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The construct of resilience: Implications for interventions and social policies

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Abstract
The focus of this article is on the interface between research on resilience—a construct representing positive adaptation despite adversity —and the applications of this work to the development of interventions and social policies. Salient defining features of research on resilience are delineated, as are various advantages, limitations, and precautions linked with the application of the resilience framework to developing interventions. For future applied efforts within this tradition, a series of guiding principles are presented along with exemplars of existing programs based on the resilience paradigm. The article concludes with discussions of directions for future work in this area, with emphases on an enhanced interface between science and practice, and a broadened scope of resilience-based interventions in terms of the types of populations, and the types of adjustment domains, that are encompassed.

As we confront the substantial health care challenges posed in the new millennium, utilization of the growing knowledge base on resilience can be vital in guiding social policies to promote the well-being of disadvantaged, high-risk individuals in our society. The provision of treatment to children, adolescents, and adults with mental disorders poses a great economic burden for society (Institute of Medicine, 1985, 1989, 1994). Moreover, mental disorder, maladaptive functioning, and misery entail the waste and vast erosion of human potential. Recognizing these issues, a number of scholars have contended that it is far more prudent to promote the development of resilient functioning as early as possible in the course of development than to implement treatment strategies designed to repair existing disorders among high-risk individuals (Cowen, 1991, 1994, 1999; Knitzer, 2000a, 2000b; Luthar, 2000; Luthar, Cicchetti, & Becker, 2000; Rutter, 2000; Werner, 2000). Additionally, as our society is increasingly becoming multicultural, it has become essential to discover the processes contributing to resilient adaptation in individuals from diverse cultural, ethnic, and racial backgrounds (García Coll, Lamberty, Jenkins, McAdoo, Crnic, Wasik, & Vásquez García, 1996). Knowledge of these divergent developmental pathways can enable scientists to implement more culturally sensitive preventive intervention strategies to foster the development of resilient adaptation within diverse exosystemic contexts.

In this article, we discuss the interface between research on resilience and the development of interventions and social policies.We begin by providing an operational definition of the term "resilience" and describe briefly

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the critical features of research on this construct. Next, we examine the advantages, limitations, and precautions associated with the application of the resilience framework to the development of preventive and health-promoting interventions. Third, we delineate guiding principles for the effective application of empirical findings on resilience to designing interventions. We conclude the paper by highlighting several issues that we believe are crucial in enhancing the interface between research on resilience and the implementation of effective social policy.

Research on Resilience: Central Features

Definition of the construct

Resilience is a dynamic process wherein individuals display positive adaptation despite experiences of significant adversity or trauma. This term does not represent a personality trait or an attribute of the individual (Luthar et al., 2000; Masten, 1999; Rutter, 1999, 2000). Rather, it is a two-dimensional construct that implies exposure to adversity and the manifestation of positive adjustment outcomes.

The two pivotal constructs subsumed within the term "resilience" each have specific operational definitions in contemporary research. *Adversity*, also referred to as risk, typically encompasses negative life circumstances that are known to be statistically associated with adjustment difficulties. Chronic exposure to community violence, for example, constitutes high risk given that children experiencing this life condition reflect significantly greater maladjustment than those who do not (Garbarino, 1995; Lynch & Cicchetti, 1998; Osofsky, 1995; Richters & Martinez, 1993).

Positive adaptation, the second construct, is usually defined in terms of behaviorally manifested social competence, or success at meeting stage-salient developmental tasks (Luthar & Zigler, 1991; Masten, Best, & Garmezy, 1990; Masten & Coatsworth, 1998; Waters & Sroufe, 1983). Among young children, competence may be operationally defined in terms of the development of a secure attachment with primary caregivers, and, among older children, appropriate indices include aspects of school-based functioning, such as good academic performance and positive relationships with classmates and teachers.

High social competence is not, however, the only or even necessarily the preferred index used to define successful adaptation in resilience research; sometimes, the mere absence of emotional or behavioral maladjustment is appropriate (Luthar et al., 2000; Rutter, 1999). The optimal outcome indicators are those that are conceptually most relevant to the risk encountered, so that when there are serious life adversities such as exposure to war, the absence of psychiatric distress can be a more logical outcome than excellence in functioning at school (Luthar & Cushing, 1999).

Resilience research: Central objectives

The resilience researcher is typically invested in identifying *vulnerability* and *protective factors* that might *modify* the negative effects of adverse life circumstances and, having accomplished this, in identifying *mechanisms* or *processes* that might underlie associations found (Luthar, 2000). Each of the pivotal terms subsumed within this broad statement of objectives is explained in turn.

Vulnerability factors or markers encompass those indices that exacerbate the negative effects of the risk condition. Among youth living in the ecology of urban poverty, for example, male gender can be a vulnerability marker (see Kraemer, Kazdin, Offord, Vessler, Jensen, & Kupfer, 1997), for boys are typically more reactive than girls to negative influences within the community (see Luthar, 1999; Moffitt & Caspi, in press; Spencer, Cole, DuPree, Glymph, & Pierre, 1993). For children experiencing severe and chronic life adversities, those with low intelligence are more vulnerable to adjustment difficulties over time than are others (Masten, Hubbard, Gest, Tellegen, Garmezy, & Raminez, 1999; Rutter, 2000).

Protective factors are those that modify the effects of risk in a positive direction. Exam-

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ples include an internal locus of control or having a positive relationship with at least one adult. Within groups of youngsters exposed to significant adversities, those with such attributes frequently fare better than youth who lack them (see Beeghly & Cicchetti, 1994; Cohler, Stott, & Musick, 1995; Luthar & Zigler, 1991; Masten et al., 1990, 1999; Rutter, 1999; Toth & Cicchetti, 1996; Werner & Smith, 1992).

Vulnerability and protective factors can each derive from multiple levels of influence: the community, family, and the individual (Cicchetti & Aber, 1986; Cicchetti & Lynch, 1993; Luthar & Zigler, 1991; Masten et al., 1990; Werner & Smith, 1992). Examples of community-level influences include exposure to violence in the neighborhood (vulnerability) and supportive relationships with adults in the school (protective). At the level of the family, relevant examples include inconsistent or harsh parental discipline, as opposed to emotionally responsive caregiving. Individual attributes that can exacerbate vulnerability to stressors include poor impulse control or low intelligence, whereas protective attributes include a high sense of self-efficacy or an easy-going temperament.

Whether a particular construct is labeled a vulnerability factor, protective factor, or both depends on where central effects lie. It would be appropriate to refer to low IQ as a vulnerability factor, for example, if children with low intelligence displayed significantly compromised adjustment (e.g., as indicated by outcome scores falling substantially below average group scores). On the other hand, if highly intelligent youth reflected substantial advantages compared to those with average or low intelligence (e.g., competence outcome scores of +1 *SD* or more), then high IQ would represent a protective factor. If both negative and positive consequences are apparent (e.g., at polar ends of the continuum of IQ scores), then the terms "vulnerability" and "protective" can be used interchangeably (see Rutter, 1990, and Stouthamer–Loeber, Loeber, Farrington, Zhang, van Kammen, & Maguin, 1993, for additional elaboration on issues of terminology).

Vulnerability and protective factors may operate in simple additive ways, or in interactive models. In additive or "main effect" models, the construct in question is found to display significant links with adjustment indicators, with these associations going beyond those between the risk condition and the outcome variable. Interactive models, on the other hand, presuppose associations between the vulnerability–protective factor and the outcome that differ in strength, depending on the presence versus absence of the risk condition. To illustrate, protective–stabilizing effects are indicated if individuals with the attribute show positive adjustment at low *and* high levels of risk, whereas those without the attribute show poorer adjustment at high than at low risk levels. Detailed descriptions of main effect and interactive models, along with associated terminology, have been provided by Luthar and colleagues (2000).

Finally, resilience research involves a progression from an empirical identification of vulnerability or protective factors to an exploration of processes underlying their effects. As an initial step, the resilience researcher simply attempts to identify constructs linked with relatively positive or negative outcomes among particular at-risk groups. Having done this, the next phase—an essential one for this generation of researchers (Luthar et al., 2000; Masten, 1999; Masten & Coatsworth, 1998; Rutter, 1999, 2000; Werner & Johnson, 1999; Wyman, Cowen, Work, Hoyt–Meyers, Magnus, & Fagen, 1999)—entails efforts to understand the mechanisms that might explain the effects of salient vulnerability or protective factors. Parental mental illness can confer vulnerability, for example, due to disturbances in specific parenting behaviors such as those relating to discipline or the expression of affection (Cicchetti & Toth, 1995; Downey & Coyne, 1990; Luthar & Suchman, 2000).[1] Social support might protect against stress by enhancing children's self-esteem, in-

1. See Rende and Plomin (1993), Rutter (2000), and Rutter, Silberg, O'Connor, and Simonoff (1999) for discussions of genetic factors that might underlie links between adjustment status of parents and their children.

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creasing their perceptions of control, or strengthening their sense of security (Barrera & Prelow, in press; Sandler, Miller, Short, & Wolchik, 1989; Wyman, Sandler, Wolchik, & Nelson, in press).

