Annual Research Review: Resilience and child well-being – public policy implications

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Background: There has been an 8-fold increase in use of the term resilience within scientific and scholar literature over the last twenty years. The arena of public policy has also seen increasing use made of the concept, both with respect to child well-being and development and wider issues. **Method:** A focal sample of literature comprising 108 papers addressing public policy implications of work on child resilience was identified by a structured bibliographic search. **Results:** This literature suggests that current work: is characterized by a breadth of sectoral engagement across the fields of education, social work, and health; demonstrates diversity with regard to the systemic levels – individual (biological and psychological), communal (including systems of faith and cultural identity), institutional and societal – with which it engages; but is based more upon conceptual rather than empirical analysis. Major themes of policy recommendation target strengthened family dynamics, increased capacity for counseling and mental health services, supportive school environments, development of community programs, promotion of socioeconomic improvement and adoption of a more comprehensive conception of resilience. Evaluations of resiliency-informed policy initiatives are limited in number, with greatest rigor in design associated with more discrete programmatic interventions. **Conclusion:** A number of strategies to strengthen research-policy linkages are identified. These include greater commitment to operationalize indicators of resilience at all levels of analysis; more coherent engagement with the policy making process through explicit knowledge translation initiatives; and developing complex adaptive systems models amenable to exploring policy scenarios. **Keywords:** Resilience, recommendations, policy, (complex adaptive) systems, knowledge transfer.

Introduction

'Resilience' has become a commonplace term in a range of contexts. This annual review is testament to its perceived relevance to current conceptualizations of development outcomes over the life span (Luthar, Cicchetti, & Becker, 2000; Masten & Powell, 2003; Ungar, 2012; Masten & Narayan, 2012). A study of perceived best practice in child protection in crisis settings found resilience to be a central construct for many involved in program design and evaluation (Ager, Stark, Akesson, & Boothby, 2010). Humanitarian guidelines on mental health and psychosocial support reflect a strong awareness of actions that may serve to facilitate resilience (Inter-Agency Standing Committee, 2007).

It is not, however, only within the field of child development and well-being that the concept has found traction. It has become a construct of wide relevance in a range of research areas, such as disaster preparedness (e.g. Manyena, 2006), climate change (e.g. Helmer & Hilhorst, 2006), and livelihoods and economic strengthening (e.g. Pantuliano & Pavanello, 2009). Indeed, it has become a major explanatory concept across academic literature. In library content accessible by electronic search facilities at Columbia University in April 2012, the number of citations for which 'resilience' was an

accessible search term rose from approaching 2,000 items published in 1990, to over 10,000 items published in 2000 to approaching 40,000 items published in 2010 (see Table 1). Such an increase does not merely reflect the rapidly increasing volume and accessibility of scientific literature. There has been approaching an 8-fold increase in the probability of use of the term 'resilience' in a scientific and other scholarly work over a twenty-year period.

The area of public policy has not been immune from such trends. It is now common to find policy statements drawing upon the concept of resilience in areas ranging from child welfare (e.g. Newman, 2002; Administration for Children and Families, 2012), through urban and regional development (e.g. Weir, Pindus, Wial, & Wolman, 2012), to issues of national security (e.g. Bach, Doran, Gibb, Kaufman, & Settle, 2010; Homeland Security Advisory Council, 2011), humanitarian response (e.g. Department for International Development, 2011), international development (e.g. World Bank, 2011) and international relations (e.g. Reid, 2010).

Although precise understandings of the term vary widely, it is clear that there is a central conceptualization – linked to overcoming rather than succumbing to the effects of exposure to risk (Rutter, 1987) – that is of perceived utility in such formulations. The rapid replication of a concept in the manner noted has been linked to the processes by

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Table 1 Trends in use of term 'Resilience' in electronically accessible literature 1990, 2000, and 2010

Year of Publication	1990	2000	2010
Number of publications identified using term	1,766	10,499	39,041
Percentage of all accessible literature	0.0003	0.0010	0.0023

which genetic material may replicate in favorable conditions (Blackmore, 1999; Ager, 2002), with such conceptual units termed 'memes' (c.f. 'genes'). As a 'meme', resilience has clearly witnessed extraordinary replication. This rapid and widespread adoption of resilience as an explanatory framework has drawn the attention of a number of commentators (see Almedom, 2008; Cascio, 2009; Reid, 2010; Brown, in press). Cascio (2009) observes that its acknowledgement of unexpected and uncontrollable threats makes it congruent with perceptions of increasing uncertainty with regard to environmental, economic, and political events. Brown (in press), in an analysis of the use of resilience in a range of policy contexts, also recognizes the significance of a concept that promises to inform strategies to deal with uncertainty. She also points out the salience of a framework that acknowledges the interconnectedness of multiple systems and influences.

