. References have been included (section 8) outside the scope of the search protocol described above.

3. What is psychological resilience?

3.1 Developing the concept of resilience: A brief narrative history

In the 1950s and 1960s, researchers began to wonder how a number of seemingly extraordinary children managed to emerge from severely disadvantaged circumstances relatively unscathed. The construct of resilience has evolved significantly since the first studies focusing on resistance

to negative outcomes among disadvantaged children. This section provides a brief understanding of resilience research since its inception in the mid- and through to the late-20th century.

Early resilience research conceptualised the construct as a personality trait permitting positive outcomes under extreme hardship. Resilience research originated in two fields: traumatology (looking at adults) and developmental psychology (looking at children and youth). Early resilience research with adults focused on identifying what led some individuals to avoid traumatic stress. In developmental psychology, researchers aimed to identify personal qualities (e.g., self-esteem) differentiating children who had adapted positively to socioeconomic disadvantage, abuse or neglect and catastrophic life events, from children showing comparatively poorer outcomes (Luthar, Cicchetti and Becker, 2000). These classic longitudinal studies of large cohorts of disadvantaged children revolutionised psychology and pioneered a methodological paradigm for resilience research. Werner and Smith, in their seminal Kauai Longitudinal Study with a cohort of participants born in Hawaii in 1955, noted the 'resiliency' of some children and shifted focus towards analysing how these children benefited from family support, good coping and a strong sense of values (Werner and Smith, 1982). Such studies have since identified key individual and family-level attributes predicting resilience among high-risk children, which are relatively consistent across ethnic groups and socio-political contexts (Werner and Smith, 2001).

Early research was essential to clarifying key components of the resilience construct:

1. the presence of risk(s) in an individual's life
2. the existence of protective factors or mechanisms
3. acknowledgement of a multidimensional continuum of human responses to adversity.

This research was crucial to providing an empirical answer to questions raised within critical and humanist branches of psychological thought seeking to engage with meaning-making, flourishing and growth (Richardson, 2002). This was less a paradigm shift than a meaningful calibration of the disciplinary focus on psychopathology to explore the range of human experience.

The result was an undertaking of what Masten (2011) called the core 'mission' of all resilience research: to understand and facilitate the promotion of resilience in the face of substantial adversity. However, the roots of resilience research show some limitations to the early approaches. Crystallising resilience into a personality trait (or traits) put positive psychological functioning in the realms of the magical, attainable only by extraordinary children who could weather any storm (Almedom and Glandon, 2007). Early research oversimplified adults' reactions to trauma and range of adaptive capabilities (Bonanno and Mancini, 2008). Additionally, absence of psychopathology does not necessarily indicate that a person is thriving; to understand positive functioning, researchers must specifically assess 'positive' assets, resources and outcomes. Finally, epidemiological approaches are necessary but insufficient; psychology aims to enumerate the prevalence of different types of reactions only inasmuch as its ultimate concern is to understand the *why* and *how* of humans as they are in the world.

Subsequently, psychologists in the 1980s and beyond began to examine other types of factors associated with an absence of psychopathology, to incorporate cultural context, social relationships, changes over the lifespan and, around the millennium, neurobiological processes (Masten and Wright, 2010). Psychologists argued that, alongside personality attributes, protective factors are rooted in culture, community and social relationships (Masten and Wright, 2010). Adolescent resilience expanded to a composite of attributes incorporating individual characteristics, social support and available resources (Ahern, 2006). Researchers sought to conduct cross-cultural studies, use qualitative methods and integrate marginalised communities to attend to cultural expressions of resilience and identify community-specific strengths (Clauss-Ehlers, 2008).

Coincident with expanding the field to investigate other protective factors, researchers began to understand resilience as a process that unfolds as these factors act in constellation, and to focus on the interaction between different levels. Rutter (2006) argued that identification of protective mechanisms, and how they unfold over a person's lifetime, is a driving priority of resilience research. Ungar (2005) drew from sociological and multi-disciplinary studies to argue that an individual's resilience was mutually dependent with their social ecology. Advances in neurobiological techniques offered unprecedented opportunities to provide insight into resilience at the most micro level, with possible pharmacological implications. Resilience research expanded to be as complex as the construct it sought to understand.

Resilience research is informed by related disciplines, including traumatology (focus on adult responses to trauma), developmental psychopathology (focus on children's responses to adversity), positive psychology (focus on human flourishing, positive emotions and positive relationships) and humanistic psychology (focus on human meaning-making and growth). There are, increasingly, intersections with health psychology and neurobiological psychology. Humanistic psychology philosophically underpins both positive psychology and the ethos of resilience research. Methods and areas of focus have been imported from traumatology and developmental psychopathology. Figure 1 indicates the linkages between these areas of enquiry. Figure 2 situates resilience at a pole of adaptive functioning, with psychopathologies such as depression, anxiety and PTSD sitting at the opposite end. Resilience is distinct from dispositions such as hardiness,

Figure 1: Visualisation of resilience research: intersections with related disciplines in psychology

outlooks such as optimism and mood states such as happiness. These are just some components of resilience.

3.2 Current understanding: Resilience is a lifelong process of positive adaptation to adversity

Psychological resilience is a developmental and psychosocial process through which individuals exposed to sustained adversity or potentially traumatic events experience positive psychological adaptation over time.

There are three key tenets of resilience theory as it has developed within the last 10-15 years.

Resilience is a developmental process, unfolding over time and circumstances. Resilience is developmental, both in the sense that childhood and adolescence are critical periods to lay foundations for functioning in adulthood and that individuals change and grow throughout life. Different protective processes are more central to life experience and psychological functioning at different times. Individuals encounter turning points where they experience a sea change in their lives. Overwhelming challenges may develop strengths that surface many years down the line. Resilience is not an outcome, but a process, although 'resilient outcomes' may denote achievements thought to be remarkable given an individual's circumstances. Resilience is not a box to tick; it is an ongoing process of meaning-making and growth in which the only reliable constant is the mutually dependent capacity of the individual and their environment for change.

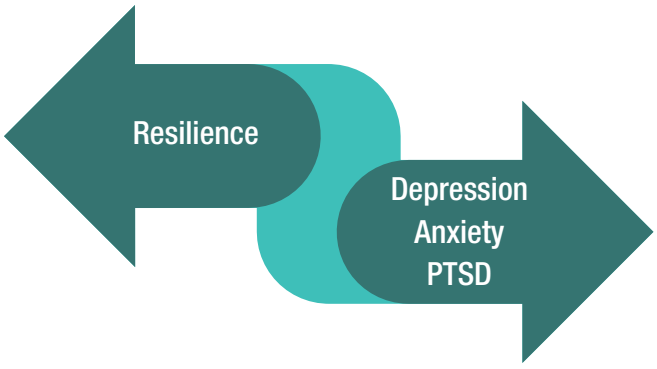
Resilience involves a complex interaction of multiple mechanisms ranging from the individual-level to the structural. Certain dispositional aspects of a person undoubtedly help them face seemingly insurmountable challenges and cope with daily stressors that gradually erode well-being with imperceptible slowness. But resilience theory sees individuals as embedded within an environment of personal relationships, cultures, economies and neurobiology. Resilience involves capacity, negotiation and adaptation. No factor acts in isolation. Identifying mechanisms of change and understanding their relationships is crucial to elucidating the many ways in which individuals respond to adversity immediately and over time.

Resilience captures how people not only survive a variety of challenging circumstances, but thrive in the face of such adversity. Resilience is less about the absence of psychopathology, although this may be a valuable outcome in circumstances of extraordinary adversity, than about positive adaptation and growth. Some degree of risk is necessary to demonstrate resilience: there must be a challenge to overcome. Resilience research actively seeks to identify and understand processes of strength, even those hidden by majority cultures and systems. While some aspects of resilience appear relevant across risks and cultures, domain-specific resilience processes in the face of complex risks speak to what it means *specifically* to be resilient in the face of poverty, abuse or prolonged conflict. Resilience may be seen in one domain, such as school, even if functioning is poor elsewhere. The complexity of resilience processes means that interventions seeking to promote resilience must draw upon deep knowledge of an individual's resources (be these psychological, social or material) and context to effectively facilitate meaningful change.

Inconsistent definitions, usages and operationalisations of the term "resilience" populate the psychological literature. Reasons include:

- sub-disciplinary conventions
- use of different knowledge paradigms
- critical discourses

Figure 2: Resilience is related to, but not the linear opposite of, concepts such as depression, anxiety or PTSD



It is possible that resilient individuals are those who never develop PTSD in the first place. However, understanding resilience on a spectrum of psychological health with psychological distress is relevant to much of the literature in this area.

- cultural and disciplinary hegemonies
- phenomenological and cultural definitions
- domain-specific terminology
- confusion between outcomes and processes
- variations in measurement and assessment.