Applying the Resilience Paradigm to Social Policy: Advantages, Limitations, and Precautions

Given its central focus on factors that modify the effects of high-risk conditions, research on resilience possesses obvious potential for guiding interventions and social policies. We discuss here the broad advantages of applications of this framework, followed by associated limitations, caveats, and precautions.

Advantages in applying the resilience paradigm

The resilience framework serves to *direct interventionists to empirical knowledge regarding the salience of particular vulnerability and protective processes within the context of specific adversities*. This framework helps to organize the scientific evidence concerning factors that may differentially alter the effects of various high-risk conditions and adversities, thus yielding specific directions for intervention efforts.

At a macrolevel, this function is useful in demarcating factors that exert substantial effects in the presence of adverse life circumstances but are less potent in the absence of risk. An example is positive experiences at school. Researchers have demonstrated that extracurricular activities and supportive relationships with teachers tend to be more beneficial for youngsters raised in institutions (Rutter, 2000) and in urban poverty (Dubois, Felner, Meares, & Krier, 1994; Dubois, Felner, Brand, Adan, & Evans, 1992) than for "low-risk" youth from more mainstream community families. Ostensibly, children in such stress-laden environments encounter relatively few experiences in their everyday lives that engender a positive sense of well-being, so that when such experiences do occur they can have a marked effect on children's adjustment (Luthar, 1999; Rutter, 1999, 2000).

Conversely, some forces can have substantive effects in the absence of salient environmental risks but have relatively weak effects in their presence. Luthar and colleagues (2000) illustrate this with data on mother–child interactions. Among most mothers, perceptions of their children tend to shape how they behave with their children, so that disruptive child behaviors, for example, elicit negative maternal reactions. On the other hand, for mothers living in poverty the powerful stressors these women face on an ongoing basis often detract from the salience of particular child behaviors (Dumas & Wekerle, 1995). What is usually a significant vulnerability factor (i.e., child disruptive behavior) may do little to explain variations in the type of parenting displayed by a poor mother toward her children.

At a microlevel as well, research evidence on resilience has important functions in that it demarcates areas of heightened significance among groups facing *particular types* of adversities. To illustrate, strictness of parental monitoring is linked with positive adjustment outcomes among adolescents in poverty, yet it is not necessarily protective for middle-class children who contend with familial risks such as parental depression. Similarly, assuming the blame for the parents' mental illness is a serious vulnerability factor for offspring of depressed mothers yet may be far less salient for children exposed to exosystemic risks such as chronic community violence or war.

The importance of careful attention to empirical evidence on context-specific vulnerability and protective effects is underscored by findings that forces that appear to be unequivocally beneficial can have negative ramifications in some circumstances, as well as the converse (Luthar, 1999; Rutter, 2000). For example, high peer status is typically beneficial for children's overall adaptation. Among inner-city youth, however, it has been found to be linked with repudiation of conventionally conforming behaviors, such as academic effort (Luthar, 1995). Whereas intelligence is generally beneficial, in the presence of adverse psychosocial forces such as limited opportunities to apply talents toward legal pur-

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suits, it can exacerbate adaptational problems (Freitas & Downey, 1998; Luthar, 1999).

Distinguishing features of the construct of resilience

In considering the points raised in the preceding section, one might argue that the construct of resilience does not have to be invoked in demarcating relevant empirical evidence: from a taxonomic perspective, one might simply rely on the broad category of knowledge on vulnerability and protective factors that modify the effects of risk. Without question, the term "resilience" is not indispensable. There have been scores of scientifically productive research studies that have illuminated processes operating among particular at-risk groups that have never mentioned resilience.

The construct of resilience does, however, connote some features, both in basic science as well as in applied intervention science, that distinguish it as unique in conducting research with groups of individuals experiencing adversity. First, the resilience framework implies a focus on positive outcomes and not just negative ones (Luthar et al., 2000). Of central interest are not only adaptational failures (traditionally focused on in research with groups at high risk; Cicchetti, 1993) but also, and more importantly, positive adaptational outcomes and their antecedents (Garmezy, Masten, & Tellegen, 1984; Luthar & Zigler, 1991; Masten, et al., 1990). From an intervention—policy perspective, therefore, applying this framework implies an implicit shift of emphasis to encompass primary prevention, rather than simply attempting to ameliorate serious maladjustment after it has already crystallized (Cowen, Hightower, Pedro–Carroll, Work, Wyman, & Haffey, 1996; Rolf & Johnson, 1999; Sroufe & Rutter, 1984; Windle, 1999).

Second, even in instances where problems *have* already crystallized, the resilience framework entails an emphasis not only on deficits but also on areas of strength (Luthar, 2000). This is illustrated in work with substance-abusing mothers, a group typically characterized by various parenting deficits and personal psychopathology. Without minimizing their problems, applying a resilience paradigm implies attention to assets among these women: strengths such as high concern for their children's welfare (often a driving force for addicted mothers to seek treatment) and tendencies to regret past parenting "mistakes" (which can be harnessed in motivating positive change; see Luthar & Suchman, 2000). From an intervention standpoint, therefore, applying the resilience perspective implies efforts to harness notable strengths of "vulnerable populations" to derive significant impetus for positive change.

A third critical feature is that work on resilience connotes a commitment to understanding processes that underlie the effects of vulnerability and protective factors. As we have noted earlier, for researchers in this area the identification of forces that show significant links with adjustment outcomes constitutes only the initial step in their work. The ultimate goal is to illuminate which of various potential mechanisms are implicated in the effects of these vulnerability or protective factors, such that appropriate directions for intervention can be derived.

In summary, the term "resilience" represents a parsimonious label for a scientific approach that has multiple distinguishing features. Applying the resilience framework implies attention (a) to positive outcomes in the presence of adversity rather than positive adaptation in general and, more specifically, (b) to empirically derived knowledge about vulnerability and protective mechanisms that are salient within, and possibly unique to, particular risk conditions. From an intervention perspective, the implication is (c) a shift away from maladjustment to consider competence as well (thus implicitly emphasizing prevention), (d) attention to at-risk individuals' strengths in addition to their "deficits", and (e) systematic exploration of processes that might explain or underlie links involving empirically identified vulnerability and protective factors.

Problems and precautions in applying the resilience framework

As with any construct, the overall yield of work on resilience can be significantly com-

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promised if efforts in the area do not conform to stringent scientific standards, and in recent years various conceptual and methodological problems have been identified in research on this topic. These include variations in use of terminology by different investigators; diversity in methods used to operationalize risk, competence, and the association between these constructs; and insufficient attention to theory in empirical efforts (see Luthar, 1993; Luthar et al., 2000; Luthar & Cushing, 1999; Masten, 1999; Rutter, 1990, 2000). Identification of these problems have led to delineation of specific precautions that must be observed by researchers and theorists in future work on this construct (e.g., Luthar et al., 2000).

In this paper, we do not reiterate concerns generally relevant to the scientific study of resilience but address only those that pertain specifically to applications of this work toward informing interventions and social policies.We consider, in turn, issues related to resilience researchers' presentation of their findings, practitioners' attempts to apply what this research has revealed, and fiscal considerations related to the use of multipronged preventive interventions to foster resilient adaptation.

Presentation of scientific work on resilience. From the standpoint of interventions and policies, perhaps the most prodigious problem in applying the resilience framework is that this construct can be misinterpreted as representing a personal attribute of the individual (Luthar, 2000; Luthar et al., 2000). Several scientists have warned that invoking the term "resilience" may be perceived as suggesting that if only children had a particular trait, or if only they displayed particular behaviors, then they could withstand adversities. Such perspectives can inadvertently pave the way for blaming the individual for not possessing characteristics needed to function well (Masten, 1994; Pianta & Walsh, 1998; Reynolds, 1998; Tarter & Vanyukov, 1999) and can lead some political leaders to justify limited protection to children from conditions of poverty, maltreatment, and distress (Pianta & Walsh, 1998), with the rationale that children should "be responsible for forging their own Horatio Alger pathway through risk and toward success" (Doll & Lyon, 1998, p. 360).

To help avert such potentially damaging misunderstandings, Luthar (2000) delineated several precautions relating to scientific presentation of work on resilience. First, every research report should include a clear operational definition of the construct, specifying at the outset that resilience is a process or phenomenon (of positive adaptation despite adversity), and explicitly clarifying that it is not a personal characteristic of the individual (e.g., Egeland, Carlson, & Sroufe, 1993; Luthar et al., 2000; Masten, 1994; Pianta & Walsh, 1998; Rutter, 1999). Relatedly, it is useful to avoid using the term "resiliency" in presenting findings on competence despite adversity, because this term carries the connotation of a personality characteristic even more so than does the term "resilience" (Luthar et al., 2000; Masten, 1994).

Second, scientists would do well to avoid using the term "resilient" as an adjective to characterize children in their reports, and apply it, instead, to profiles or trajectories of adaptation. Admittedly, some researchers (e.g., Luthar et al., 2000) have clarified that used thus, the term does not imply a trait, as would, say, the phrase "an intelligent child." Rather, it implies dual references to a life condition (as might the phrase "at-risk youth") and conjointly, evidence of positive adaptation. While such clarifications may be noted by the readership of particular scientific journals, they are likely to go unnoticed by the large numbers of nonacademic stakeholders interested in resilience. Thus, there remains a danger that many policymakers, media representatives, and members of the lay public will (quite reasonably) rely on the vernacular connotations of the term "resilient," viewing it as exceptional sturdiness of some youth.