There are other, more political, reasons that may serve to make 'resilience' convivial as a construction to policy makers (AIESG, 2010). Unusually, it is a construction that has specific appeal with respect to sentiments typically associated with both the political 'right' and the political 'left'. For example, with respect to concerns of the 'right', resilience can be seen to principally locate resources for recovery within communities themselves rather than with government programs and initiatives. In an era when there are increasing political and economic challenges to state solutions to social challenges, a discourse which promotes the strength and capacities of individuals, families, and wider civil society is clearly attractive (see Bach et al., 2010). Political commentary in the UK in the wake of Prime Minister Cameron's 'Big Society' initiative noted how 'social resilience comes closest to the vision articulated by government ministers … getting volunteers to do the jobs we were once paid for' (Dobson, 2011).

Conversely, the formulation also has appeal for sentiments typically associated with the political 'left'. The impact of globalization – teamed with the influence of critical social scientific perspectives on neo-colonialism, imperialism, and elitism – has rendered many sensitive to the importance of cultural diversity and dynamics of local communities. To avoid cultural hegemony, 'outsider' accounts are increasingly suspect. 'Insider' accounts – based on the resources and 'resilience' of communities – are thus strongly favored and promoted, whether

reflected in popular political discourse (e.g. REDDIT, 2012) or guidelines for intervention (e.g. Inter-Agency Standing Committee, 2007).

Framing issues in terms of resilience is thus attractive to the political discourse of both 'right' and 'left'. That the 'zeitgeist' of the current period favors the conceptualization of resilience as a major factor in shaping public policy is not, of course, to deny that it may have legitimate and appropriate influence. However, it is appropriate to acknowledge in the review that follows – that focuses on the empirical basis for policy formulations utilizing the concept of resilience – that there are forces other than such evidence that are promoting its adoption.

What are the policy implications that are typically highlighted in studies focusing on the role of resilience? What are the principal sectors in which such work is located? What is the general evidential basis used for formulating policy recommendations? To what extent have policies themselves been subject to empirical review in terms of their impact? These are some of the key questions addressed by this review, based upon a structured analysis of a focal literature outlined in the next section.

Characteristics of literature on public policy implications of resilience

To identify a focal sample of literature on public policy implications of research on resilience and child well-being, a systematic search of journal articles accessible by Columbia University Library Services was conducted in November 2011. A total of 191 bibliographic databases are accessible through this system, including Medline, PsychInfo, Scopus and Social Science Citation Index. To identify a focal sample of literature on resilience and child well-being with an orientation toward public policy implication and government action the search terms specified were 'child*' (capturing child, children, children's etc.) and 'psych*' (capturing psychology, psychiatry, psychosocial etc.) and 'public policy' and 'government', along with the requirement for the term 'resilience' to appear in the title of the work. Clearly many papers of potential relevance were not captured by these terms. However, comprehensively documenting the focus and approach of the focal sample of studies identified by these search criteria was considered a sound basis to assess trends in works of relevance to the readership of the *Journal of Child Psychology & Psychiatry*. The search identified a pool of 114 papers. Three of these were excluded as book reviews, and for three papers full text versions could not be secured. This resulted in the identification of 108 papers as the corpus of work on which subsequent analysis is based.

As indicated by Table 2, the majority of these papers were reviews, presenting analysis on the basis of other work and literature. Only 22 papers presented primary quantitative data, with primary

Table 2 Number and percentage of studies by analytic form and systemic and sectoral focus of recommendations

Analytic Form	N^a	%	Systemic focus	N^a	%	Sectoral focus	N^a	%
Quantitative	22	20	Individual & family	66	61	Education	40	37
Qualitative	33	31	Community	48	44	Social & community work	21	19
Reviews	59	55	Institutional/Societal	64	59	Health and healthcare	15	14

[a]Sums to more or less than 108 on the basis of nonexclusive and nonexhaustive categories.

qualitative data (utilizing case studies or other methods) reported in a total of 33 papers.

There are a number of other ways to characterize this sample of literature, particular in relation to the foundations of their policy relevance. For example, with increasing emphasis on social ecological understandings of the influences on child well-being (e.g. Boothby, Wessells, & Strang, 2006; Reed, Fazel, Jones, Panter-Brick, & Stein, 2012) it is appropriate to consider the systemic levels at which analysis and intervention was focused. Table 2 shows that for 61% of papers, analysis was focused directly at the level of children and families, while 44% included analysis and intervention focused on community systems. Fifty-nine percent addressed broader institutional/societal systems (such as educational provision, healthcare or social welfare policy). The fact that these total to over 100% indicates the number of papers that addressed influences at multiple system levels. This distribution suggests that while the literature has a major focus on direct interventions with children and their immediate family milieu, a large number of papers do address broader ecological systems promoting child resilience.