However, when seen from the lens of resilience itself, these debates may be contextualised as part of the process of growth, as psychology has developed an understanding of how everyday people thrive when facing life's most difficult circumstances.

4. Protective mechanisms underpinning resilience processes

4.1 Interaction and negotiation: a multi-level approach to protective mechanisms

Most major resilience theorists, such as Rutter and Masten, emphasise the importance of protective mechanisms to understanding the *why* and *how* of resilience. A *protective mechanism* directly or indirectly positively modifies a person's response to a risk situation at turning points in life, towards adaptive outcomes. Protective mechanisms may promote adaptive processes or mitigate negative processes. Conceptually, protective mechanisms may operate differentially to:

1. reduce the impact of risk
2. reduce or break negative chain reactions
3. establish and maintain self-efficacy, or
4. open up new opportunities (Rutter, 1990).

Protective mechanisms can occur with or without external intervention. They are conceptually distinct from vulnerability mechanisms, which leave a person susceptible to greater risk, or to risk mechanisms that directly or indirectly cause harm (Luthar, Sawyer and Brown, 2006). Protective mechanisms are factors, which, in certain circumstances, are associated with adaptive functioning in the face of adversity. When referring to a protective construct in the context of resilience, the term *mechanism* is preferred over *factor,* although some use these terms interchangeably. *Mechanism* captures the process nature of resilience and indicates that no one factor by itself, however powerful, is sufficient to produce an adaptive outcome.

Protective mechanisms may be distinguished empirically depending on the nature of the effect they have on the individual. The typology of mechanisms and corresponding resilience process models presented by Fergus and Zimmerman (2005) holds well across applications. *Promotive* direct positive effects of a factor on an outcome correspond to *compensatory* models of resilience; for example, parental monitoring of behaviour among young people living in poverty may compensate for greater probabilities that these young people will commit acts of violence. This is similar to Rutter's third and fourth mechanism of operation. *Protective* factor models depict resources moderating or reducing (*buffering*) the effects of a risk on a negative outcome, such as examining if the relationship between poverty and acts of violence is lower among young people with higher levels of parental monitoring. This echoes Rutter's first and second mechanism of operation. Finally, a challenge model depicts a curvilinear relationship between a risk factor and an outcome, resulting in a *steeling* effect. Exposure to low and high levels of risk are associated with negative outcomes, but exposure to moderate risk allows individuals to develop coping skills and employ resources to overcome problems, recalling Rutter's fourth mechanism of operation. Other researchers have employed other terms: Tol et al (2013) distinguish *promotive* factors, which are predictive of higher levels of positive outcomes, from *protective* factors, which predict lower levels of psychological symptoms. Meanwhile, Rodriguez-Llanes et al (2013) define *indicators* as observable protective factors in a community prior to exposure to trauma.

Contemporary resilience research takes a multi-level approach to protective mechanisms and their interaction. Protective mechanisms may be conceptually located at the individual level or the social level. While factors in isolation may be associated with better psychological functioning, it is how individuals *interact* with their relationships, environments and even their own interpretations of adversity that constitutes a resilience process and leads to adaptive outcomes. Some mechanisms appear adaptive near-universally (such as social support and good parental relationships), while others are more specific to different risks, populations or age groups. Many have yet to be identified.

4.2 Protective mechanisms: Individual level

Protective family environment. A supportive family environment is one of the most crucial protective mechanisms for supporting resilience in children and throughout life. *Parental support* aids resilience among children facing a diverse range of risks (Ahern, 2006) and has been specifically linked to better outcomes with respect to substance use, violence and alcohol abuse (Fergus and Zimmerman, 2010). This aligns with evidence of the importance of secure *attachment* in promoting resilience, specifically, and supporting good psychological functioning for any child or adult. *Parental monitoring* supports resilience among young people in conflict zones and low-income areas, where they are more likely to be exposed to community violence and risk-taking, as well as those in families affected by HIV/AIDS (Betancourt et al., 2013; Fergus and Zimmerman, 2010; Tol et al., 2013). Establishing the importance of parental authority is important when reunifying families (Suàrez-Orozco et al., 2011).

Social support is a crucial protective mechanism across ages, domains, cultures and risk factors (Ahern, 2006;

Frijborg et al., 2006; Helgeson and Lopez, 2010; Rutter, 2006). Lack of social support often predicts post-traumatic stress and maladaptive responses to adversity (Bonanno, 2004; Helgeson and Lopez, 2010). Generally, *perceived social support* is more strongly associated with functioning than objective support: what matters is whether a person feels that he or she has a meaningful relationship to call on in time of need, not whether he or she has received observable, tangible support such as advice or material resources (Frydenberg, 1997). The composition and size of a person's social network changes with age (Hartup and Stevens, 1999), but social support is persistently identified as a protective mechanism. *Mentoring relationships,* access to *trusting adult relationships*, and *supportive friends or romantic partners* promote resilience in the face of neglect, abuse, low socioeconomic status and other challenges (Bernstein et al., 2011; Collishaw et al., 2007; Graber et al., 2015).

Coping skills are a core component of resilience and a central protective mechanism supporting resilience across a variety of risks, ages and cultures (Agaibi and Wilson, 2005; Ahern, 2006; Bernstein et al., 2011; Frijborg et al., 2006; Graber et al., 2015; Hart, Blincow and Thomas, 2007; Rutter, 2006; Stanton-Salazar, 2005; Ungar, 2011; Vanderbilt-Adriance and Shaw, 2008). Specific coping mechanisms known to facilitate resilience include re-appraising a situation more positively, regulating emotions, utilising social support, accessing tangible resources and planning. Ungar (2011) notes that forms of atypical coping – such as dropping out of school – may actually be effective given a person's context, choices and values.

Personality is linked to resilience in some domains, such as abuse and neglect. A person's sense of *self-efficacy* has been linked to academic resilience and critical understandings of resilience to poverty (Canvin et al., 2009; Martin and Marsh, 2008). Self-efficacy is sometimes considered a component of resilience itself (Yi et al., 2008). *Optimism* and *hope* have been inconsistently associated with resilience in the limited contexts of health and organisational psychology (Yi et al., 2008; Youssef and Luthans, 2007). A community's sense of *social hope* may facilitate individual resilience, although evidence is in its infancy (Eggerman and Panter-Brick, 2010). A constellation of dispositional traits such as self-efficacy, optimism, hope and hardiness is sometimes known as *ego-resiliency*.

Gender has been differentially identified as a risk factor across various contexts. The ways in which gender proves protective are highly contextual to (1) culture and (2) the specific risk under consideration. Links between culture, socialisation and biology can be difficult to unpick. Being female can be protective in the face of abuse and neglect, health risks, low socioeconomic status (SES), psychological risks associated with aging and certain conflict contexts (Gallo et al., 2009; Graber et al., 2015; Jordans et al., 2010; Netuveli et al., 2008). Boys and men are more susceptible to the negative impacts of risks, such as violence, substance use and low SES, and are subject to cultural pressures towards stoicism and machismo. These may promote unhealthy behaviours and inhibit support-seeking, compared to girls and women, who are more likely to seek emotional support and less likely to engage in violence. However, some research has suggested that girls and women are less resilient than boys and men following exposure to disaster and climate hazards, while cultural ideals may incentivise men to maintain good health and provide for the family (Bonanno et al., 2007; Hobfoll et al., 2011; Punamaki et al., 2001; Rodriguez-Llanes et al., 2013).

Other individual-level protective mechanisms include a *stable living environment*, which includes long-term foster placements and long-term housing to support homeless or highly-mobile children (Dumont et al., 2007; Obradovic et al., 2009). *Neurobiological differences* in functioning (either pre-extant to risk exposure or emerging as physiological stress responses adapt over time) are currently a topic of investigation. Physiological mechanisms underlying reward and motivation, fear response, memory, emotional regulation and cognitive functioning may facilitate resilience (Wu et al., 2013).

4.3 Protective mechanisms: Social level

Education is often considered an outcome indicative of resilience in contexts where expectations for academic achievement are low, such as in communities facing high levels of poverty and among individuals from an otherwise disadvantaged background (Obradovic et al., 2009). Education sits at a nexus of process and outcome. A*cademic resilience* is a particular area of interest given the strong relationship between academic attainment and later psychological functioning, physical health and employment opportunities. Academic resilience brings sustained engagement, school bonding and holistic support across assets at the level of the individual, family, peers, classroom and school (Morrison et al., 2006). Some evidence suggests that education provides accumulated financial and social resources, facilitating long-term resilience during disasters (Frankenberg et al, 2013).