In view of such concerns, Luthar (2000) suggested that it is most prudent for scientists to stay away from phrases which focus on the child—such as "resilient youth" or "fostering resilience in children"—and refer, instead, to resilient adaptation, profiles, or trajectories. In situations that necessitate reference to individuals or to groups of children (e.g., in reports involving person-based statistical analyses),

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somewhat qualified descriptors might be used such as "apparently or manifestly resilient" youth or, still more simply, "behaviorally competent" or "emotionally health" youngsters.

Finally, in discussing findings that particular personal attributes serve protective functions (e.g., sense of optimism, or internal locus of control), it is important that researchers include, as appropriate, precautionary statements that these attributes are not indelibly implanted in children; rather, they are substantially shaped by life circumstances. This point is illustrated with findings on attributional biases among disadvantaged, minority youth. Sandra Graham and her colleagues have established that these youngsters display high levels of aggressive behaviors when they have negative attributional biases (i.e., when these high-risk youth erroneously infer that intentional aggression underlies the actions of their peers; Graham & Hoehn, 1995; Graham & Hudley, 1994). These findings might tempt one to conclude that if only children were able to make "appropriate" attributions they would then display resilient adaptation. The investigators explicitly note, however, that these biases themselves often arise from ongoing life experiences, for a child's readiness to assume intentionality for others' aggression often represents a genuine strategy for coping with daily life in poverty. With frequent use, such strategies become part of how youngsters generally interpret their social worlds, extending even to situations when they are unnecessary (Graham & Hudley, 1994).

When resilience researchers discuss the relevance of their findings to interventions and policies, therefore, it is critical to explicitly note that children cannot "make themselves" enduringly resilient (Luthar, 2000). Without doubt, the resilience paradigm encompasses views of children as active agents who can substantively affect their own life circumstances (e.g., via the effective use of internal or external resources; Cicchetti & Rogosch, 1997; Egeland et al., 1993; Rutter, 1999; Werner, 2000; Wyman et al., 1999). On the other hand, as Seligman's (1975) classic experiments on learned helplessness established, continued onslaughts from the environment can disable the strongest. In all instances where individuals' strengths are identified as serving protective functions, therefore, researchers must note that many personal characteristics that may seem to reside in the child are in fact continually shaped by interactions between the child and aspects of his or her environment (Pianta & Walsh, 1998; Resnick, 1994).

In addition to observing such precautions in presenting scientific data, we believe that resilience researchers also must make concerted efforts toward proactive and responsible dissemination of their findings outside of the scientific literature. Citing various potential misinterpretations of work in this area (e.g., that resilience is a personal trait), some scholars have argued for revocation of resilience as a distinct field of scientific inquiry (see Luthar et al., 2000). Whether individual scientists elect to endorse the study of resilience or not, however, it is quite clear that this is a construct with inherent appeal for many people, due to its optimistic overtones, and is a notion that is already widely discussed in the popular press as well as among practitioners across various domains of service delivery (see Benard, 1999; Doll & Lyon, 1998; Kumpfer, 1999; Pianta & Walsh, 1998). As legislators and agency directors, as well as the lay public, tend to be highly influenced by media reports (McCall & Groark, 2000; Zigler, 1998), we believe that it is critical that scientists responsibly convey the extent of their knowledge about resilience, warding off incorrect views such as "resilience implies invincibility" or "if only children tried hard enough, then they could be resilient."

It also is critical that scientists present their findings in ways that policymakers as well as lay people find easily comprehensible (Luthar, 1999; Scott, Mason, & Chapman, 1999; Zervigon–Hakes, 1998; Zigler, 1998). There is a need to distill in simple terms the substantive message in the results (i.e., what they reveal), and also to anticipate and ward off potential misinterpretations of the data (i.e., what they do *not* indicate). In the interest of such goals, McCartney and Rosenthal (2000) have urged scientists to comment not only on

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the statistical significance of findings but also their practical significance, based on overall effect sizes as well as design features that may have artificially attenuated these (e.g., measurement error or restricted variance). These authors presented a strategy called the Binomial Effect Size Display, which can help researchers to translate statistical effect sizes into pithy terms that are readily understandable by policymakers and the public (e.g., in terms of overall "success rates" among intervention groups vs. comparison groups).

Finally, presentations of data should be designed to maximize interest of, and receptivity by, different nonscientific audiences. Paraphrasing the words of Edward Zigler, pioneer in the arena of social policy, McCall and Groark (2000) noted that policymakers want succinct summaries of findings, with conclusions presented first, very few details, and a single illustrative example. The general public, on the other hand, wants information that relates to their own experiences and is presented in a manner that piques their personal interest. Other scholars have argued for enhanced efforts to present empirical evidence in jargon-free language, with the life circumstances of vulnerable populations captured in three-dimensional, humanized terms rather than simply with diagnostic labels and abstruse technical terms (Cicchetti & Toth, 1993; Huston, 1994; Knitzer, 1996; Luthar, 1999). In future years, the achievement of such important goals, related to both clarity of presentations and their capacity to captivate various audiences, can be facilitated if scientists were to collaborate with policy advocates in preparing reports specifically intended for nonscientific groups such as politicians and members of the news media.

In sum, to the extent that researchers are aware of how findings on resilience could be misinterpreted, it is incumbent upon them to preempt such misinterpretations so that they do not result in an inappropriate allocation of responsibility to at-risk individuals themselves. Toward this end, investigators should (a) provide clear operational definitions of the construct in all reports; (b) use the term "resilience" when referring to competence despite adversity and not "resiliency" (which suggests a personality trait); and (c) apply the adjective "resilient" to characterize trajectories or profiles of adaptation, rather than groups of children. Furthermore, (d) when particular personal attributes are found to serve protective functions, it should be clarified as appropriate that many of these attributes themselves are shaped by environmental forces. Finally, (e) scientists must be proactive in disseminating relevant knowledge, communicating in balanced, responsible, and clear terms both what is known about resilience and the limitations of the empirical findings.

Fragmented approaches in applying the resilience framework. Responsibility for the effective application of evidence on resilience rests not only with scientists; equally, it rests with practitioners seeking to apply it (Luthar, 2000). In an editorial article introducing a miniseries in the *School Psychology Review* entitled "Resilience Applied: The Promise and Pitfalls of School-Based Resilience Programs," Doll and Lyon (1998) indicate that there has been a surge of interest in resilience research among educators. The authors caution, however, that this burgeoning attention "contains all the hallmarks of educational faddism—interest in the topic is sudden, many tend to see resilience programs as a panacea, and the proliferation of resilience programs in schools has emerged independently of the methodologically rigorous research that gave birth to the construct" (p. 349).

Illustrating such problems, Pianta and Walsh (1998) point to attempts to improve isolated skills in children with little consideration of the child's ecology. The authors note that attempts to apply research-based evidence on protective factors frequently tend to be oversimplified, targeting individual skills or competencies. There is insufficient attention to the functional utility of the skills targeted, that is, their ramifications within an ecological system that typically does not engender or reinforce them.

Pianta and Walsh (1998) further caution against piecemeal approaches to service delivery in schools, arguing that solutions to the challenges of educating high-risk children often have involved pullout, add-on, short-term

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programs that are conducted by someone other than the classroom teacher. This high degree of differentiation and specialization in services can be extremely counterproductive for at-risk children whose everyday social experiences tend to be fragmented and unpredictable. Having identified problems such as these, the authors argue for comprehensive services that are not only strongly anchored in theory and scientific evidence on resilience but also involve concerted efforts to use existing resources and personnel within given classrooms, schools, or communities (cf. Zigler, Finn–Stevenson, & Stern, 1997). Furthermore, there must be constant attention to the degree to which intervention components are integrated into the child's educational program, cultural context, and personal behavioral repertoire (Pianta & Walsh, 1998).

Finally, confusion regarding terminology is a problem that practitioners, like scientists, must guard against. Increasingly, there are efforts to develop programs, ostensibly anchored in resilience research, that seek to "foster resiliency in children." Although well intentioned, such intervention efforts, once again, implicitly foster views that if only children were helped to develop "resiliency" they might then withstand all manner of adversities. Like their colleagues in science, practitioners would do well to reframe their foci as fostering resilient trajectories or outcomes rather than resilient children (Luthar, 2000).

In summary, from the standpoint of those in service delivery, applications of resilience research must entail (a) attention to theory and research evidence on the group served; (b) consideration of the interface between intervention goals and the child's own background; (c) provision of integrated services rather than fragmented ones; and (d) clarity regarding resilience as a phenomenon, not a personal trait.