For the papers with a specific sectoral focus for their recommendations, Table 2 also summarizes the distribution of studies across the three major sectors addressed in sampled studies: education, social and community work, and health and healthcare. While this distribution may partly reflect the particularities of the literature identified by the chosen search terms, it is suggestive of the relative strength of the evidence-based related to work in school environments.

Trends in policy recommendations

Compared with their expositions of theory, methodology, and findings, authors typically committed little space to elaborating concrete policy actions based upon their analyses. This lack of specific commitment to knowledge translation is an issue considered in more detail later. Nonetheless, given the search criteria used, most considered in some manner the question of policy relevance. What are the policy implications that were highlighted by these studies? Table 3 summarizes these with respect to six major themes, determined largely with respect to the eco-systemic level at which intervention is recommended. Twenty-six papers – approximately one quarter of all material reviewed – locate potential

intervention with respect to *strengthened family dynamics*. Such recommendation relate particularly to the development of parenting skills, but also to broader relationship support and creating 'positive family rituals and routines'.

A similar proportion of papers recommended *increased capacity for counseling and mental health services* available to support individual child and family functioning. Recommended developments ranged from increasing access to, and availability of, such services to promoting greater awareness within such services of protective factors and their contribution to resilience.

Reflecting the earlier observation of the large number of papers focusing on the education sector, nearly one third of papers made recommendations with respect to *encouraging supportive school environments*. There are a number of strands to such recommendations. These include developing a curriculum that strengthens social and emotional skills, engaging parents and other potential role models in school activities, and developing teacher skills to support socioemotional development in their pupils. Each of these represents influence of a discrete element of the school milieu in establishing an educational environment that is promotive of student resilience.

A quarter of papers recommend policy interventions targeted at *developing community programs*. These address broader social systems shaping the experience of children and youth. This includes recreational and after-school programming, as well as encouragement to engage resources from a range of community stakeholder groups including churches and health facilities.

Eighteen papers formulate policy recommendations regarding the wider *promotion of socioeconomic improvement*. These reflect awareness of the influence of broader social context on the trajectories of children and youth, and include recommendations addressed at provision of social welfare, action to improve housing conditions and the broader security of living environments, and addressing issues of ethnic identity. Within a social ecological framing, such influences represent the broadest influence on well-being, representing the socioeconomic environment in which community, school, service and family influences are played out. These include the major political and economic drivers that create a context of adversity for children, not just the mechanisms available to address such adversity (Eggerman & Panter-Brick, 2010).