Ethnicity and *culture* can be protective, as multi-faceted cross-cultural research demonstrates (Ungar, 2011). Cultural values and strong relationships supported by common ties provide both tangible and intangible resources across interpersonal, intrapersonal and community domains. Culture may support spiritual responses to challenges, catalysing practical support and supporting meaning-making (Wadsworth et al., 2009). Hispanic cultures are associated with better health outcomes, strong family relationships and performance of health behaviours for the good of the family (Gallo et al., 2009). Culture may foster values of service to family and morality that strengthen social relationships and help make meaning to ongoing conflict (Eggerman and Panter-Brick, 2010).

Socioeconomic status is more often investigated as a risk factor, given associations between low SES and negative outcomes for health, well-being and attainment.

Income stability and availability of material resources are associated with resilience following disaster (Bonanno et al., 2007). However, mechanisms of resilience among low-SES groups can be hidden by stigmatising cultural discourses and social assumptions about functioning (Canvin et al., 2009; Ungar, 2011). Low-SES individuals may demonstrate resilience through adaptability, creativity, communality and perseverance in the face of ongoing adversity, in ways that higher-SES individuals may not show (Chen and Miller, 2012; Gallo et al., 2009).

Figure 3 demonstrates how protective mechanisms interact to facilitate resilience processes and resilient outcomes in a highly simplified example of growing up in socioeconomic adversity in the United States.

5. Resilience across the lifespan

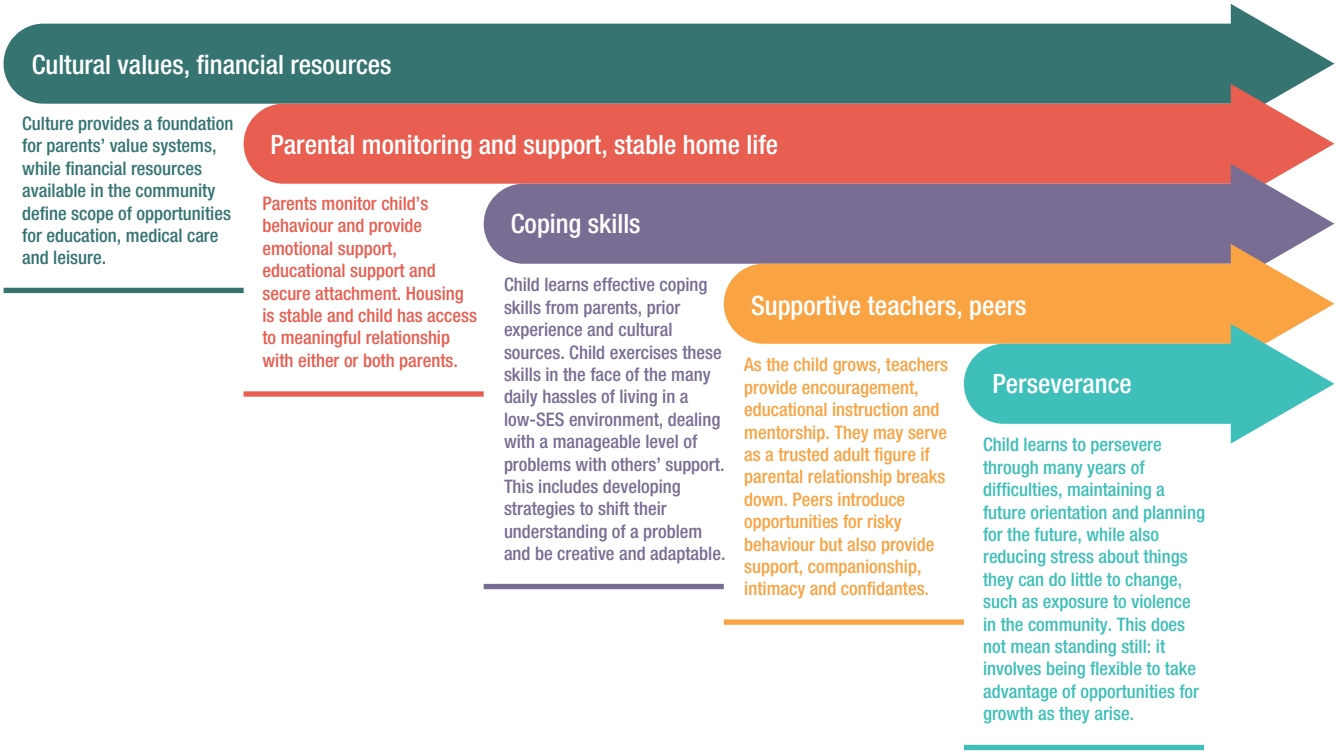
5.1 Resilience processes in childhood and adolescence

Much of resilience research has focused on children and young people who have been exposed to adversity. Protective mechanisms are comprised of personality factors and coping skills, culture, community, social relationships and available resources (Ahern, 2006; Masten and Wright, 2010). Everall, Altrows and Paulson (2006) specify a more process-oriented approach in which resilient youth are those who overcome adversity through their use of several types of internal and external resources: social (e.g., relationships with supportive adults), emotional (e.g., emotional awareness and expression), cognitive (e.g., shifts in perspective) and goal-oriented action (e.g., developing opportunities). Hart, Blincow and Thomas (2007) hold a more social ecological view of youth resilience, acknowledging children's vulnerability as their lives are often directed by the adults around them. They view resilience as supporting young people to develop capacities in coping, basic needs (including housing and transport), belonging (including healthy relationships), learning (including achievements and life skills) and core self (including self-knowledge). Empirical evidence suggests that a supportive and loving relationship with a parent or family member is among the most powerful resilience processes in childhood and adolescence. This includes parental monitoring, even when this relationship is at a distance, involves caretaking by the young person or has been interrupted by interpersonal strife (Betancourt et al., 2013; Chen and Miller, 2012; Collishaw et al., 2007; Drapeau et al., 2007; Fergus and Zimmerman, 2005; Suàrez-Orozco et al., 2011; Werner, 2005). In adolescence, when peer relationships become more developmentally significant, supportive friendships can also prove to be important mechanisms of resilience (Collishaw et al., 2007; Drapeau et al., 2007; Graber et al., 2015).

5.2 Resilience processes in adulthood and later life

The potential life stressors of an adolescent are likely to differ from those of an adult in later life. Similarly, the concerns of a child, after a disaster, will vary from those of a person more advanced in years (Bonanno and Mancini,

Figure 3. Visualisation of protective mechanisms



2008; Masten and Obradovic, 2008). Adults have had years to develop coping skills (whether effective or not) in response to daily stressors and prolonged adversity, so that their coping becomes habitual (Bonanno, 2005). Adults may face the developmentally-specific stressors of declining health, caretaking burdens, social isolation and the cumulative effects of physiological stress or chronic illness.

It therefore makes sense that the processes facilitating psychological resilience in adulthood may be different to those facilitating resilience in youth. Social support and meaning-making remain important, social support, community support and spirituality aid resilience in adults following both disasters and sustained adversity (Canvin et al., 2009; Netuveli et al., 2008; Salloum et al., 2010). Yet there appear to be resilience processes distinct to adulthood and later life. Emotional complexity aiding resilience is more likely in adults (Ong, Bergeman and Boker, 2009) and self-esteem, quicker recovery from daily stressors, and positive emotions also support resilience in adulthood (Beutel et al., 2010; Ong et al., 2006; Ong et al., 2009).

Some suggest that an experience of transient stress followed by a return to stable functioning after a disaster is the norm (Bonanno et al., 2010). Others report that sustained trauma erodes psychosocial resources, resulting in higher PTSD and depression, with minimal or no healthy resilient trajectories (Hobfoll et al., 2011). When resilience is defined as adaptability rather than stability, it may still be normative, but will likely involve immediate distress that persists for some time (Norris et al., 2009). Sustained conflict and trauma involve many daily stressors, such as poverty, social isolation and inadequate housing. These can be indicative of ongoing, pervasive and chronic threats to well-being, and also erode people's coping capacity over time (Miller and Rasmussen, 2010).

5.3 Adaptation and growth: a lifespan perspective on resilience to subsequent adversity

Resilience is inherently developmental in the sense that it is a process that unfolds over a lifetime. Psychologists have been increasingly interested in taking a lifespan perspective on resilience, to see how functioning at one developmental stage affects a person later in life.

Earlier encounters with risk can have a profound and positive impact on later adaptation. In adults, having some life experience of adversity is associated with better mental health and well-being than having had no adversity at all (Seery, 2011). This experience may be garnered in childhood: in one major study of adults who were severely abused or neglected in youth, rates of difficulty in personality, health, relationship stability and criminality were actually better among resilient abused participants than among non-abused participants without psychiatric problems, even though they did have isolated difficulties in other domains (Collishaw et al., 2007).