Fiscal concerns. In addition to problems that can stem from scientists' presentation of their research and practitioners' attempts to apply these findings, application of the resilience perspective might also be contested on the grounds of fiscal extravagance. As noted in preceding discussions, the resilience paradigm implies an emphasis on preventively intervening with children at high statistical risk for maladjustment, before the onset of adjustment difficulties. Moreover, resilience researchers typically argue, based on extant evidence, for multifaceted programs targeting multiple salient vulnerability and protective forces rather than those considering just one or two of these in relative isolation (see Beardslee, Versage, Salt, & Wright, 1999; Cowen et al., 1996; Luthar, 1999; Luthar & Suchman, 2000; Masten, 1999; Masten & Coatsworth, 1998; Rutter, 1999; Werner, 2000).

Recommendations such as these may well raise concerns about fiscal resources. Skeptics might question the value of multipronged interventions implemented in the absence of maladjustment, viewing this as an unwise allocation of limited federal dollars. Objections such as these, however, can be countered on the basis of accumulated evidence on various issues pertaining to coexisting vulnerability–protective factors and cost-effective interventions (Luthar, 1999).

With regard to co-occurring risks, studies have established that in the absence of intervention, many children facing multiple adversities have a high probability of developing serious difficulties as they move along their developmental trajectories. Among youth living in poverty conditions, for example, the likelihood of serious maladjustment increases exponentially with increasing numbers of sociodemographic risks, such as low maternal education, large family size, minority status, and parental mental illness—risks which typically co-occur in real life (Coie, Watt, West, Hawkins, Asarnow, Markman, Ramey, Shure, & Long, 1993; Jessor, 1993; Luthar, 1999; Masten, 1999; Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987). Any one of these factors is linked with minimal escalations in maladjustment. Children facing two coexisting risk factors, however, demonstrate a 4-fold increase in adjustment problems, and when four or more risk factors exist the risk can become 10-fold (Rutter, 1979; see also Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Sameroff, Seifer, & Bartko, 1997; Sameroff et al., 1987). From an intervention perspective, the obvious message is that without appropriate

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intervention youngsters exposed to multiple sociodemographic risk factors—a potentially large proportion of the over 13 million children and youth living in poverty in America (U.S. Bureau of the Census, 1999)—are highly vulnerable to serious long-term problems.

As a corollary to the preceding point, several studies have established cumulative benefits that accrue when at-risk children are exposed to multiple coexisting protective factors (Luthar, 1999). For example, Jessor and colleagues found that whereas children with a single protective factor show high vulnerability to problem behaviors in the face of adversities, those with multiple protection indices are relatively unaffected (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; see also Jessor, Turbin, & Costa, 1998a, 1998b). Similarly, in their studies of at-risk youth, Fergusson and Lynskey (1996) demonstrated that among children with multiple protective factors (i.e., those in the top quintile), an impressive 85% demonstrated resilience to developing behavior problems (Fergusson & Lynskey, 1996). Recent data from the Philadelphia study of urban youth have shown that adolescents with multiple protective influences—effective families and relatively benign life circumstances—were *14* times as likely to display competent adaptation than those with the worst life conditions (Furstenberg et al., 1999).

Prior efforts have also established that preventive interventions do not have to be inordinately expensive; costs can be substantially curtailed with creative and careful use of existing resources. A range of possibilities in this regard is evident within Zigler's "School of the 21st Century," a comprehensive, model program that is built into existing school systems (Zigler et al., 1997). In this program, public school buildings, which remain unoccupied for large portions of the day and the calendar year, are used not only to house child-care programs for children 3 years and older but also to host regular support group meetings for parents. Information and referral networks also are developed in schools to help families make better use of the various existing services scattered across their communities, such as those offering counseling, physical health care, or night care for children. Increasingly, preventionists and social policy scholars are advocating the creative use of existing community resources in mobilizing protective influences to benefit different at-risk groups (see Barrera & Prelow, in press; Luthar, 1999; Knitzer, 2000a, 2000b; Pianta & Walsh, 1998).

Finally, there are ample data on the long-term cost effectiveness of carefully designed and implemented preventive interventions (Yoshikawa, 1994). Among the most widely cited early childhood intervention programs is the Perry Preschool project (Schweinhart, Barnes, Weikart, Barnett, & Epstein, 1993; Schweinhart & Weikart, 1988). Cost–benefit analyses of this program (Barnett, 1985, 1993) indicate that this intervention was linked with lower costs associated with reduced special education, reduced incarceration, increased wages, and lower use of welfare dollars. Net benefits (minus costs) were estimated at approximately $90,000 per participant, and, even when effects of crime and delinquency were omitted, benefits were estimated to approximate as much as $30,000 per participant. In future years, such cost–benefit analyses from carefully conceived efficacy studies will be critical to convince insurers and policymakers of the value inherent in preventive approaches.

In summary, application of the resilience paradigm toward multipronged preventive interventions may be questioned on the grounds of fiscal extravagance. Countering such objections, however, is ample evidence that (a) without interventions children facing multiple risks are at high risk for serious maladjustment, (b) increasing the number of protective influences can be linked with exponentially greater likelihood of positive outcomes, (c) there exists much unrealized potential to harness existing resources within health-promoting interventions, and (d) carefully conceived preventive interventions can be vastly more cost effective than are attempts to reduce maladjustment after it has become well entrenched.

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Guiding Principles in Applying the Resilience Perspective Toward Developing Interventions and Policies

Having considered broad advantages, potential problems, and possible objections in applying the resilience framework toward designing interventions and policies, we turn to specific guidelines on how the resilience perspective should be brought to bear within such efforts. We begin by delineating specific principles and then move on to presenting exemplars of interventions based on the resilience paradigm.

Guiding principles

As resilience research has evolved, several scholars have appraised appropriate directions, based on this body of work, for interventions targeting different at-risk groups (see Beardslee et al., 1999; Cowen, 1999; Knitzer, 2000a; Luthar, 1999; Luthar & Suchman, 2000; Rutter, 1999; Werner, 2000; Werner & Johnson, 1999). Many of the recommendations offered are strongly resonant with those emphasized by scientists in the broader fields of prevention research, developmental psychopathology, community psychology, and social policy (see Cicchetti, Rappaport, Sandler, & Weissberg, in press; Cicchetti & Toth, 1998, 1999; Coie et al., 1993; Hogue & Liddle, 1999; Institute of Medicine, 1994; Knitzer 2000a, 2000b; National Institute of Mental Health, 1993, 1998; Weissberg & Greenberg, 1998; Yoshikawa & Knitzer, 1997). For future interventions that are developed specifically within the resilience paradigm, Luthar (2000) summarized a series of 10 guiding principles, listed below.

1: Interventions must have a strong base in theory. The design of all interventions must be anchored in a sound theoretical framework that specifically recognizes the mutual, transactional influences between children and different aspects of their contextual surrounds. Piecemeal attempts to improve isolated "protective factors" are likely to be ineffective.

2: More specifically, *interventions must have a strong basis in theory and research on the particular group being targeted.* This implies that empirical evidence, both quantitative and qualitative in nature, must be systematically collected on "modifiable modifiers" that are known to affect adjustment outcomes in the presence of the particular adversity under consideration.

3: Efforts should be directed not only toward the reduction of negative outcomes or maladjustment among targeted groups but also toward the promotion of dimensions of positive adaptation or competence. In working with psychiatrically disturbed parents, for example, intervention should strive to reduce negative behaviors such as inconsistent or harsh discipline while promoting positive ones, such as the expression of warmth and affection.

4: Relatedly, interventions must be designed not only to reduce negative influences (vulnerability factors) but also to capitalize on specific resources within particular populations. Building upon strengths of people in the community can promote their own feelings of efficaciousness and competence, and can also foster their investment in ensuring that positive changes endure within their communities.

5: As noted earlier, to the degree possible, *interventions should target salient vulnerability and protective processes that operate across multiple levels of influence.* These include influences stemming from the community and the family, as well as from the individual (e.g., Bronfenbrenner, 1977; Cicchetti & Lynch, 1993; Sameroff & Chandler, 1975).

6: Interventions must have a strong developmental focus, reflecting attention, for example, to the specific cognitive, social, and emotional capacities associated with the individuals being targeted, as well as the limits to these. Knowledge of developmental domains such as causal reasoning, emotion understanding, and language ability all must be attended to when designing interventions for children and adolescents (see Noam, 1992; Shirk, 1988; Toth & Cicchetti, 1999).

7: Similarly, the contextual relevance of the overall intervention aims, as well as of the

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specific intervention strategies, must be ensured. This is often effectively achieved via collaborative participation of local community members—leaders in the community, concerned parents, teachers, clinicians, as well children who receive interventions. Input from these individuals can help not only to ensure that identified intervention goals will be viewed as personally meaningful by intended recipients but also to guide staff toward therapeutic techniques likely to be most effective within particular subcultures (see Brody, Stoneman, Flor, McCrary, Hastings, & Conyers, 1994; Cowen et al., 1996; Fantuzzo, Coolahan, & Weiss, 1997; Hawkins & Catalano, 1992, Jensen, Hoagwood, & Trickett, 1999; Lerner, Fisher, & Weinberg, 2000; Seitz & Apfel, 1999).

8: Intervention efforts should aim at fostering services that eventually can become self-sustaining. This once again implies creativity in harnessing existing resources in local communities. A relevant example is Comer and colleagues' School Development Project, wherein interventionists work with parents, community members, and school personnel to set in place services for healthy child development that can become self-sustaining in schools over time (see Comer, 1988; Haynes & Comer, 1996).