Table 3 Predominant categories of policy recommendation

Policy recommendation	Referenced studies
Strengthen family dynamics (26) e.g. 'where parenting or care-giving is inadequate for optimal school socialization and coping, support needs to be given to students and parents', 'provide parent coping workshops', 'provide parenting skill training', 'provide communication workshops', 'support marital harmony', 'create positive family rituals and routines', 'create boundaries and discipline within households', 'encourage parent education and mental health', 'increase emotional happiness', 'encourage consistent parental supervision', 'create culture of family as support system', 'use parental monitoring'	Afifi & MacMillan, 2011; Aisenberg & Herrenkohl, 2008; Amatea et al., 2006; Boon, 2008; Cassen et al., 2008; Chassin et al., 2004. ; Daniel et al., 2007; Denham, 2008; Denny et al., 2010; Dishion & Connell, 2006; Doll & Lyon, 1998; Fallon & Shlonsky, 2011; Finkelstein et al., 2005; Gilligan, 2004; Henley, 2010; Herrman et al., 2011; Klassen et al., 2010; Luthar, 2003; Luthar & Brown, 2007; McAdam-Crisp, 2006; Monteith & Ford-Gilboe, 2002; Reis et al., 2005; Sandler et al., 2004; Svanberg, 1998; Zahradnik et al., 2010; Zhang et al., 2008
Increase capacity of counseling and mental health services (27) e.g. 'provide mental health counseling in schools', 'provide special programs for children with special educational needs', 'integrate different social services', 'make treatment and intervention programs for children more widely available in institutions and in communities', 'increase funding for mental health programs', 'provide more counseling and mental health training to teachers and social workers', 'incorporate narrative therapy', 'train counselors to identify protective factors', 'train counselors to evaluate family relationships', 'increase number of trained counselors and therapists in workforce', 'educate administrators to promote resilience'; 'mobilize culture-related resources for resilience through clinical intervention with individuals and mental health promotion with communities'	Afifi & MacMillan, 2011; Almedom, 2008; Almedom et al., 2005; Amatea et al., 2006; Berson & Baggerly, 2009; Caffo et al., 2008; Chassin et al., 2004; McAdam-Crisp, 2006; Fallon & Shlonsky, 2011; Finkelstein et al., 2005; Forman & Kalafat, 1998; Gilligan, 2004; Greenhill et al., 2009; Hamaoka et al., 2010; Kim et al., 2005; Kirmayer et al., 2011; Klassen et al., 2010; Knight, 2007; Luthar et al., 2000; Maeseele et al., 2008; McMurray et al., 2008; Monteith & Ford-Gilboe, 2002; Reyes & Elias, 2011; Solarz et al., 2004; Trickett et al., 2004; Ungar, 2005, 2008
Encourage supportive school environments (35) e.g. 'involve parents in school programs', 'create programs that facilitate expression of feelings', 'create peer and adult role model and mentorship programs', 'create curriculums of social competence', 'encourage class room participation', 'increase access to academically challenging programs', 'integrate reflection sessions into curriculum', 'train teachers to be emotionally supportive', 'provide remedial care', 'provide programs for special education', 'encourage personalized learning', 'encourage close teacher-student relationships', 'develop cultural competency in staff'; 'educators should help students to become aware of the culture of power and guide them through the strategies, conventions, and knowledge necessary for success; 'implement school-level reforms (e.g. school restructuring, reorganization) and district-level reforms (e.g. distribution of students across schools)'; 'provide resources, institutionalize supports, or structure access to mitigate constraint and reduce risk'	Aisenberg & Herrenkohl, 2008; Amatea et al., 2006; Berson & Baggerly, 2009; Brackenreed, 2010; Brown, 2001; Campa, 2010; Cassen et al., 2008; Crosnoe, 2005; Denny et al., 2004; Doll & Lyon, 1998; Forman & Kalafat, 1998; Greenberg, 2006; Grigorenko et al., 2007; Henley, 2010; Herrman et al., 2011; Howard et al., 1999; Kim et al., 2005; Knight, 2007; Li et al., 2011; Luthar & Brown, 2007; Masten et al., 2008; Meyer & Farrell, 1998; Mykota & Muhajarine, 2005; Nickolite & Doll, 2008; O'Connor, 2002; Reis et al., 2005; Reyes & Elias, 2011; Schoon & Bynner, 2003; Skovdal & Andreouli, 2011; Smith et al., 2004; Swanson & Spencer, 1991; Wasonga et al., 2003; Winfield, 1991; Zahradnik et al., 2010; Zhang et al., 2008
Develop community programs (26) e.g. 'provide recreational and after-school programs', 'coordinate community center and health facilities', 'self-help support programs', 'provide tutoring, mentoring, and after-school programs', 'establish programs where the youth are in the community', 'integrate church, community centers, and health facilities', 'involve community members in creation of community programs', 'utilize asset-based community development', 'identify and address community conditions that can improve health outcomes, 'use culturally based narratives to provide cognitive and rhetorical resources for Aboriginal communities', 'create a network of community gardens to strategically link the personal, political, and environmental'	Chassin et al., 2004; Clauss-Ehlers & Levi, 2002; Cox & Perry, 2011; Daniel et al., 2007; Davis et al., 2005; Denny et al., 2010; Herrman et al., 2011; Heldring, 2004; Kirmayer et al., 2011; Knight, 2007; Landau, 2007; Little et al., 2004; Lothe & Heggen, 2003; Luthar & Brown, 2007; Mafile'o & Api, 2009; Mykota & Muhajarine, 2005; Okvat & Zautra, 2011; Roberston-Hickling et al., 2009; Schilling, 2008; Schoon & Bynner, 2003; Skovdal & Andreouli, 2011; Svanberg, 1998; Swanson & Spencer, 1991; Vetter et al., 2010; Zahradnik et al., 2010; Zhang et al., 2008
Promote socioeconomic improvement (18) e.g. 'increase social welfare programs', 'promote positive ethnic identity', 'decrease violence and environmental risk factors', 'encourage asset-based community development', 'provide supplements to income', 'decrease poverty', 'create safe environments', 'encourage cultures of help', 'reduce health inequalities', 'create violence prevention programs', 'create positive perception of government services', 'increase access to technology and other tools to increase community operational capacity', 'provide quality low-cost housing', 'improve social and environmental characteristics of neighborhoods', 'develop extension services to foster the resilience of rural industries and their communities', 'interventions focusing on everyday social ecology – strengthening family and wider social networks – need to go hand in hand with interventions focusing on everyday material ecology'.	Aisenberg & Herrenkohl, 2008; Almedom, 2008; Bastagli, 2008; Bottrell, 2009; Brackenreed, 2010; Cassen et al., 2008; Davidson, 2008; Denny et al., 2010; Doll & Lyon, 1998; Eggerman & Panter-Brick, 2010; Hunt et al., 2011; Leadbeater et al., 2004; Lothe & Heggen, 2003; Perkins et al., 2003; Salaam, 2011; Seccombe, 2002; Sherrieb et al., 2010; Zimmerman et al., 1999