This does not mean that those who have experienced most adversity will show the most growth: children at higher levels of risk will often have lower levels of protective resources and this will inhibit their capacity to adapt (Vanderbilt-Adriance and Shaw, 2008). What appears to be most important in distinguishing whether a situation of adversity will set into motion a trajectory of resilience or a trajectory of maladjustment is whether the adversity is *manageable*. Rutter (2013) maintains:

1. Resilience is fostered by controlled exposure to manageable stresses and adversity, rather than avoidance.
2. Protection is derived from "risky" situations such as adoption
3. Success in areas outside the family (such as school) can foster mechanisms that are that are key to resilience, such as the development of planning, self-reflection and personal agency
4. Later recovery or resilience from early adversity may be possible when 'turning points' are encountered and open up new opportunities.

Of course, the manageability of adversity is not only down to the individual, but the supportive relationships, practical assistance and environmental resources they are able to access (Ungar, 2011). But adversity has the capacity to bring close relationships to the fore (Wertz, 2011), support the development of neurobiological stress-inoculation skills (Wu et al., 2013) and help an individual to learn effective coping skills that steel them against subsequent stressors (Chen and Miller, 2012; Rutter, 2006).

There is therefore much to be optimistic about; opportunities for turning points towards adaptive outcomes abound in life (Drapeau et al., 2007). Resilience may be garnered in various domains, with effects cascading across them (Ungar, 2011). There are several take-home messages from this:

1. Not only can a person bounce back from substantial adversity, but he or she can actually grow through their challenging experiences.
2. Having psychological problems in childhood or adolescence does not preclude psychological well-being, good adjustment outcomes and satisfying relationships in adulthood.
3. Parental relationships remain a cornerstone of developing resilience. However, peer relationships, mentors and supportive romantic partners can have resilience-promoting effects later in life.

6. Frameworks and measures of resilience

6.1 Dominant methodological paradigms

While resilience research uses a wide range of approaches as appropriate for a complex construct, the field relies on a core

set of methodological paradigms: longitudinal cohort studies, cross-sectional qualitative studies and randomised control trials.

Longitudinal cohort studies. A cornerstone of the field is developmental psychopathological studies using longitudinal cohort designs. Influential studies include the Kauai Longitudinal Study, the Minnesota Parent-Child Project, the British Cohort Study and the Dunedin Multidisciplinary Health and Development Study. A longitudinal cohort model is also sometimes used in studies of adult resilience to trauma, with shorter follow-up periods. These studies have provided crucial insights by identifying key individual and family-level attributes predicting subsequent resilience among high-risk individuals that are relatively consistent across ethnic groups, geography and socio-political contexts.

Advantages: These studies excel in identifying predictors of subsequent maladjustment, using normative markers of development to look at issues stemming from early childhood and adolescence, along with trajectories of resilience and vulnerability over time. They produce large datasets suitable for secondary analysis and allow analysis of factors from early childhood and intergenerational processes. They are ideal for testing and validating theoretical models of resilience. They are also ideal for determining the prevalence and aetiology of different responses to trauma.

Disadvantages: These studies prioritise individuals' resilience-building attributes, which has contributed to a comparative lack of attention to social resilience processes. Objective achievement markers can perpetuate a Western paradigm of what it means to be resilient, precluding cultural factors that were important for survivors of the 2004 tsunami or Palestinians exposed to protracted violence (Ekenaye et al, 2013; Punamaki et al, 2001). These designs do not provide detail about subjective experiences. Early datasets do not always assess positive processes and outcomes.

Cross-sectional qualitative studies. Studies using qualitative methods have become a valuable complement to statistical approaches in recent years to identify protective mechanisms, explore subjective experiences and investigate domain-specific or cultural variations of resilience processes, as well as work with populations whose numbers are too small to sustain quantitative studies. Key qualitative studies have provided crucial insights by:

- identifying relational and community-based protective factors (Hauser, 1997; Hauser and Allen, 2007), and protective processes identified by resilient young people (Drapeau et al., 2007; Shepherd, Reynolds and Moran, 2010)
- developing theories of individual resilience (Ungar, 2005)
- informing psychometric measures, such as the Resilience Scale
- developing a rich understanding of resilience in non-Western contexts (Eggerman and Panter-Brick, 2010).

Advantages: Qualitative methods used on their own or within a mixed-method design are particularly useful for identifying new or contextual protective mechanisms and for exploring cultural or domain-specific variations and consistencies in resilience processes and constructs. They can address omissions and inconsistencies in the statistical literature by using idiographic approaches to tap into richness and complexity. Particularly within a mixed-method design, they are useful for developing ecologically-valid resilience theories, psychosocial interventions and psychometric measures. Findings may be adapted for use in screening, assessment, treatment/practice and statistical research.

Disadvantages: Findings from qualitative studies are not easily generalisable beyond their immediate context. Qualitative methods benefit from methodologically-appropriate quality criteria to ensure interpretations are trustworthy and reliable (see Yardley, 2000).

Randomised control trials. Randomised control trials (RCTs) are a gold-standard design for testing the effectiveness of an intervention for promoting resilience processes and adaptive outcomes.

Advantages: By itself, a single RCT provides robust evidence for the efficacy of a programme designed to address a modifiable risk factor or protective mechanism to facilitate resilience. A meta-analysis or systematic review of RCTs can offer compelling evidence for the efficacy of particular frameworks of psychosocial interventions and can identify the groups most likely to benefit (such as by gender, age, income level or co-morbidity).

Disadvantages: As suggested by the patchy evidence base involving RCTs, there are numerous logistical challenges involved in funding and implementing RCTs in the contexts of adversity, conflict and trauma. True randomisation may be difficult or impossible to achieve in such contexts: quasi-randomisation or within-subjects designs may be more appropriate in practice.

Other methodological frameworks include cross-sectional statistical models and neuroimaging studies. Resilience research involves a broad range of tasks: elucidating protective processes, illuminating subjective experiences of resilience, operationalising resilience and developing effective practice. Each method, to some degree, grapples with methodological challenges, including the non-linear nature of resilience, availability of records of baseline functioning, confounds between resilience and associated constructs, and distinguishing outcomes and processes.

6.2 Operationalising and measuring resilience

Researchers and practitioners use psychometric, objective, indicative and subjective operationalisations of resilience. Four distinct, but sometimes interlinked, motivations drive resilience measurements: definition, screening, research assessment and needs assessment.

Psychometric resilience measures reflect different theoretical orientations, disciplines and target ages. Robust measures have been translated and validated for global use. Popular psychometric measures which have been positively appraised in systematic reviews, meta-analyses and

validation studies include the Connor-Davidson Resilience Scale (CD-RISC), the Resilience Scale, the Resilience Scale for Adults and the Children and Youth Resilience Measure. These measures reflect different *definitions* of resilience (for example, the Resilience Scale defines resilience as personal competence and acceptance of self and life). It is therefore essential to choose a measure aligned with a chosen definition. Measures may be used for *screening* and *research assessment*, but are less commonly used in *needs assessments,* where it may be more helpful to measure psychopathology. Needs assessments may benefit from assessing wider protective resources, which few resilience measures currently do. There has been little attention to deriving domain-specific resilience measures. In specific contexts, such as resilience to diabetes risk, theoretically-driven composite assessments of resilience processes may be more sensible (Yi et al., 2008).

6.3 A general construct or domain-specific strengths?

While 'resilience' may refer to a general capacity to thrive in challenging circumstances, there is increasing interest in domain-specific forms of resilience: constellations of strengths and protective processes that are particularly adaptive in the face of a given risk. Some processes underpinning general resilience may be transferable. Others may be more specific. For example, Morrison et al (2006) define educational resilience as a multi-dimensional school-based protective process supporting a trajectory of positive educational outcomes through sustained engagement, school bonding and holistic support. Morrison and colleagues identify interlinked protective assets at individual, family, classroom, school and peer levels, providing recommendations for practice at each level. By contrast, resilience to cultural norms of excessive alcohol use may involve general coping skills, supportive peer groups and specific drink-related self-efficacy (de Visser et al., 2015; Graber et al., 2015). Educational resilience and alcohol resilience may draw on similar resources, such as coping, self-efficacy and supportive relationships to aid positive adaptation among adolescents from difficult backgrounds, but feature meaningful distinctions in purpose, focus and process. Research into domain-specific forms of resilience is an example of "translational synergy" in which advances in practice collaboratively inform conceptual understanding (Masten, 2011).

6.4 Dissonant voices and methodological debates: traversing and integrating cultures and levels

Much resilience research has taken place in Western countries, using populations of either maltreated children or trauma-exposed adults. These contexts influence not only definitions of resilience, but also ways of assessing it. Research has expanded to add nuance, depth and diversity in various ways.