9: Wherever possible, data from intervention groups should be compared with those of *appropriate comparison groups*, to ascertain effects that are potentially unique to the intervention. For example, in order to demonstrate the effectiveness of a particular intervention for offspring of parents with a major mental illness, a similar risk group receiving a different type of intervention should be recruited and followed longitudinally.

10: There must be *careful documentation and evaluation*—of the critical components of the intervention via manualization, and of the gains (as well as unanticipated problems) it may engender. Outcome domains assessed must be those centrally targeted in the intervention, which in turn are those likely to be strongly affected by the risk in question. Careful documentation and assessments are helpful for guiding the design of future interventions, for disseminating those of established efficacy, and for ongoing refinements of theory about normative developmental processes.

Applications of resilience research: Randomized clinical trials

In recent years, developmental psychopathologists have increasingly begun to harness findings from resilience research in designing multifaceted interventions that consider the diverse transactions between children and their environmental contexts. Summarized here are three such interventions, all designed for families affected by parental mental illness: depressive disorders in the first two instances and substance abuse in the third.

The first of these interventions is that designed by Beardslee (see Beardslee, 1989; Beardslee & Podorefsky, 1988; Beardslee et al., 1999) to help families in which a parent was affected by depressive illness. Development of this intervention was based in a clear-cut rationale: it was spurred by evidence that (a) depression is a widespread problem, with 10–20% of individuals experiencing at least one depressive episode in their lifetimes (Kessler, McGonagle, Zhao, Nelson, Hughes, Eshleman, Wittchen, & Kendler, 1994; Robins & Regier, 1991); and (b) children of depressed parents are at high risk for various problems, and almost 50% receive a diagnosis of depression themselves by the end of adolescence (Beardslee, 1989; Downey & Coyne, 1990). The second characteristic of this intervention is that its design was anchored in a systematic review of accumulated evidence on potent vulnerability and protective processes that tend to modify the effects of parental depression. Identified mediator (vulnerability) effects, for example, included disturbances in specific parenting behaviors (e.g., decreased attention and lowered intensity of interaction), as well as in the marital relationship and family cohesion. A critical protective factor was high self-understanding among children. This encompassed accurate appraisals of the parent's affective disorder and of children's own capacity to act (e.g., not assuming responsibility for the parents' symptoms). The third intervention characteristic was developed to ameliorate maladaptive patterns as well as to

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develop strengths, in work with parents as well as children. Attention to developmental issues is reflected in the focus on families of pre- and early adolescent children, youth on the brink of a developmental period of high risk for depressive problems.

Based on available evidence on salient vulnerability and protective processes, a clinician-led intervention was developed with the following treatment goals: development of a therapeutic relationship; provision of accurate information regarding affective illness; integration of cognitive information with the unique illness experience of the family; validation of the children's experience of the illness; and development of a future-oriented perspective. The intervention entailed 6–10 sessions, and it included separate sessions with parents, children, and whole family and telephone contacts or refresher sessions at 6–9 month intervals. This clinician-led intervention was compared with a lecture-based intervention that pursued goals similar to the clinician-led sessions, except that children did not attend the lectures, and there was no effort to link contents of these sessions to individual families' experiences.

Finally, there was careful attention to documentation. To ensure treatment fidelity, both interventions were manualized, and audiotaped sessions were rated for adherence to stipulated procedures. Before and after treatment, families completed multimethod, multiple informant assessment batteries that tapped constructs hypothesized to serve vulnerability and protective factors, as well as distal outcomes in children.

Results of this study showed that families in the clinician-led groups reported significantly greater improvement on several hypothesized vulnerability and protective factors (e.g., understanding of illness, marital support, illness-related behaviors). Major benefits of this intervention were found to be sustained even 8 months after the intervention (see Beardslee et al., 1999).

A second intervention for families affected by parental depression, also developed within the resilience framework, is that designed by Cicchetti and colleagues (Cicchetti, Rogosch, & Toth, 2000; Cicchetti, Toth, & Rogosch, 1999). Based on knowledge of the empirical literature on the impact of maternal depression on children's development, Toddler–Parent Psychotherapy (TPP; Lieberman, 1992) was identified as a potentially important strategy for fostering resilience in young offspring of depressed mothers. Because offspring of depressed mothers have been shown to be at risk for the development of insecure attachment organizations, it is possible that mothers' insecure representations of their own attachment figures not only influence affective and cognitive features of mothers' depression but also may contribute to distortions in their perceptions of their child and their ability to form a secure relationship with their child. To intervene in these potential relationship difficulties, TPP, conceptually based in attachment theory, was utilized (Lieberman, 1992). The details of the TPP intervention are presented in Cicchetti, Toth, and Rogosch (in press).

The results of this intervention to date have demonstrated that TPP is effective in promoting resilient adaptation in the face of adversity, as well as in preventing the emergence of maladaptation. Mothers with major depressive disorder and their toddlers were randomly assigned either to TPP (Depressed Intervention [DI] group) or to no intervention (Depressed Control [DC] group). A group of mothers, matched on sociodemographic factors but with no history of mental disorder or current psychopathology, served as the Normal Control (NC) group. Although baseline assessments prior to the implementation of TPP revealed that the toddlers in the DI and DC groups evidenced equivalent rates of insecure attachment and both groups had higher rates of insecure attachment than the NC group, at postintervention assessments the DC group continued to have higher rates of insecure attachment than the NC group. In contrast, the DI group at postintervention follow-up was not significantly different from the NC group in terms of rate of secure attachment. For the DI group, there also had been greater maintenance of secure attachment organization among those who were initially secure, as well as a greater shift from insecure to secure attachment groups (see Cicchetti et al., 1999).

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In contrast, for the DC group initially secure youngsters became insecurely attached. These findings demonstrate the efficacy of TPP in promoting secure attachment organization among young offspring of depressed mothers.

The effects of the preventive intervention also have been examined in terms of cognitive development (Cicchetti et al., 2000). At baseline, no differences were found among the groups in terms of their mental development. However, at postintervention significant group differences emerged for cognitive abilities, with the DC group evidencing a relative decline in IQ. Both the DI and NC groups evidenced higher WPPSI-R (Wechsler, 1989) Full Scale and Verbal Scale IQ scores as compared to the DC group; a marginal treatment effect in the same direction also was found for Performance IQ. Thus, the preventive intervention appeared to be effective in maintaining normative cognitive advances in the DI group, whereas a decline in cognitive advance was observed in the DC group.

A third exemplar of clinical interventions based in resilience research is the Relational Psychotherapy Mothers' Group (RPMG), designed by Luthar and colleagues (Luthar & Suchman, 2000; Luthar, Suchman, & Boltas, 1997). An integrative intervention, RPMG entails specific attention to empirically identified vulnerability and protective forces that can affect substance-abusing mothers' parenting—forces at the level of the individual (e.g., comorbid depression, capacity to acknowledge past mistakes), the family (troubled childhood histories, concern for their welfare of their own children), and the community (e.g., experiences of stigma, potential to benefit from positive interpersonal influences). The psychotherapy entails a confluence of four major therapeutic components, the first of which is a *supportive therapists' stance*, which encompasses the Rogerian constructs of acceptance, empathy, and genuineness (Braswell & Seay, 1984). The second is an *interpersonal, relational focus,* a component with roots in gender-sensitive perspectives on women as well as in Interpersonal Psychotherapy (Klerman, Weissman, Rounsaville, & Chevron, 1984). Third, RPMG is *a group treatment,* involving only substance-abusing mothers (not mothers and fathers), with groups led by female therapists. The fourth defining feature of RPMG is discovery-based, *insight-oriented parenting skill facilitation*. Rather than "instructing" the mothers about appropriate parenting, therapists encourage the women to explore the strengths and limitations of their own strategies, and guide them toward developing optimal approaches.

The RPMG intervention is designed to be delivered as an "add-on" to outpatient methadone treatment in weekly group sessions over a period of 6 months. Sessions are structured, with therapeutic strategies for each detailed in a therapists' manual. The first 12 of the 24 sessions are focused on the women's own functioning, addressing topics such as coping with anger, depression, and loneliness. The remaining sessions are focused on specific parenting issues, such as fostering warm parenting styles and developing alternatives to corporal punishment. All sessions are videotaped, and therapists are rated on their adherence to the RPMG manual.

Based on the women's own reports as well as those of their children, mothers who received RPMG were found to demonstrate lower levels of risk for child maltreatment than did comparison mothers (who received treatment as usual), by the end of the 24-week intervention period (Luthar & Suchman, 2000). RPMG recipients also reported greater involvement with their children and more satisfaction in their roles as mothers, and their children reflected fewer problems in several areas. At 6 months posttreatment, RPMG recipients continued to be at a relative advantage, although the magnitude of group differences was often attenuated. Notably, urinalyses indicated that RPMG mothers showed greater improvements in levels of opioid use at follow-up than did comparison mothers, suggesting that working with addicted women on their psychological and parenting needs can have substantial spillover effects on their abstinence. Based on the promise of these initial findings, RPMG is being further evaluated in a larger clinical trials study with methadone-maintained mothers; its effectiveness is also being explored among mothers referred to children's protective services, in an initia-

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tive sponsored by the Connecticut Department of Children and Families.