Table 3 Continued

Policy recommendation	Referenced studies
Adopt more comprehensive conception of resilience (26) e.g. 'encourage understanding of resilience as a process', 'shift from crisis intervention to primary prevention', 'standardize measurements of resilience', 'promote systems understanding of resilience', 'promote interactive model of resilience', 'integrate individual and contextual factors in evaluation and treatment', 'engage people in investigation of own well-being', 'develop alternative conceptualizations of resiliency to more appropriately contextualize the lived experiences of street life-oriented Black men', 'connect support systems and prevention', 'encourage use of social history in welfare', 'increase awareness of the importance of environmental factors to academic success', 'combine vulnerability and social capital theories to enhance policies, programs, and strategies for reducing the detrimental effects of natural disaster', 'acknowledge and incorporate much more explicitly the role of stakeholder agency and the processes through which legitimate visions of resilience are generated'.	Aisenberg & Herrenkohl, 2008; Almedom, 2008; Almedom et al., 2005; Bean et al., 2011; Brown, 2001; Canvin et al., 2009; Doll & Lyon, 1998; Durant, 2011; Edwards, 2007; Gartland et al., 2011; Jenson, 2007; Kirmayer et al., 2011; Landau, 2007; Larsen et al., 2011; Payne, 2011; Perez et al., 2009; Schoon & Bynner, 2003; Scourfield et al., 2008; Skovdal & Andreouli, 2011; Toland & Carrigan, 2011; Ungar et al., 2007; Ungar, 2005; Walsh et al., 2010; Windle, 2011; Zahradnik et al., 2010; Zhang et al., 2008

Finally, 26 papers – again, approximately one quarter – made recommendations with respect to the understanding of resilience. Calls for *adopting a more comprehensive conception of resilience* ranged from recommendations focused on incorporating a broader range of factors (e.g. environmental factors, social histories) in analyses, through calls for clearer operationalization and measurement of the construct, to greater awareness of the 'systems' nature of influences promoted by resilience.

Preliminary foundations for evidence-based policy

Only a minority of the papers identified through search criteria offered evidence regarding the impact of specific policy interventions. Table 4 summarizes the characteristics and findings of the 11 papers that did so. Clearly these studies reflect the particularities of the search criteria used in defining the focal sample of literature reviewed, and the potential evidence-base for interventions informed by the framing of resilience is much broader than this. Nonetheless, this focal sample is instructive regarding the basis, focus, and scope of resilience-focused policy recommendations.

For a number of the studies summarized in Table 4, for example, the specified 'policy intervention' is very much at the level of discrete programmatic intervention rather than broad policy initiative. For example, the studies of Roberston-Hickling, Paisley, Guzder, and Hickling (2009) and Vetter et al. (2010) each describe specific programmatic interventions which, while potentially scalable to a range of environments, are evaluated with respect to very specific conditions. Robertson-Hickling et al. (2009) describe a cultural therapy intervention in one primary school in Jamaica. Vetter et al. (2010) describe the impact of a series of one week camps focused on recreation, sport, and psychosocial rehabilitation for around one hundred Beslan children some two years after the school massacre.

In summarizing intervention across a range of contexts and institutions the studies of Finkelstein et al. (2005) and Grigorenko et al. (2007) more clearly represent 'proof of concept' of a policy initiative. Finkelstein et al. (2005) evaluated the impact of a family-focused integrated treatment approach with over one hundred at-risk families across four sites in the USA. Grigorenko et al. (2007), reflecting an approach focused on impacting children's resilience through intervention principally at the level of biological systems, examined the impact of medication and micronutrient and vitamin supplementation on over 4,000 children across two Districts of Eastern Province in Zambia.

The most general of initiatives are reflected in the papers of Knight (2007) and Nickolite and Doll (2008) where a policy approach is presented that has potential influence over interventions across a wide range of settings. Knight (2007) presents a resilience framework for shaping educators' strategies in Australian schools. Nickolite and Doll (2008) documents the impact of a ClassMaps Consultation, 'a consultation strategy that assesses the availability of protective factors and risk in school classrooms and supports interventions to strengthen these so that more students in the classroom are successful'. It is perhaps no coincidence that the broader the scope of the initiative the less concrete and rigorous the data marshaled in its evaluation appear to be. The evidence offered in support of the initiatives described in these papers is, for example, significantly weaker than that presented in the Vetter et al. (2010) and Finkelstein et al. (2005) studies.