Culturally-variant concepts of resilience. Cultural critiques come from those operating at interfaces with marginalised groups. Ungar emphasises awareness of cultural variations in how individuals interact with the environment, such as cultural preferences for temperament qualities and culturally-specific gender expression. Social class may be seen as culture: individuals in low-SES households may show 'hidden resilience' involving specific expertise, while the nature of adaptive coping may be different for low-SES (versus high-SES) people (Canvin et al., 2009; Chen and Miller, 2012). Variants in resilience processes have been identified across nations and ethnic groups, such as among Hispanic Americans and African-Americans, along with residents of Afghanistan and Sri Lanka (Eggerman and Panter-Brick, 2010; Ekanayake et al., 2013; Gallo et al., 2009; Salloum and Lewis, 2010). Studies tend to engage with the meanings and adaptive value of religion and spirituality, community cohesion, social relationships, hope, coping, and identities.

Voices and strengths of marginalised groups. Omitting marginalised people's perspectives from psychological theory risks overlooking context-specific resilience processes (Canvin et al., 2009). Qualitative methods are adept at capturing the perspectives of marginalised groups because they emphasise the (co-)construction of knowledge and discovery. Cultural insiders and/or bilingual researchers can help develop sensitive interview schedules, gain good rapport with participants and interpret analyses with nuance (e.g., Suàrez-Orozco et al., 2011; Eggerman and Panter-Brick, 2010). Asking marginalised people to reflect on their own experiences allows radical insight into protective processes and improves ecological validity of theories and interventions. It can also build future capacity if the research is informed by participatory methods (de Visser et al., 2015; Hart and Heaver, 2013; Ungar and Liebenberg, 2009; Wertz et al., 2011).

New applications of resilience. Resilience frameworks are increasingly applied to address problems beyond discrete traumas in adulthood or childhood abuse, neglect and maltreatment. Resilience approaches identify and promote adaptive processes in the face of social issues such as:

- Immigration, acculturation, homelessness and socioeconomic adversity (Chen and Miller, 2012; Gallo et al., 2009; Obradovic et al., 2009; Suàrez-Orozco et al., 2011).
- Public health concerns such as alcohol, HIV/AIDS, diabetes and health maintenance in rural areas (Bernstein et al., 2011; Betancourt et al., 2013; Liepert and Reutter, 2005; Yi et al., 2008).
- Complex conflicts (Punamaki et al., 2001; Tol et al., 2013).

A multi-level approach. Leading theorists (e.g., Masten, Rutter, Ungar) argue that a multi-level approach to resilience is needed to capture the complexity of processes underpinning any individual's life. This entails searching for (1) protective processes across and within individual, social relationships, community and society and (2) interactions between and across multiple levels.

Box 1: Principles of brief interventions: What can (and cannot) be learned from positive psychology

Positive psychologists have successfully used brief interventions to promote mindfulness, optimism and hope in workplaces and quasi-therapeutic contexts. For example, Cohn and Frederickson (2010) report the impact of a loving-kindness meditation intervention with highly-educated adults. Here, continuing meditators persistently showed more positive emotions and more rapid positive emotional response. Meditators reported more positive emotions than those who did not meditate or stopped. Positive emotions facilitate resilience in later life (Ong et al., 2009). Frederickson's research is underpinned by a broaden-and-build theory of cascading benefits as positive emotions result in cognitive flexibility and creativity.

While resilience and positive psychology share interests in human flourishing and a common historical root of humanistic philosophy, the two fields differ in several critical respects. Positive psychology is conceptually more attuned to optimising performance, emotions and relationships. This differs from the aim of resilience research to promote positive adaptation and reduce harm, although there are conceptual and practical overlaps (Masten, 2011). More importantly, positive psychology studies are generally conducted with samples of well-educated individuals in the Western world. Risk exposure is neither presumed nor assessed. Individuals who have had little prior exposure to risk, or who are not under threat, will show different patterns of functioning compared to risk-exposed or vulnerable peers. This substantially limits the generalisability of positive psychology studies. Finally, while positive psychology interventions often aim to increase resources associated with resilience, they do not necessarily analyse whether interventions actually promote subsequent resilience. Researchers and practitioners must therefore use caution when applying findings from positive psychology studies.

However, positive psychology studies may help develop effective and enjoyable interventions to protect and promote resilience in adults. Successful protocols suggest formats and techniques for maximal engagement. Appealing interventions that induce positive emotions may yield higher take-up and less resistance as people maintain practices that are a good personal fit (Cohn and Frederickson, 2010).

Biopsychosocial operationalisations. Neurobiological approaches to resilience are in their relative infancy and continue to frame their work in terms of risk processes and maladaptive stress responses. However, there is promise in linking psychosocial protective mechanisms with genetic, epigenetic and physiological processes. Researchers are developing innovative new paradigms to 'hold' complex biopsychosocial operationalisations of resilience (Feder et al., 2009; Gallo et al., 2009; Wu et al., 2013).

7. Facilitating resilience: developing effective resilience-building interventions

7.1 General principles of resilience interventions

In psychology, 'intervention' refers to a non-clinical program or a clinical treatment aimed at altering behaviour, cognitions, attitudes, emotions, relationships or outcomes. A resilience intervention aims to promote resilience processes and/or adaptive outcomes. Psychosocial interventions affect psychological and social processes. They often implicitly or explicitly use behaviour change techniques such as skills training, information sharing, practice, behavioural modelling, stress management and planning social support (Abraham and Michie, 2008). Interventions may target the individual or social level, or both. Interventions for children often target parents or family.

Luthar, Sawyer and Brown (2006) recommend targeting protective mechanisms that are salient, modifiable and enduring, generating cascades of effects in an individual's life. Robust resilience interventions depend on a good understanding of the risks facing the target population *and* of the protective processes and strengths that are desirable, useful and feasible for individuals to access through the self, family and wider support systems (Bonanno, 2004; Rutter, 2013). Interventions are strengthened by involving local experts (including vulnerable people) in intervention design and implementation. When implementing interventions to traumas, shocks and conflicts, it is useful to assess and ameliorate daily stressors (such as poverty), as well as the catastrophic event, since individuals' capacities to cope will be affected by their cumulative experiences of stress (Miller and Rasmussen, 2010). Similarly, individuals exposed to sustained adversity and ongoing conflict benefit from holistic support addressing their specific needs (Tol et al., 2013). Cheon (2008) recommends interventions:

- clearly articulate goals
- target at-risk young people
- calibrate to the developmental stage
- incorporate community-wide or school settings
- structure alternative activities
- use social-behaviour education
- support peer leadership and mentoring
- involve families
- employ media advocacy.

Experts recommend focusing interventions on fostering a supportive socioecological context as well as individual-level resilience processes. Resilience interventions promote

Box 2: Resilience interventions: skills and strategies to facilitate better outcomes in alcohol use

Alcohol research is emerging as a leading application of psychological resilience. Globally, alcohol use is a leading avoidable risk factor for death and disease (Rehm et al., 2009). Opportunities to drink feature heavily in young people's social lives (Fredericksen et al., 2012). Early drinking behaviours have immediate and cumulative effects on health. When faced with complex challenges to safety, family, education, and financial resources, less resilient young people may turn to alcohol to relieve stress, numb feelings of loss and stop thinking (Bernstein et al., 2012). A psychosocial resilience framework emphasises self-confidence and developing skills for alcohol refusal and management (de Visser et al., 2015). Resilience-based research can identify adaptive cultural and psychological practices (e.g., Herring et al., 2013). This generates knowledge about positive choices, develops strengths and facilitates social skills to promote responsible alcohol use and abstinence. It is underpinned by definitions of domain-specific resilience informed by cultural norms and clinical recommendations. Interventions focusing on both adaptive social influences and self-based strengths are likely to be effective (Graber et al., 2015).

Alcohol interventions may be implemented in settings ranging from emergency units to schools (Bernstein et al., 2012; Foxcroft et al., 2012). One UK-based intervention aimed to first clarify the behavioural strategies for responsible drinking and abstinence already employed by resilient young people, and then promote these strategies using a range of health behaviour change techniques in a schools-based education programme (de Visser et al., 2015; Graber et al., 2015). The intervention employed skill-based development, targeted at-risk young people, used social-behaviour education and supported peer mentoring (Cheon, 2008). It aimed to develop wider resilience skills and highlight broader protective resources: resilient young people may still drink, but they generally have reasonable life goals, use social support, access caring friends and mentors and employ other coping mechanisms (Bernstein et al., 2012). Emerging evidence suggests a resilience-based approach to alcohol interventions is feasible, useful and likely to be effective. A randomised control trial will assess efficacy compared to usual alcohol education delivered in schools (de Visser et al., 2015). However, there is little evidence linking this or other resilience interventions to long-term health outcomes or measurable drinking consumption; nor is it clear how well such interventions support young people who are already heavy drinkers or who face additional risk because of parents' excessive drinking.

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adaptive outcomes and processes at individual, family, school and community levels through diverse mechanisms including:

- skilful coping
- community cohesion
- self-efficacy
- parental effectiveness
- family relationships
- life skills training
- positive emotions
- meditation.