Independent of these three exemplars of randomized clinical trials that are explicitly grounded in research on resilience, there are several other well-known interventions that are geared at promoting positive child outcomes, even though their initial conceptualization did not specifically entail this construct. Weissberg and Greenberg (1998) review many such multipronged competence-enhancement programs, implemented at different developmental phases (see also Dryfoos, 1994; Durlak, 1997). Exemplary among such interventions is the Prenatal/Early Infancy Project, a long-standing program involving nurse visitation for poor, unmarried, pregnant women (Kitzman et al., 1997; Olds et al., 1998; Olds & Korfmacher, 1997, 1998). Targeting preschoolers in economically disadvantaged neighborhoods, the Chicago Child Parent Center (CPC) Program, begun in the late 1960s, (see Reynolds, 1998, in press), provides comprehensive child education and family support services to promote school readiness as well as other positive adjustment outcomes. Serving kindergarten children at high risk for conduct problems is Fast Track, a multisite randomized clinical trials project aimed at providing a comprehensive longitudinal intervention (Conduct Problems Prevention Research Group, 1992, 1999a, 1999b).

From a developmental psychopathology standpoint, it should be noted that carefully designed, multilevel intervention trials can yield critical benefits not only for vulnerable children and families but also for advancing theories on resilience and psychopathology. Prevention research can be conceptualized as true experiments in altering the course of development, and thus can provide critical insights into the etiology and course of adjustment in the face of known risks (Cicchetti & Toth, 1992; Kellam & Rebok, 1992; Sandler, Wolchik, MacKinnon, Ayers, & Roosa, 1997). To illustrate, Beardslee's findings that the developmental courses of children of depressed parents were altered as a result of exposure to his intervention yields confirmatory evidence on critical processes involved in the ontogenesis of maladjustment, as well as of resilience among children at risk by virtue of parents' depressive illness.

Community-based interventions

Applications of the resilience paradigm in developing interventions are by no means restricted to research-based intervention trials: this paradigm has been applied to community-based programs as well (see Gager & Elias, 1997; Rolf & Johnson, 1999). Illustrations are available in a volume by Burt, Resnick, and Novick (1998) that is focused on integrated, comprehensive intervention programs aimed at building supportive communities for at-risk adolescents. The conceptual framework that undergirds this book emphasizes the notion of resilience, with specific emphasis on the complexity of multiple influences—at the level of the individual, the family, and the community—that transact to affect adolescent outcomes.

The nine programs described in the volume by Burt and colleagues (1998) reflect considerable diversity on several dimensions, including the specificity versus breadth of adolescent outcomes targeted, the degree to which they involve families and communities in addition to the adolescents themselves, and the extent to which their emphasis is on enrichment activities and prevention as opposed to treatment services for alleviating problems. Common across all these programs, however, is the attention to vulnerability processes as well as protective ones, and to problems in at-risk communities, as well as areas of strength. Furthermore, community members and the adolescent recipients themselves play major roles in identifying major areas of need and useful points of intervention and in ensuring that intervention goals and strategies will be well received by local communities.

In a recent issue brief on children and welfare reform, Knitzer (2000b) has discussed efforts to promote resilience among a particularly vulnerable subgroup of children in poverty: those whose parents contend with multiple difficulties, including substance abuse, domestic violence, and mental illness. Despite dramatic reductions in welfare caseloads following enactment of the Personal Responsibility and

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Work Opportunity Reconciliation Act (PRWORA) in 1996, adults with serious, coexisting problems such as these are unable to join the work force successfully and are likely to face time limits and various sanctions. Acknowledging the dearth of policy incentives and stable funding streams for integrated, community-based service delivery programs for such families, Knitzer delineated several strategies to promote their resilient adaptation, with recommendations pertaining to three different points of entry: (a) early childhood services; (b) services for substance abuse, mental health, and domestic violence; and (c) welfare agencies.

For interventions implemented within the context of existing *early childhood services*, Knitzer outlined three strategies, the first of which involves an integration of behavioral service teams into primary health care, child care, and Head Start settings. An existing exemplar of this strategy is Starting Early Starting Smart (SESS), a public–private initiative. Objectives include linking high-risk families to specialists and providing advocacy services, and in some instances providing therapeutic interventions as well as staff development activities. The second strategy is to build a statewide system of behavioral supports for young children and families, as exemplified by the Children's Upstream Project (CUPS) in Vermont. A program aimed at developing an early childhood mental health system of care that includes both prevention and treatment, CUPS links together agencies working with child health, substance abuse, mental health, domestic violence, and other family services. The third strategy is to increase the competencies of staff in early childhood programs to meet families with multiple needs. Extant programs that have effectively implemented this strategy include Project Relationship in Los Angeles, which aims at enhancing the skills of those working directly with young children and families, through a manualized set of exercises encompassing inquiry, reflection, and respect.

Considering resilience-promoting programs introduced within the context of *substance use, mental health, and domestic violence agencies*, Knitzer noted that parenting issues often receive little attention within such agencies. Two exceptions cited were Rainbow House in Chicago, a shelter-based therapeutic program for women affected by domestic and community violence and their children, and Exodus, in Compton, California, a residential program for substance-abusing mothers at risk for homelessness. These programs are encouraging in their integration, within intensive residential programs for at-risk mothers, critical services for their children as well, including on-site, therapeutic child-care and access to developmental and mental health services.

Finally, Knitzer discusses four strategies that could use *welfare reform* as entry points to provide intensive intervention to the most vulnerable children and families. These included strategies pertaining to the service needs of children raised by foster parents; services for low-income fathers as well as mothers affected by Temporary Assistance to Needy Families (TANF; e.g., via support groups); use of welfare-related dollars to promote integrated developmental interventions for the most highly stressed children (as most states have flexibility to use welfare dollars in nontraditional ways); and the development of formal partnerships between TANF staff and personnel working in the fields of substance abuse, mental health, and child care and development.

Aside from delineating these various strategies to foster positive outcomes among vulnerable children and families, Knitzer also considered macrolevel policy requirements for their successful implementation, providing several suggestions for states, communities, private-sector groups, federal agencies, and Congress. These include recommendations to provide challenge grants to promote community-based partnerships among different service agencies; to provide cross-training and consultation for staff within these agencies; to synthesize and widely disseminate research evidence on the cost effectiveness of preventive interventions—and to "promote parity for behavioral health services at the same level as physical health services in federal legislation for both adults and children" (Knitzer, 2000b, p. 16).

Integrated service delivery: Challenges linked with fragmentation of services. As noted ear-

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lier, socioeconomically disadvantaged families often contend with multiple "vulnerability factors," experiencing substantive challenges to adaptation across diverse domains such as physical and mental health, housing, and child care. Recognition of the complexity of their service needs has led to several calls for increased integration of service delivery. These exhortations include an emphasis not only on providing multiple services under one roof but also on the sharing of fiscal and planning responsibilities across different agencies (see Dryfoos, 1994; Durlak, 1997; Eber & Nelson, 1997; Knitzer, 2000a; McMahon & Luthar, 1998; Weissberg & Greenberg, 1998; Yoshikawa & Knitzer, 1997).

Interagency collaborative efforts at integrated service delivery inevitably pose a range of challenges, however (Adelman & Taylor, 1997; McMahon & Luthar, 1998). These include barriers related to different professional training and orientation, administrative procedures, and confidentiality requirements that limit agencies' abilities to share information about clients. Noting constraints such as these, Burt et al. (1998) provide several useful steps that can be taken, including the maximizing of open communication across collaborating agencies, the need for up-front negotiations to ensure successful cooperative activities, and ensuring the commitment of agency directors as well as direct service providers.

Aside from such problems at the level of agencies, there are several challenges that derive from trends in contemporary national policies (Luthar, 2000). Fragmentation and categorization of financing for different social services, for example, are considered to be the most significant barriers to developing community-based, prevention-oriented service systems (Burt et al., 1998). In integrated service-delivery systems, if funding is lost for one component then it often must be discontinued. Aside from loss of critical services, this is problematic because it is often difficult to resume the interrupted services: participating staff find such discontinuities extremely disruptive, and cooperative relationships between staff can be irrevocably damaged if personnel lose faith in the stability of program efforts.

Additional problems derive from the recent devolution of federal programs to the state and local levels. As a result of the 1996 federal welfare reform law, there was a significant shift of responsibility for social service programs from the federal to the state and local levels (Burt et al., 1998). Frequently, states and local governments are faced with serious financial constraints in attempting to address the burdens created as a result of these additional responsibilities. Furthermore, the survival of the few—and generally fragile—community resources that exist in economically disenfranchised communities (e.g., after-school or summer programs) can be seriously jeopardized by the withdrawal of government support (Furstenberg et al., 1999). In the years ahead, strong alliances between government at all levels and local institutions will be critical for fostering functional communities (Furstenberg et al., 1999; Schorr, 1997). There must be a concerted effort by federal, state, and private funding agencies to support collaborative community-based ventures that can promote behavioral and emotional competence among children (Knitzer, 2000a, 2000b).