However, it would be wrong to conclude that evidence cannot be found for wider policy initiatives. Sherrieb, Norris, and Galea (2010), in identifying potential indicators of community resilience from a focused study of counties in Mississippi, and Canvin, Marttila, Burstrom, and Whitehead (2009), in documenting through Grounded Theory resilience strategies amongst low-income households across 13 sites in the UK, both point to the potential for strengthening the evidence-base for interventions conceived at such scale.

Table 4 Identified evaluations of policy-related interventions

Article	Site	Policy intervention	Findings
Canvin et al., 2009	Individuals living in a deprived area or on welfare benefits in England and Wales	Treating resilience as a process in a social context when structuring social interventions	Family and community support, the attitudes and behavior of service providers that people encounter in their daily lives, and personal and community opportunities each identified as influential factors
Cox & Perry, 2011	Victims of McLure forest fire in British Columbia, Canada	Considering the role of place in disaster recovery process	Psychology of place – addressing issues of disorientation and disruption – is important for reestablishment of social capital and community resilience in disaster-affected communities
Davis et al., 2005	Vulnerable communities in New Mexico, California and New York	Community assessment toolkit for health and resilience in vulnerable environments (THRIVE)	Proved effective in engaging practitioners, residents and government agencies in identifying key community priorities across all sites
Finkelstein et al., 2005	American children of women with histories of abuse, addiction, and mental illness	Self-care and interpersonal behavior skill building groups	Programs improved children's behavior, knowledge, and feelings of safety
Grigorenko et al., 2007	Zambian schools	Children received medicine, nutrition supplements, and health education	With reduced risk of ill health because of intestinal parasites or malnutrition, students performed better on cognitive assessments predictive of school success, contributing to children's resilience to other risk factors
Knight, 2007	Australian schools	Range of school-based resilience education programs	One program had a significant impact on school ethos and culture; another enhanced connection to communities, strengthened problem solving, and reduced isolation
Meyer & Farrell, 1998	American sixth graders in high-risk urban environment	Violence prevention education program	Program reduced violence among both girls and boys
Nickolite & Doll, 2008	North American primary schools	Student assessment of teacher and classroom success	Consultation inspired changes that improved academic efficacy and peer relationships
Roberston-Hickling et al., 2009	Inner-city primary school students in Jamaica	Cultural therapy program in school	Students reported higher self-esteem and displayed better behavior, literacy, and numeracy after program
Sherrieb et al., 2010	Mississippi counties	Indicator of economic development and social capital to measure community resilience	Indicator correlated with archival and survey measures of resilience, offering ability to predict a community's ability to 'bounce back' from disasters
Vetter et al., 2010	Beslan school after terrorist attack	Outdoor experience and life skill counseling program	Program increased overall self-reported resilience levels, with hostages experiencing greater gains than nonhostages

Implications for public policy

Notwithstanding constraints on generalization from a focal sample of literature determined by particular search criteria, there are a number of trends identified in the above analysis of potentially broader relevance. The literature identified as supporting policy recommendations to promote child resilience is characterized by a breadth of sectoral engagement across the fields of education, social work, and health. It also demonstrates diversity with regard to the systemic level – biological, psychological, communal (including systems of faith and cultural identity),

institutional and societal – with which it engages. However, the direct empirical basis for policy recommendation is rather weak, with a minority of papers grounded in quantitative or qualitative findings. The majority of papers formulate policy recommendation on the basis of conceptual argument, albeit often based upon other published literature.

The extent to which policy recommendations are based on conceptual argument from pre-existing work is a concern given the earlier observation that the construct of resilience fits the current *zeitgeist* of public services. With such a conducive policy environment there is a danger that the rhetoric of thinking in terms of resilience drives developments rather than a more reasoned, empirical approach. It is in the longer-term interests of those working in the field that the concept of resilience becomes an empirically grounded principle across a range of settings and contexts, rather than a 'catch-all' conceptualization based on a very narrow empirical base.

Where rigor has been demonstrated in the documentation of impacts of efforts to promote resilience these tend to be with respect to more focused programmatic interventions in specific contexts rather than with wider policy initiatives. While there are clear pragmatic benefits in evaluating focused, small-scale interventions, it would be inappropriate to conclude that strategies to evaluate broader policy initiatives are inaccessible. In addition to the studies noted here that have utilized innovative means to potentially inform policy evaluations, Dawes and colleagues in South Africa have, for example, identified a wide range of indicators related to child well-being and resilience that may be collated from routine data collection from many public services (Snider & Dawes, 2006; Dawes, Bray, & van der Merwe, 2007).