It is essential to target interventions appropriately to obtain maximal benefits rather than adopting a "one-size-fits-all" approach: individuals will respond differently depending on gender, age, culture, risk exposure and access to protective resources.

7.2 Intervention evaluation

Resource-heavy randomised-control trials to assess intervention efficacy against 'treatment-as-usual' are a gold standard for determining whether an intervention is effective. However, given the nature and complexity of resilience, it is not always necessary or feasible that an RCT design be implemented in an evaluation. A within-subjects longitudinal design or qualitative report may be sufficient. Meta-analyses, systematic reviews and narrative reviews provide useful overviews of good practice because of variability of the information reported, intervention frameworks, resources available and context effects. Stronger evaluations generally report intervention content, characteristics of administrators and recipients, modality, intensity, duration and adherence to protocols. Reports should be transparent about the limitations and strengths of programmes and evaluation. Few resilience interventions formally evaluate their work or, at least, disseminate evaluations in peer-reviewed publications; ineffective practices may not be identified while others are restricted from learning about effective interventions (Hart and Heaver, 2013). There is, furthermore, a need for more evaluations in low- and middle-income countries and use of mixed-methods designs to integrate intervention development and evaluation (de Visser et al., 2015; Tol et al., 2013).

7.3 Interventions in health

The World Health Organisation instructs that health is not just about the absence of disease, but includes physical and psychological well-being. Accordingly, the last 10 years have seen vibrant activity applying resilience frameworks to health problems such as diabetes, psychological well-being and alcohol use, as well as psychiatric diagnoses such as depression, anxiety and PTSD. This area is relatively new, with many key publications released within the last five years.

Many psychosocial interventions to health emphasise modification of behaviour to promote healthy behaviours and discourage or prevent unhealthy ones. While health is a composite of many factors (such as genetic susceptibility, pathogen exposure, nutrition, and physiological stress) a biopsychosocial model of illness emphasises how a person's thoughts, behaviours and emotions interact with biological processes over time to produce health outcomes. Behaviours are particularly amenable to change, and directly or indirectly influence individual and community health. Many health psychology interventions posit that health behaviours are ultimately determined by a combination of knowledge, motivations, perceived control, barriers, intentions, cultural or social norms, and implementations (see Armitage and Conner, 2001). Any of these can be targeted for change.

One common thread is that resilience is related to physiological, cognitive and behavioural responses to stress and consequently directs the efficacy of coping mechanisms. For example, resilience processes support appraisals of ongoing health situations that, for example, help young people find independence, problem-solving and a strong work ethic through ongoing caregiving responsibilities. Such children may demonstrate more adaptive coping skills and less use of alcohol or tobacco compared to peers without strong parental relationships, when they can also access to community and social support (Betancourt et al., 2013). Resilience resources also predict future glycaemic control and buffer against worsening self-care and related behaviours when patients become more distressed about their diabetes over time, suggesting both direct and indirect health benefits (Yi et al., 2008). Indirectly, cultural meanings of resilience may direct health-promoting behaviours by tapping into identities of being a provider and the need to put family or collective needs first (Gallo et al., 2009).

Emerging evidence shows that resilience processes and interventions may affect coping appraisals, behavioural choices and physiological functioning, with potential to lower mortality from cardiovascular disease (Feder et al., 2009; Gallo et al., 2009; Wu et al., 2013). Resilience is more than just coping, but its processes may cumulatively mitigate behavioural, physiological and emotional impacts from acute and persistent stressors. Based on a literature mostly comprised of non-intervention studies, evidence suggests that resilience interventions can facilitate good psychological and physical health outcomes. However, more interventions and published evaluations are required (Betancourt et al., 2013; Cheon, 2008; de Visser et al., 2015; Yi et al., 2008). In the near future, systematic reviews and meta-analyses can pull together disparate studies to identify trends of efficacy.

7.4 Interventions in trauma

Trauma impacts an individual's identity, cognitive schemas and world view (Agaibi and Wilson, 2005). Interventions to trauma and conflict face particular challenges. Infrastructure may be poor, conflict may be ongoing and individuals may face material poverty and insecurity alongside disruptions to

core relationships. Evaluations are constrained by challenges in understanding prior functioning and difficulty following up participants. Variations in the empirical literature concerning expected trajectories of trauma functioning complicate expectations for efficacy and efforts to target interventions to the people most at risk of poor outcomes (Bonanno et al., 2010; Hobfoll et al., 2011; Miller and Rasmussen, 2010; Norris et al., 2009).

There is, understandably, patchy evidence for what comprises an effective resilience-based trauma intervention. Resources and support for evaluations are sorely needed. Psychologists therefore offer guidance based on non-intervention studies in conflict areas and interventions in other domains. Miller and Rasmussen (2010) advise sequential steps to increase intervention efficacy, including:

1. conduct a rapid contextually-sensitive assessment of local daily stressors
2. target interventions to daily stressors before providing clinical trauma services so individuals' coping resources are diverted towards complex problems
3. acknowledge traumas unrelated or distantly related to conflict.

Masten and Obradovic (2008) identify principles to support preparing a large population for disaster. They emphasise:

1. interventions must target the needs, capacities and concerns of individuals across developmental stages.
2. individuals' responses will be influenced by beliefs about loved ones' safety and by the behaviour of role models, relatives and attachment figures.
3. a single approach is unlikely to be effective because people are interdependent and interact with multiple systems.
4. first responders should be identified and educated about trauma responses.

One example of a strong intervention is a school-based, complex psychosocial intervention, taking place among children in a conflict-afflicted area of rural Nepal. The used psycho-education, socio-drama, movement/dance, group activities, stress inoculation and trauma processing. There was no reduction in psychiatric symptoms, but the programme increased hope among older children, increased prosocial behaviour among girls and reduced psychological difficulties and aggression among boys. The differentiation aligns with gender differences in social disclosure, emotional support and damaging behaviour (Jordans et al., 2010). More broadly, access to social support, gender and prior low-level exposure to adversity have been identified as priori protective factors facilitating resilience to trauma (Rodriguez-Llanes et al., 2013).

8. International case studies in natural hazards, conflict and health

8.1 Case study 1 - Making sense of the senseless: positive adaptation following Hurricane Katrina

Hurricane Katrina's widespread destruction, high death toll and extensive evacuation left survivors with enormous material, physical, human and psychological consequences. Survivors struggled with bereavement and separation from friends and family, enormous property damage, displacement, and job loss (Salloum and Lewis, 2010). Coping with these abrupt and painful stressors would be challenging in any context, but those hit hardest disproportionately belonged to historically-marginalised poor African American communities. Indeed, African American survivors of Katrina showed significantly higher rates of depression and anxiety than survivors belonging to other ethnic groups (Adeola et al., 2009). Yet African American survivors also showed remarkable resilience, particularly when their responses are viewed through a sociocultural lens. Research into the psychological resilience of Katrina survivors has focused on the coping responses deployed by low-income African American communities, and underscores the broader value of ecological networks and cultural resources in times of adversity.

Parental support is a crucial protective mechanism fostering resilience in children (Fergus and Zimmerman, 2010). This was also true in the face of Hurricane Katrina. In kinship-based networks, such as the low-income African American communities affected, interdependent parent-child coping can be pivotal in re-establishing daily functioning. Salloum and Lewis' (2010) study of African American families dealing with the impacts of Hurricane Katrina examined relational coping strategies to understand how different types of coping linked to lowered psychological distress. Most parents pursued active coping strategies, particularly by seeking support from family and friends. Emotional support-seeking is crucial to resilience across contexts, and its availability is strengthened by strong community relationships. These, along with social support before, during and after disaster, provide reserves to supplement emotional and practical coping resources that are taxed by enduring and pervasive stressors straining physiological stress responses, material resources and psychological well-being (Gallo et al., 2009; Rodriguez-Llanes et al., 2013).

Children, too, relied on parents to emotionally process trauma. This could have led to dual stress for parents; in addition to dealing with the effects of the disaster, they needed to be caretakers for their children and help foster positive adaptation to their post-disaster situation. Yet sharing thoughts and emotions about the disaster with children helped both parents and children themselves, suggesting parents' coping assistance to children reciprocally helped them cope with the stress of the disaster (Salloum et al, 2010). Salloum's study exemplifies Masten

and Obradovic's (2008) point that children will learn to cope based on how they see trusted adults functioning in everyday contexts and following disasters, and that people across all ages will seek closeness, protection and proximity with loved ones when the stakes are high. The availability of social support and parents' identities as caretakers/providers can offer sources of resilience and an impetus for them to reach out to others, even as contextual stress and geographic displacement or separation places strains on their capacity to support their children (Belsky, 1984; Gallo et al., 2009; Eggerman and Panter-Brick, 2010).