Yet another set of issues relates to policies regarding research funding periods, an area that Weissberg and Greenberg (1998) have discussed in terms of the failure of science to live up to the needs of practice. They argue that from the standpoint of kindergarten-through-12th-grade educators, for example, optimal competence-enhancement programs are those that are multiyear in duration and coordinate classroom, school, parent, and community interventions, with adequate support and training for integrated, high-quality implementation. By contrast, most theory-driven, empirically based programs that are designed and evaluated by scientists are limited in both scope and duration (e.g., with 5-year funding periods for federally funded grants). As a result, many schools adopt programs that are well marketed but that lack documented effectiveness; there do not exist any controlled, longitudinal field experiments to evaluate the *long-term* effects of school-based social competence programs. Gaps such as these underscore the need for increased support from funding agencies and policy-

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makers for long-term collaborations between practitioners and scientists to design and evaluate promising school- and community-based prevention efforts (Weissberg & Elias, 1993).

Responsiveness at the federal or national level. Recent federal initiatives have contained explicit reference to the resilience paradigm as an effective framework for developing and guiding interventions. Among the most visible of these efforts was a collaboration involving several federal agencies including three of the National Institutes of Health (National Institute on Drug Abuse, National Institute on Alcohol Abuse and Alcoholism, and National Institute of Mental Health), two divisions of the Substance Abuse and Mental Health Services Administration (the Center on Substance Abuse Prevention and the Center for Mental Health Services [CMHS]), as well as the National Association for Children of Alcoholics. In 1994 these agencies jointly sponsored a conference on resilience and development, seeking to bring to national attention the relevance of resilience research to substance abuse and mental health issues and to distill directions for future work in the area. The conference represented a confluence of diverse perspectives and engendered delineation of several critical issues warranting consideration in future basic research, theory, and applications of the construct of resilience (see Glantz & Johnson, 1999).

A more recent illustration of federal initiatives is the School Violence Prevention initiative of the CMHS, which as previously noted is a division of the federal Substance Abuse and Mental Health Services Administration. In October 1998, CMHS received a Congressional allocation of $40 million to improve mental health services for children at risk for engaging in violent behaviors. These funds enabled CMHS to join with the Department of Education, and the Department of Justice, in a landmark collaborative grant program known as the Safe Schools/Healthy Students (SS/HS) initiative. SS/HS emphasizes prevention as well as treatment, underscoring that programs must not only provide services to respond to violent acts already committed but also be proactive by identifying problems early, intervening early, and altering the course of children's lives in a positive direction. It encourages planners to draw upon research evidence, not only on children who are already showing signs of aggressive or violent behavior but also on those who manifest evidence of developing along resilient behavioral trajectories. The CMHS initiative is intended to fund collaborative programs that coordinate families, schools, and communities into a partnership to promote the development of healthy behaviors and resilient adaptation among school-aged children and youth, in order to decrease the level of violence in schools.[2]

In addition to its emphasis on the notions of prevention, emotional and behavioral adjustment, resilience, and integrated services, the SS/HS initiative also is noteworthy in its attempt to bring together expertise from both science and practice. In June 1999, CMHS convened a 2-day working group involving scholars engaged in the scientific study of resilience and its applications, practitioners who seek to enhance resilient outcomes, and representatives from various federal funding agencies. Participants were charged with collaboratively deriving a solid base from which future studies of resilience, and its applications to fostering children's healthy development, might most optimally proceed. To ground the participants' discussions, CMHS prepared an in-depth review of the existing literature on theory and research on resilience (Davis, 1999) and is supporting the development of a publication to inform the public and policymakers about the value of programs and policies that promote resilient adaptation.

A final illustration of recent initiatives involving the construct of resilience is the collaboration between Divisions 27 (Community Psychology) and 37 (Children, Youth, and Families) of the American Psychological Association. In 1998, these two divisions convened a Task Force on Resilience and Public

2. Details regarding this initiative may be seen at the following web site: http://www.mentalhealth.org/specials/schoolviolence/preview.htm#two. For a review of existing methodologically sound and effective violence prevention programs, see Henrich, Brown, and Aber (1999).

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Policy, a group that was charged with the responsibility of compiling recent scientific research evidence on the effects of child, family, and community strengths among children living in stressful situations, and of exploring the public policy implications of these findings. The goal is largely to develop stronger linkages between scientific information on resilience among individuals, families, and communities and the public policies that affect the lives of children and families in adverse situations. An edited volume, with chapters based on collaborations between researchers and policy experts, is one product of the Task Force (Maton, Schellenbach, Leadbeater, & Solarz, in press). In addition, a brief volume oriented to policymakers summarizing themes in the first volume is under preparation with support, again, from the CMHS, and the U.S. Department of Health and Human Services.

Future Directions

Preceding discussions establish that there are several promising efforts underway to apply the resilience framework toward the development of interventions for at-risk individuals. There remain, however, several critical issues that warrant concerted attention in the future; we consider some of these in the concluding section of this paper.

Greater interface between science and practice

The interface between basic and applied science concerning resilience warrants greater attention in at least four respects (Luthar, 2000). The first pertains to the development of interventions that effectively harness empirically identified protective processes. As noted earlier, there is converging evidence from several studies indicating that multiple protective factors substantially increase the likelihood of positive outcomes among at-risk groups (e.g., Fergusson & Lynskey, 1996; Furstenberg et al., 1999; Jessor et al., 1995; 1998a, 1998b). Yet, Wyman and colleagues (in press) have noted that several interventions designed to test cumulative protective effects—for example, by combining child and parent components for divorced families (e.g., Stolberg & Mahler, 1994)—have not demonstrated significant additive effects. Similar conclusions were presented by St. Pierre and Layzer (1998) in their review of two-generation programs (i.e., those that simultaneously target parents and children) for families in poverty. There remains much potential, therefore, for developing interventions that are based on empirical understanding of the processes underlying the cumulative effects of multiple, co-occurring protective influences (Werner & Johnson, 1999).

Second, there is a need for greater flexibility in approaches to evaluating promising new intervention approaches. Noting that all too often programs which seem conceptually sound have been evaluated in methodologically weak research designs, St. Pierre and Layzer (1998) argue strongly for the inclusion of appropriate control or comparison groups in ascertaining the effectiveness of future interventions. Proffering an opposing view, Weissberg and Greenberg (1998) provide a thoughtful discussion on the relative contributions of quantitative, randomized clinical trials, as opposed to the multiyear, multicomponent, community-based intervention models called for by practitioners and policymakers. The latter are widely viewed as essential to obtain sustainable changes in both individuals and systems yet are typically evaluated via descriptive, nonexperimental strategies, rather than via the highly controlled, experimentally rigorous approaches favored by academic researchers.

We concur with Weissberg and Greenberg's (1998) argument that in the long term, effective evaluations—those that are scientifically sound *and* meet the needs of stakeholders and policymakers—necessitate the integration of quantitative experimental studies with more qualitative, process-oriented approaches. Without question, some minimal level of experimental design is critical for evaluation efforts, lest a false sense of knowledge be derived from severely flawed methodologies. Furthermore, time-limited, randomized trials can be invaluable in illuminating the types of interventions that produce benefits within particular domains of

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children's lives. At the same time, it is clear that enduring social, psychological, and health benefits necessitate comprehensive, multifaceted programs that produce substantive changes at the level of environmental systems (Dryfoos, 1994; Hamburg, 1992; Luthar, 1999; Shonkoff & Meisels, 2000; Zigler & Berman, 1983), and such large-scale programs do not lend themselves to controlled experimental evaluations.

In order to maximize lasting effects in future efforts, therefore, controlled experimental studies should provide the foundation for, and be integrated within, relatively comprehensive interventions, which are evaluated by more descriptive approaches. For developmental researchers to be entirely dismissive of the latter types of evaluations is both unwarranted and unwise, for as McCall and Groark (2000, p. 199) have cautioned, if our scholarly pursuits are limited to those issues that can be examined in a scientifically ideal ways, "we risk becoming irrelevant, anachronistic, and expendable. Instead, we must pursue also the best obtainable information on issues of societal need, which evidence may be crude but should never be sloppy." (For additional discussions on flexible, ecologically valid evaluative approaches, see Jensen et al., 1999, Lerner et al., 2000, and Shonkoff, 2000.)

Related to these directions for applied science are issues related to training. In a commentary on the place of applied studies in the field of developmental psychology, Zigler (1998) underscored the need for appropriate instruction to ensure that intervention and policy studies are held to the same high standards long honored for basic research. Noting that work at the intersect of research and policy is generally undertaken by senior scientists—who have well-established credentials in basic science—Zigler argues for enhanced scientific instruction of young scholars interested primarily in the applications of psychological theory and research in the development of effective interventions and policies. In a related vein, there have been calls for increased cross-disciplinary training within research-oriented graduate programs (e.g., Cicchetti & Toth, 1991, 1998; Knitzer, 1996; Luthar, 1999). To illustrate, for doctoral students whose learning is based largely in the developmental scientific literature, much can be gained from firsthand exposure to professionals from different applied settings: social workers, community mental health workers, teachers, and school administrators, as well as law enforcement officials and policymakers.