The other major constraint notable from the above review is the limited exploration of resilience reflecting the influence of complex adaptive systems. Complex adaptive systems are 'systems that involve many components that adapt or learn as they interact' (Holland, 2006). Growing interest in the field of complexity theory has seen complex adaptive systems thinking applied to biological systems, ecological systems, organizational systems, social systems, economic systems and, increasingly, the interaction between such levels of analysis. As reflected elsewhere in this annual review, a significant advance in thinking about resilience has been the increasing adoption of frameworks reflecting interaction of such multiple adaptive systems (Masten & Powell, 2003; Ager et al., 2010; Panter-Brick & Eggerman, 2012). Indeed, the nesting of biological, psychological, familial, communal, institutional, and societal systems forms the core social ecological principle of much contemporary thinking regarding resilience. In these terms, resilience is not just a result of the accumulation of a range of 'protective factors', but such factors are embedded within one of a number of self-regulating systems that influence capacity to respond to threat and loss.

Although a number of reviewed studies considered interventions targeted at more than one ecological system (e.g. O'Connor, 2002; Okvat & Zautra, 2011), there were recurrent calls in this literature to acknowledge a more nuanced systems understanding of social ecological influences (e.g. Aisenberg & Herrenkohl, 2008; Ungar, 2008; Toland & Carrigan, 2011). As it stands, the majority of studies continue to reflect an 'additive' model of risk and resilience (with accumulation of protective factors serving to mitigate risks of vulnerability) rather than a truly systemic one. Few studies articulated the principle of connection across levels and systems more powerfully than Eggerman and Panter-Brick (2010) when they summarize the policy-relevant message of the Afghan communities with which they worked as 'there is no health without mental health, no mental health without family unity, no family unity without work, dignity, and a functioning economy, and no functioning economy without good governance' (p.83).

Box 1: Key messages for policy makers regarding resilience

Starting point is strengths and resources rather than risks and vulnerability

Resources supporting developmental outcomes can be drawn from across biological, psychological, familial, communal, institutional and societal domains

These domains each represent discrete, but connected, adaptive systems:

1   Because the systems are connected, interventions in one domain can have influence in another

2   Because the systems are adaptive, they self-regulate by deploying available resources to compensate for lost resources

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Box 1 seeks to summarize the key insights offered by the framing of child well-being and development using the construct of resilience. It seems from the above review that current research literature is offering a strong platform to support communication the first two of these 'messages'. However, the third 'message' – concerning engagement with connected adaptive systems – is less clearly substantiated in the current literature. The complexity of this third point is clearly a barrier to its effective utilization, illustration, and communication. However – as argued in the next section – it is vital to address this challenge if the language of resilience is not to be simply used to 'repackage' established knowledge regarding the role of protective factors in supporting children's development outcomes.

Strengthening research-policy linkage

The challenge of ensuring that research findings shape public policy is widely recognized (Bennett & Jessani, 2011). However, in the context of resilience this challenge is somewhat distinctively presented. In many contexts, a major issue is getting issues of concern to researchers on the agenda of policymakers. It is clear, however, that the policy-making environment is already conducive to approaches informed by the idea of resilience. The 'gap' between research and policy is not then so much related to a barrier or resistance to adoption of evidence, rather it concerns the nature of the evidence currently made available and manner of its presentation.

Essentially, the literature reviewed is adequate to promote continued policy interest with regards to resilience, but inadequate to guide policymakers beyond the 'established ground' of the first two messages noted in Box 1 to engage purposefully and productively with the third. What strategies would result in public policy makers being better equipped to determine policy that would strengthen resilience? Box 2 identifies three responses to this question.

Box 2: Key strategies to strengthen evidence-base of public policy promoting resilience

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Greater commitment to operationalize indicators of resilience at biological, psychological, familial, communal, institutional and societal levels

More coherent engagement with the policy making process through explicit knowledge translation initiatives

Developing complex adaptive systems models amenable to exploring policy scenarios

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First, it is clear that more empirical studies documenting processes of resilience across multiple eco-systemic levels are required. One of the key requirements for such work is the operationalization of indicators across such levels of analysis and potential intervention. To move beyond a 'framework' approach to resilience to one where established trajectories of influence are reliably documented – and then used to shape policy initiatives – requires replicable means of defining and measuring key variables. Although many of the reviewed studies lacked such concrete operationalization of variables, across the sample of studies reviewed there were a number of examples of promising practice (notably the range of data sources identified by Sherrieb et al., 2010; and the key variables documented by Masten, Herbers, Cutuli, & Lafavor, 2008). This sensitivity to the documentation of key resources for resilience is also reflected in recent attempts to map resources, capacities, and dynamics associated with local faith communities and cultural groups beyond the reductionist lens of social capital (Joint Learning Initiative, 2012; Eggerman & Panter-Brick, 2010;

Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011).