In addition to drawing strength from family networks, spirituality played a central role for Katrina-affected African American families' resilience. Though belief alone was not enough to support a positive resilience trajectory, relying on a higher spiritual power compelled survivors to find purpose in their struggle. Parents and children mentioned prayer, worship, and relying on a higher spiritual power as among their top coping strategies (Salloum et al, 2010). Whereas white survivors relied more on friends and co-workers, African American families tended to reach out to faith communities and neighbours (Adeola et al, 2009). This is supported by wider research that links belief that there is meaning to be found in life with fewer symptoms of psychological distress (Wadsworth et al, 2009).

Parallels can be drawn with the experiences of survivors of the Southeast Asian tsunami of 2004. Both disasters had devastating impacts, levelling entire communities and resulting in staggering loss of life. Little research has investigated how reliance on religious beliefs relates to psychological outcomes in the face of disaster. Emerging evidence indicates that in certain cultural contexts, faith plays a large role in a process of meaning-making, lending coherence to the chaos and distress of a disaster experience. In both contexts, religion provided a primary framework for responding to the disaster, either as an active response through participation in spiritual ceremonies or as a psychological resource through faith (Ekanaye et al, 2013). In a study in Tamil Nadu, India, spiritual forms of coping were most common after the tsunami. Accepting loss was processed through community religious ceremony and discussing difficulties with religious leaders and close family. Strong religious faith was associated with lesser symptoms of emotional distress. Those who lost religious faith following the disaster ultimately experienced greater distress in the long-term, perhaps speaking to the ability of faith to scaffold a framework of meaning over uncontrollable circumstances (Ekenaye et al, 2013).

The experience of African-American survivors of Hurricane Katrina underscores the importance of social relationships and spirituality across age groups in facilitating resilience in times of adversity. Community relationships and family interactions provide emotional support, aid trauma processing and replenish psychological and instrumental resources for coping. Faith-based and relational meaning-making can provide anchors of social identity, closeness, coherence and control, which assist in making sense of what are ultimately senseless events. As borne out by the resilience literature (e.g., Masten and Obradovic, 2008), when disaster strikes, we ultimately look to each other.

8.2 Case study 2 - Disruption through conflict: Palestinian resilience in the face of protracted violence

Protracted conflict can have serious, long-lasting impacts on well-being (Miller and Rassmussen, 2010). The case of residents of Palestine highlights differences in resilience processes between individuals exposed to natural disasters, who tend to experience a drop-off of trauma symptoms once danger has passed, and those exposed to prolonged conflict, who may often internalise symptoms for years (Punamaki et al, 2001). Palestinians have been intermittently entangled in conflict with Israel for more than 50 years, with entire generations exposed to ongoing political violence. Normalisation of the stress of war and disruption has not necessarily resulted in good psychological adjustment amongst children or adults (Hobfoll et al, 2009; Punamaki et al, 2001). PTSD, depression and other forms of psychological distress have manifested with flares in intifada violence. However, even in times of conflict, Palestinians embody principles of *sumad*, a unique cultural variant of resilience distinguished by determination to exist through being rooted to the land (Nguyen-Gillham, 2008).

Pockets of ceasefire have allowed psychologists to study how the psychological impact of political violence manifests in Palestinian children. The findings emphasise family resilience processes, but reveal children responded differently to support depending on gender and feelings of family unity. Punamaki et al (2001) conducted an extensive study of resilience in Palestinian children three years after a ceasefire, tracing which resiliency factors facilitated healthy adjustment for children three years after violence ceased. Well-established protective mechanisms, such as social support networks, strong emotional ties with parents, trust in adults and ability to engage in active coping were all important factors in Palestine, just as they had been for children exposed to Hurricane Katrina. Adolescents depended on one another in times of difficulty, with suffering and endurance experienced, not only at the individual level but also as a community (Nguyen-Gillham et al, 2008). However, if children perceived there was a discrepancy between parental love, with caring mothers and distant fathers, they maintained higher levels of PTSD and depression symptoms (Punamaki et al, 2001). Family unity was therefore key to providing personal suffering with order and meaning in this context.

Findings also revealed also significant gender differences: boys developed symptoms only when personally exposed to trauma, whereas girls did so irrespective of exposure and experienced slower recoveries.

Boys and girls generally exhibit different patterns of coping, with boys more likely to externalise feelings and 'act out', and girls more likely to internalise emotions and develop anxiety symptoms. Regardless of gender, the pervasiveness of conflict in children's lives prevented a simple evolution between stressful events and an eventual return to baseline functioning. This exemplifies Tol et al.'s (2013) conclusion that children's resilience in the face of armed conflict is a complex process contingent on context-specific variables, gender, development, phase of conflict and changes over time. Resilience is not a simple balance of the additive value of risk and protective factors.

Just for children, resilience in Palestinian adults goes beyond a summary of linear and causal processes between behaviours and positive assets. An in-depth study of 1,200 Palestinian adults living in Gaza, the West Bank and East Jerusalem traced incidence of PTSD and depression symptom trajectories to identify psychologically resilient individuals and factors predicting resilience. The results were stark: the sustained trauma of violence resulted in an absence of truly resilient, resistant or full recovery trajectories (Hobfoll et al, 2011). Recovery patterns were predicted by experiencing lower levels of material and psychosocial resource loss as violence decreased, though even relatively more resilient adults still manifested symptoms of PTSD and depression. Normal adaptive mechanisms that drive high levels of resilience were overwhelmed by the violence and economic depression in Palestine. Sustained trauma likely eroded people's material and psychosocial resources, which suggests a compelling need for resource-based interventions in conflict situations.

Miller and Rasmussen (2010) note that protracted conflict often involves unrelenting exposure to daily stressors that negatively impact psychological functioning. Poverty, social isolation and inadequate housing as a result of conflict are immediate concerns. Lack of access to water, loneliness and vulnerability to assault are outside people's control. Lack of perceived control contributes to stress and feelings of helplessness, while fear of recurrence lends threats a sense of timelessness. While direct exposure to conflict may be geographically concentrated, these daily stressors pervade populations in most conflict and post-conflict settings.

Though psychosocial distress was high among Palestinians, cultural values and adherence to *sumad* provided a bedrock for meaning-making in the face of violence. Just as many African American Hurricane Katrina victims relied on spiritual meaning-making, Palestinians grappling with violence imbued their struggle with meaning through political participation and resisting the Israeli occupation (Nguyen-Gillham et al, 2008). Similarly, in Afghanistan, conflicted affected communities fostered hope through their religious faith (*iman*) and perseverance (*koshish*), which provided order and meaning during the chaos of conflict. Strong family unity underpinned fortitude among children and adults, though this protective mechanism was cast in a cultural context in which individual recovery from was built through collective resiliency. The Afghanistan case underscores a drive for social hope as a way of making sense of conflict, offering a sense of future orientation and feeling empowered. Such activities may offer frameworks for community cohesion and dealing with feelings of powerlessness. This is also important for children. In Palestine, girls (who tend to internalise anxiety more than boys) drew strength from attending school. Boys participated in more open political resistance through small acts of defiance, such as throwing stones (Nguyen-Gillham et al, 2008).

Across genders, collective resilience is embedded in a will to survive and build lives on Palestinian territory. These nuanced perspectives on how resilience is built across contexts and through conflict across generations make a case for culturally-sensitive, resource-based interventions that can address the core material needs of populations and allow them to draw on collective resilience, focusing on family and social networks during times of intense distress.

9. The future of psychological resilience research and practice

Psychological resilience research is garnering increasing attention from funders, policymakers, publications and professional societies. This section outlines emerging trends in research and practice identified through disciplinary attention, funders' calls for proposals, legislation, publication impact factors and citation rates. It draws on these trends and recommendations leading researchers to identify and forecast core areas of focus for resilience research in the next 10-15 years.

9.1 Identifying protective mechanisms, understanding interactions

Research programmes from leading academics and marginalised groups will focus on identifying protective mechanisms, following calls from current leaders to provide a robust evidence base revealing how individual factors interact to promote resilience, using cutting-edge statistical, mixed-method and qualitative techniques (e.g., Rutter, 2013).

In particular, protective mechanisms in the domains of neurobiology and cultural systems will likely receive increased attention. Understanding of the neurobiology of resilience is likely to grow as technological advances and multidisciplinary collaborations reveal psychobiological and molecular genetic protective mechanisms. Such knowledge may lead to pharmacological and behavioural interventions targeting at-risk individuals who are genetically profiled as low resilience or who show volatile stress responses (Wu et al., 2013). Psychosocial and neurobiological mechanisms facilitating adaptive outcomes in adulthood and later life will also garner increasing focus. Complex longitudinal statistical analyses

enable researchers to study resilience development over the lifespan. Resilience research aligns with public health orientation towards prevention and mitigation of life-altering or life-threatening illnesses such as diabetes, cardiovascular disease, HIV/AIDS and cancer.