Temporal considerations

From a temporal standpoint, a critical message stemming from resilience research (Felsman & Vaillant, 1987; Luthar, 1999; 2000; Rutter, 1990, 2000; Werner, 2000) is that there is value in interventions at all developmental transitions, and not just in the earliest years. Early childhood interventions are of obvious preventive value, yet there is great fallacy in assumptions that once interventions are offered in early childhood nothing further is required, or can make any difference (Zigler & Styfco, 1996). Children have different "sensitive periods" during which they are maximally responsive to different types of interventions, so that educationally based programs, for example, are more likely to benefit preschoolers than toddlers, and interventions targeting attitudes toward deviant behaviors are most likely to be effective with preadolescents and adolescents (Weissberg & Greenberg, 1998).

Two other critical temporal considerations, both commonly noted (see Weissberg & Greenberg, 1998; Zigler & Styfco, 1993), warrant reemphasis here. The first issue is that longer periods of intervention generally have been found to be more effective than shorter ones. Analyses of data from the Chicago Child Parent Center program establish that children who had more than 4 years of experience with quality preschool or kindergarten programs fared far better, at the eighth-grade level, than those with only 1 or 2 years of participation in early intervention programs (Reynolds, 1994, 1995). Zigler and Styfco's (1993) review of several such programs confirmed that the advantages of preschool programs can be sustained with dovetailed, school-age interventions. Data such as these underscore the substantial limits to relatively brief, one-shot interventions for children facing substantial life adversities (see also Pianta & Walsh, 1998).

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The other temporal consideration has to do with intervening during periods of transition, such as entry into school, into adolescence, or into the workforce. Each of these transitions carries normative developmental challenges even for "low-risk" groups (see Eccles, Lord, & Roeser, 1996; Felner, Brand, Adan, Mulhall, Flowers, Sartain, & DuBois, 1993). For youngsters in high-risk life circumstances, threats posed by these normative challenges can be substantially compounded by serious stressors in their everyday lives (Luthar & Burack, 2000). Research-based understanding of resilience can allow practitioners to capitalize on periods of developmental transitions, both within the child as well as in proximal and distal ecologies (e.g., culture or community), as unique opportunities for promoting positive adaptation in adverse situations (Cicchetti, 1993; Cicchetti & Toth, 1992).

Greater attention to mental health

Considering domains of well-being that are typically targeted, current national policies reflect considerable imbalance in the relative neglect of mental health (Cowen, 1994, 1999; Luthar & Burack, 2000). Most existing programs attempt to foster academic or job skills, or to reduce behaviors that are disruptive to others (e.g., conduct or antisocial problems). As Knitzer (2000a) notes, there is little cognizance of the reality "that a child's emotional state also affects his or her ability to achieve the level of social and cognitive competence necessary to learn" (p. 421).

The value of explicit attention to mental health is evident in several bodies of empirical evidence (Luthar, 2000). First, studies on resilience have shown that even when at-risk individuals reflect exemplary, socially conforming behavioral profiles, many struggle with considerable inner distress (Cohler et al., 1995; Herrenkohl, Herrenkohl, & Egolf, 1994; Luthar, 1991; Luthar, Doernberger, & Zigler, 1993; O'Dougherty–Wright, Masten, Northwood, & Hubbard, 1997; Radke–Yarrow & Brown, 1993).[3] Second, unremitting emotional distress can inhibit individuals' ability to maintain adequate functioning across various everyday roles, including those in the domains of academic and job performance, behavioral conformity, interpersonal relationships, and parenting; there also can be substantial spillover effects into physical health status (e.g., in terms of lowered immunity to illnesses; Beckham & Leber, 1995; Brent & Moritz, 1997; Gjerde & Block, 1996; Hammen, 1997; Salovey, Rothman, Detweiler, & Steward, 2000; von Hecker & Sedek, 1999). Third, although at-risk children may excel in some domains (appearing "resilient" in some respects), many of these children can develop a range of serious difficulties over time, in the absence of appropriate interventions (see Apfel and Seitz, 1997; Egeland et al., 1993; O'Dougherty–Wright, et al., 1997). Fourth, Knitzer (2000a) has noted that for many vulnerable low-income individuals, access to mental health services can be an important pathway to long-term productivity and employability. In support of her thesis, she cites outcome data from a range of recently developed interventions, each of which involves explicit attention to the mental health needs of at-risk children and their parents.

In future policies for children and their families, therefore, there is a critical need for vigilance not only with regard to the inevitably dynamic nature of "resilient" status but also with regard to the ongoing strains induced when emotional distress coexists with manifest competence. In conjunction with promoting the movement of at-risk persons from negative adjustment trajectories to more positive ones, insights on resilience also must be brought to bear in helping those who achieve relatively resilient outcomes to *retain* their positive adjustment status.

Need for broader perspective on individuals "at risk"

A final critical consideration for future policies is that it is essential to guard against preconceived notions about which children "need" interventions to promote well-being. The importance of this issue is perhaps most starkly indicated by evidence on adjustment difficulties among suburban, relatively afflu-

3. Instances where overtly resilient individuals were *not* found to demonstrate high inner distress include Masten et al. (1999), and Neighbors, Forehand, and McVicar (1993).

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ent youth, a group typically thought of as being at "low risk." Recent research has shown that these youngsters display high levels of substance use—greater even than those of inner-city youth (Beuhring, Saewyc, Stern, & Resnick, 1996; Luthar & D'Avanzo, 1999). Similarly, clinically significant depressive symptoms have been found in one of five suburban teenage girls, rates 2–3 times as high as those in national normative data (Luthar & D'Avanzo, 1999; see also Csikszentmihalyi, 1999).

Reviewing such findings, one might argue that these youngsters should not really be the concern of policymakers, as these children's families have ample socioeconomic resources to seek help privately. Assertions such as these are ill founded, however, as children and adolescents, even the most affluent, are rarely able to act as independent agents to acquire help for emotional distress (Luthar & D'Avanzo, 1999). Furthermore, many parents do not actively seek help for their children, even when they are aware that their children are emotionally troubled (Puura, Almqvist, Tamminen, Piha, Kumpulainen, Rasanen, Moilanen, Koivisto, 1998). Finally, affluent parents themselves experience several challenges to optimal adjustment, including pressures to avoid overt displays of vulnerability (Wolfe & Fodor, 1996). Consequently, many of these individuals may not seek assistance despite being in considerable distress. Findings such as these collectively imply that our policies geared at fostering resilience must encompass all families and children, without preconceived notions that some groups are inevitably at low risk or cannot benefit from external assistance (see also Jessor et al., 1998b; Takanishi, 1996).

In summary, in future scientific efforts there is value in an enhanced interface between research on resilience and its applications to foster positive outcomes. Salient directions in this regard include (a) continued exploration of ways to harness empirically identified coexisting protective factors; (b) use of flexible, integrative evaluation strategies which combine both quantitative and qualitative approaches; and (c) enhanced training of young scholars in applied developmental science. Additionally, from a temporal standpoint, issues worthy of note are that (d) there can be value in interventions implemented at all developmental phases and not just those in early childhood; (e) brief, one-shot interventions are likely to be limited in effectiveness; and (f) interventions at times of developmental transitions can be particularly beneficial for at-risk youth. Finally, in future efforts to promote resilience, there is benefit in (g) according explicit attention to at-risk individuals' mental health in addition to their behavioral capacity to meet societal expectations, and (h) guarding against narrow, stereotypical conceptions of which subgroups of children or families should be considered "at risk" for various negative outcomes.

Conclusions

Resilience research has substantial potential to guide the development of effective interventions for diverse at-risk populations, given the empirical attention to positive adjustment as well as to adaptational failures, to forces that are protective in nature as well as to those that exacerbate vulnerability, and to the mechanisms that underlie their effects. As Coie and colleagues (1993) note, in many situations where risk factors are difficult to eliminate altogether (or to identify in advance), intervention strategies of choice often lie in concerted efforts to understand and bolster protective processes.

On the other hand, the benefits of applying the resilience paradigm can be seriously jeopardized without careful attention to several critical precautions. Documentation in both science and practice must include explicit clarifications that resilience represents competent adaptation in the face of adversity, preempting misconceptions that this is a proxy for some individuals' innate imperviousness to life stresses. Interventions based on resilience research must have a compelling basis in both theory and prior empirical findings on the recipient groups, should target protective and vulnerability forces at multiple levels of influence, and must reflect careful consideration of the ways in which goals and techniques "fit" with the life circumstances and

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everyday ecologies of the individuals served. Furthermore, integrative, community-based approaches in service delivery are critical.

Several recent national initiatives reflect explicit recognition of the potential for resilience research to guide efficacious interventions. The inherent promise of the construct of resilience must, however, be continually weighed against the dangers of hasty applications (e.g., those with little conceptual coherence or ecological relevance). Improvident interventions not only dissipate limited service dollars in the short term but also, more seriously, can serve to perpetuate dangerous beliefs over time about the intractability of problems among various vulnerable segments of contemporary society.

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