The capacity to bring valid, relevant, and reliable indicators of key processes into policy discussions is a major potential contribution of the research community at this stage. A number of policy initiatives have recognized this need. For example, UNICEF has adopted resilience as a major framing theme in its humanitarian work with children. UNICEF has progressed to define key dimensions of community resilience targeted through its work: flexibility, diversity, adaptive learning, collective action and cohesion, and self-reliance (UNICEF, 2011). However, this policy document acknowledges: 'a key challenge remains: measuring resilience' (UNICEF, 2011, p.3), and UNICEF is thus currently exploring mechanisms to operationalize these dimensions in the context of concrete field operations.

Secondly, researchers need to more coherently engage with the policy making process through explicit knowledge translation initiatives. The work of IDRC, Canada is exemplary in this regard. Within the fields of health, agriculture, and environment IDRC has a long track-record of promoting the translation of research findings into policy and practice (IDRC, 2012). Principal among the lessons learned from such work is that there are major challenges with both the 'push' model of knowledge transfer (where researchers seek to identify policy consumers for their work) and the 'pull' model (where policymakers commission research related to current agendas). Rather, mechanisms of 'knowledge brokering' are required, which coordinate the supply of, and demand for, research evidence (Bennett & Jessani, 2011).

Such 'knowledge brokering' is based upon an understanding of the motivations and constraints of both the research community and policy makers. With regard to the latter, for example, it involves the recognition that policy makers evaluate 'evidence' in a complex context of competing political, cultural, economic, and pragmatic concerns (Bennett & Jessani, 2011). However, researchers understanding the manner in which a well-crafted, well-timed policy brief may support development of a new policy initiative are likely to be more effective in translating their findings into the public arena (Canadian Health Services Research Foundation, 2003). Key mechanisms for such knowledge brokerage involve bringing research and policymakers together at formative stages of their thinking, enabling the establishment of trust through regular networking, such that cyclical processes of proposal, critique, and refinement are mutually established for researchers and policymakers.

Thirdly, perhaps the most effective route to establishing such brokering relationships will be through researchers developing complex adaptive systems models amenable to the exploration of

discrete policy scenarios. The field of public health has seen significant interest in the field of complex adaptive systems over the last decade (e.g. Trochim, Cabrera, Milstein, Gallagher, & Leischow, 2006; Galea, Riddle, & Kaplan, 2010; Hill, 2011). One of the most interesting aspects of this development has been the emergence of simulation models that utilize research findings to explore diverse policy scenarios (e.g. Milstein, Homer, & Hirsh, 2010). Such work demonstrates the potential for issues framed with respect to complex adaptive systems to be made accessible for policy makers in a tangible and action-oriented manner. Policymakers join researchers to reflect on the parameters assigned to functions within a model, and explore the impact of alternative policy choices by running alternative scenarios. Given the strong influence of culture and context in shaping understandings of the ecological nesting of systems in any particular setting, the engagement of communities alongside researchers and policy makers is likely to be a key feature of resilience- focused applications of such analyses.

Furthermore, the potential of developing models of complex adaptive systems – whether these be focused on inner-city youth environments or of community functioning post disaster – is that such initiatives provide a means of drawing together conceptual formulation, indicators, and findings from across a broad interdisciplinary range of studies. Such consolidation– required as values of, and relationships between, variables in the model are estimated – promises to draw together the emerging science of resilience as well as promote its utilization in policy.

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Key points

- There has been exponential growth in utilization of the concept of 'resilience', a trend reflected both in academic literature and policy discourse. Widespread use of the term reflects, in part, its potential synergy with a number of disparate agendas.
- The literature reviewed suggests a number of constraints of current evidence as a basis for policy formulation regarding child well-being and resilience. In particular, there is a lack of robust – quantitative and/or qualitative – empirical studies; the focus of evaluations is typically more on discrete interventions than wider policy initiatives; and the potential complex adaptive systems focus of resiliency is seldom explored.
- A greater focus on research-policy linkage is required. This should involve a greater commitment to analysis at multiple eco-systemic levels, more explicit engagement in knowledge transfer initiatives and exploration of the involvement of policymakers through systems simulations.

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