Shifting perspective, researchers will increasingly engage with cultural processes of resilience. While much resilience research originated in Western countries with populations of maltreated children, empirical and intervention studies are underway in low and middle-income countries and areas afflicted by long-term conflict, along with minority ethnic groups in industrialised nations. This latter wave of research draws more on qualitative and intervention studies than did early resilience research. Recent research reveals nuanced cultural interpretations of some core protective mechanisms of positive early childhood experiences, hope for the future and social support; while much of the underlying essence of resilience appears to have universal resonance, the lived experience of resilience is nonetheless remarkably varied and multifaceted. What it means to be resilient, along with its underlying processes, is culturally-dependent. Theories and interventions must, therefore, be sensitive to their scope. Resilience practice must inform theory in a fruitful, if sometimes messy, two-way flow of information. These shifts towards an intersection of person and community, and practice and theory, may lead to greater exploration of social psychological processes, such as social group identity formation linking group behaviour to individual functioning, and vice versa.

9.2 Resilience in every story: the key fields of application

General and domain-specific resilience approaches are likely to address pressing social and health problems. While a single approach does not offer global utility, a broad resilience framework focuses upon identification and promotion of strengths, social connections and capacities to enrich the story of human functioning across a wide range of fields.

Complex substance use. Public health agencies and charitable funders are increasingly interested in adopting a resilience approach alongside a traditional risk-based approach, integrating these into a broader harm-prevention framework aimed at modifying individuals' and communities' behaviour. A resilience approach to complex substance use is likely to take a multi-level view of protective mechanism identification and intervention development, incorporating legislation, psychoeducation, psychosocial skills, clinical assessment and public health campaigns.

Cardiovascular disease (CVD) and chronic illnesses. There is a considerable public health burden of chronic illnesses, such as CVD and diabetes, which combine genetic aetiology or risk and increased individual environmental risk stemming from cumulative lifetime exposure to vulnerability factors. Resilience frameworks can identify psychosocial ways to mitigate genetic risk, manage environmental risk and promote ongoing positive adaptation when chronic illnesses enter a person's life. At the same time, many acute diseases, such as HIV/AIDS or certain cancers, are becoming lifelong conditions or features of family life in certain areas of the world. Resilience frameworks are likely to be useful in identifying effective preventative and *post hoc* psychosocial interventions for victims and their families, increasing the efficacy of self-care routines and capturing supportive community responses.

Practitioner resilience. Whether in preparation for disaster response or reducing burnout among social workers, there have been calls to focus building (1) resilience and (2) understanding of resilience and trauma processes among practitioners such as clinicians, social care workers, educators and parents. Such work can feed more effective resilience-based practice with vulnerable people, but also sustain practitioners with individuals with complex needs.

Education. Education has been targeted for supporting pupils' well-being. Positive childhood experiences cascade through life, while early disparities in opportunities and capacities can become entrenched over time. Schools in the USA and UK have shown mixed success with resilience-based interventions. Policies focus attention on life-skill development, while efforts are increasing to widen participation and lessen achievement gaps due to low SES, maltreatment or homelessness.

Disasters and climate change. Wider resilience approaches informed by engineering and social-ecological systems have emerged as a dominant framework for tackling climate change and disasters, and interest in integrating psychological aspects of resilience has grown in recent years (Swim et al., 2009; Clayton et al., 2015). This includes understanding different perceptions of resilience and adaptive capacity, and further work building on the body of work on the psychosocial consequences of extreme events and their aftermath (Jones and Tanner, 2015; Rodriguez-Llanes et al., 2013).

9.3 Supporting resilience to complex adversity: multiple levels, multiple opportunities

Psychological resilience research in recent decades has determined that economic, health, social, cognitive and skills-based mechanisms interact vertically across multiple levels, horizontally across multiple life domains and temporally across a lifetime's worth of opportunity and adaptation to facilitate individual resilience. Researchers will move from the widest economic framework to the smallest tangle of neurons to understand and facilitate resilience across multiple levels over the lifespan. It is likely that practices and theoretical frameworks will emerge to:

1. build on contemporary multi-level research using social ecology and reserve capacity models to address clearly specified health and social issues (e.g., Gallo et al., 2009; Ungar, 2011) and
2. connect phenomenological and cultural variations in resilience processes within and across life domains, while being
3. driven by a strengths-based framework aligned with World Health Organization guidance viewing mental health is a positive state of psychological well-being beyond the absence of disease.

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Appendix 1: Glossary of key terms

Attachment: a bond with a parent or caregiver, providing a crucial foundation for safe exploration, identity, emotional regulation and wider development.

Coping: the range of cognitive, behavioural and affective responses to external stressors that people employ when faced with challenges to avoid emotional distress.

Intervention: A non-clinical programme, or clinical treatment, aimed at altering behaviour, cognitions, attitudes, affects, relationships or outcomes

Protective mechanism: a factor that directly or indirectly positively modifies a person's response to a risk situation at turning points in life, towards adaptive opportunities and outcomes.

Resilience: a developmental and psychosocial process through which individuals exposed to adversity or potentially traumatic events experience positive psychological adaptation over time.

Resources: tangible or intangible assets, such as psychological strengths, supportive social relationships, material wealth, or practical assistance that may be drawn on by an individual in times of need.

Self-efficacy: a person's self-beliefs about their ability to respond effectively to a situation.

Social support: significant interpersonal ties and relationships, which impact functioning and provide resources to satisfy expressed needs, especially during challenges in life.

Appendix 2: Literature search protocol

This narrative review employed a search strategy combining systematic keyword searching of the Web of Science (WoS) citation index. WoS accesses documents across the social sciences, physical sciences, natural sciences and humanities. The search initially yielded 3360 records (keyword topic: psychological resilience) between 2005 and 2015 (inclusive) in the field of Psychology, filtered for English language and to comprise only articles and reviews. Core keyword combinations were repeated in the PsycINFO citation index to ensure comprehensive coverage. However, as PsycINFO is more circumscribed in content and does not facilitate organising hits by "times cited", we chose to use WoS as our primary source of records.

Based on report authors' knowledge of the field, report concept notes and initial scoping of the search results, we used keywords combinations to refine the search towards several key topics (see Box 1). These topics were:

- (1) Contemporary definitions of resilience.
- (2) Measurement and methods.
- (3) Resilience-promoting factors.
- (4) A lifespan view of resilience.
- (5) Resilience-promoting interventions (including protective or *a priori* interventions)
- (6) The interface of individual psychological resilience and social processes/outcomes
- (7) Rich international case studies.
- (8) Advances in applied areas of health, psychobiology, socioeconomic context and crisis.

The applied areas were initially selected on the bases of (1) relevance to a target audience of practitioners, policymakers and researchers in climate change adaptation and (2) the lead author's knowledge of the field of psychological resilience as an active researcher in the areas of health, social and developmental psychology. These topics were subsequently organised into 11 sections, to emphasise key themes in the literature base and facilitate ease of reading. Expertise and analysis of publication dates drove inclusion of some low-hit sections (namely, *Section 7: Psychobiological components to resilience and selected studies in health psychology*) because these were identified as strong and emerging areas of study with a high likelihood of future focus, given disciplinary attention, funders' calls for proposals, changes to legislation, publication impact factors and citation rates.

We identified relevant papers using the "times cited - highest to lowest" and "relevance" sorting options, followed by a "publication date - newest to oldest" sort to correct for citation bias towards older records. Final records were selected using a combination of rigorous search, knowledge of the field, concept notes and identification within records of seminal articles, including recent peer-reviewed journal articles falling outside of the prescribed date parameters and book chapters by leading thinkers consolidating diverse programmes of work. We omitted works concerned with non-civilian populations. Articles were annotated by the lead author and an ODI research assistant and reviewed by two ODI researchers.

We identified some gaps in the research through this process, although it must be emphasised that a strict systematic review protocol was not used because of time constraints and the remit of the report. This means these omissions should not be considered definitive. When our search protocol yielded few hits, particularly in the domain of promotive interventions designed to facilitate resilient responses to disaster, we additionally conducted quick scans of Google Scholar and JSTOR as well as consulting the grey literature (e.g., World Health Organization published reports) and experts in the psychology of disaster response. Surprisingly, we found few examples of literature connecting psychological resilience to social processes such as:

- promotive interventions given prior to exposure to disaster to facilitate subsequent resilience
- intergroup contact, social cognition or identity formation
- directly connecting neurobiology and psychosocial mechanisms within a human-subjects empirical study
- linking psychological resilience and community-based outcomes
- investigating social, economic, environmental capital as they relate to psychological resilience and individual performance.

These omissions are sometimes acknowledged within the literature cited, and may be focused on in future.

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Cover photo: European Commission: Myanmar/Burma still reeling under the double impact of floods and cyclone

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