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Conceptual Issues in Studies of Resilience:

Past, Present, and Future Research

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Abstract

We begin this article by considering the following critical conceptual issues in research on resilience: (1) distinctions between protective, promotive, and vulnerability factors; (2) the need to unpack underlying processes; (3) the benefits of within-group experimental designs; and (4) the advantages and potential pitfalls of an overwhelming scientific focus on biological and genetic factors (to the relative exclusion of familial and contextual ones). The next section of the article is focused on guidelines for the selection of vulnerability and protective processes in future research. From a basic science standpoint, it is useful and appropriate to investigate all types of processes that might significantly affect adjustment among at-risk individuals. If the research is fundamentally applied in nature, however, it would be most expedient to focus on risk modifiers that have high potential to alter individuals' overall life circumstances. The final section of this article considers conceptual differences between contemporary resilience research on children versus adults. Issues include differences in the types and breadth of outcomes (e.g., the tendencies to focus on others' ratings of competence among children and on self-reports of well-being among adults respectively).

Keywords

resilience; protective processes; risk modifiers; interventions

INTRODUCTION

The value of empirical data on childhood resilience rests upon our conceptual understanding of the issues central to this research. It is therefore essential for scholars engaging in the study of resilience to critically appraise ongoing dialogues on the themes salient to this body of work. This article touches briefly on six such themes. The first three are issues that have been discussed for years in the literature, but there are still some points of confusion; these have to do with what we mean by labels of protective and vulnerability factors, the need to unpack underlying processes or mechanisms, and the usefulness of interaction effects (as opposed to using within-group studies). The other three issues have not been discussed quite as much in the past; these pertain to the focus on biological and genetic indices, research priorities in our future work, and differences between resilience research on children versus adults. In discussing all these issues, a common underlying consideration is how we, in science, can best intervene to help vulnerable children and families: a theme that undergirds much (if not most of) contemporary research on resilience.

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DISTINCTIONS BETWEEN PROTECTIVE, PROMOTIVE, AND VULNERABILITY FACTORS

The central objective of resilience researchers is to identify vulnerability and protective factors that might modify the negative effects of adverse life circumstances, and having accomplished this, to identify mechanisms or processes that might underlie associations found.[1–4] In the literature on resilience, discussions on the notions of vulnerability and protection have reflected considerable confusion around definition, measurement, and interpretation of statistical findings. Clarification of the meaning of terms "protective factors" and "vulnerability factors" is therefore vital for further research.[5]

The term "protective factor," referring to something that modifies the effects of risk in a positive direction, clearly has positive connotations, referring to something that is helpful or beneficial. What is less clear is whether this is also the inverse of "vulnerability factor," with the two terms reflecting two sides of the same coin, as it were. Until recently, many suggested that this is the case—as high IQ is protective, low IQ connotes vulnerability. However, this is not necessarily true for all variables, and caution must be exercised in choosing between labels.

We illustrate the need for care in this regard with a data-based example. In a study of children of mothers with major mental illness,[6] we found positive links between maternal warmth and child competence. This might suggest, logically, that mothers' warmth served as a protective or promotive factor. However, when the distributions of children's scores were examined, this is not what was revealed. On the measure of competence used in this study, T scores of 50 reflect the population average so that scores of 60 or more—at one standard deviation above the average—would imply excellence and those of 40 or less would connote significant vulnerability. In our own at-risk sample, children with high maternal warmth were close to national averages (with T scores of about 52); they did not reflect "superior" competence. On the other hand, those with low closeness fared quite poorly, clearly in the clinically significant range (with mean competence T scores of about 36). In this case, therefore, high closeness was not particularly promotive—rather, low maternal closeness connoted significant vulnerability. In future research, therefore, it would be useful for researchers to examine such distributions of scores to determine the "polarity," as it were, of apparently bipolar variables, to see whether most of the effects occur at the positive end, the negative end, or in fact, equally at both.

THE NEED TO UNPACK UNDERLYING PROCESSES

The need to unpack processes is critical not only with reference to risk modifiers but also the risk indices themselves. With regard to risk modifiers (or protective and vulnerability factors), this issue has been written about frequently in the past with questions, such as, "What is it, exactly, about family support that might promote resilience: A sense of security? High self-esteem? Feelings of control?" Less often discussed is the need to unpack processes that underlie the risk indices themselves. We know well that risk factors tend to coalesce or coexist.[7,8] Research has shown us, for example, that maternal drug abuse tends to co-occur with diagnoses of depression or anxiety, and also with major life stressors. A critical question to be addressed is the following: If one considered all of these risks together, which ones would prevail in actually representing high risk? The answer to this question is not necessarily intuitive. Recent evidence suggests that maternal depression actually seems to connote more risks for children than does maternal substance abuse in itself.[9] Unpacking the relative impact of different processes linked with a global risk factor, therefore, is critical in understanding antecedents of vulnerability and resilience.

Findings such as these can have major policy implications. To continue with the preceding example, drug-abusing mothers tend to be seen as having willfully jeopardized their children's well-being and are subject to punitive measures, such as revocation of parental rights.[10] In comparison, mothers with depression are often seen as victims of genetic predisposition or life circumstances. As we weigh such disparities in attitudes, it is worthwhile to consider that the evidence suggests that maternal drug dependence is not necessarily more inimical for children than is maternal depression. Like depression, it is a psychiatric condition that emerges from multiple vulnerabilities, and like depression, it can show considerable improvement with therapeutic attention.

ASSUMPTIONS REGARDING "HIGH" AND "LOW" RISK

These findings on maternal drug abuse lead to another broader issue warranting careful attention in our research, and this pertains to commonplace assumptions about what a risk condition is, or is not. Again, presumptions in this regard are not necessarily based on reality, as is evident from findings on children at the socioeconomic status (SES) extremes.[11]

Whereas youth in urban poverty are commonly and appropriately thought of as being at high risk, recent evidence shows that those at the other end of the socioeconomic extreme can reflect as much disturbance or more. In a comparative study based on data gathered about a decade ago, affluent, suburban youth reported significantly higher levels of cigarette, alcohol, and marijuana use as compared to their counterparts in serious poverty.[12] Suburban youth also reported higher levels of substance use when compared with national normative samples. More recent data collected from another suburban community[11,13] and from a private high school in a large city,[14] replicated these findings; again, use levels were higher among these affluent youth as compared to norms.

Elevated problems were also seen on other adjustment indices, both internalizing and externalizing in nature. Affluent girls in particular have been found to show elevated levels of depression and anxiety symptoms[11,15] and both boys and girls show striking elevations in rule-breaking behaviors. In national normative samples, about 7% of youth have T scores of 65 on rule breaking,[16] and in our suburban and urban affluent samples, rates were two to three times as high.

Collectively, these data indicate the need for researchers to be careful about assuming that particular demographic groups are necessarily at "low" risk. There is no question that children living in chronic poverty face significant risks to their well-being. This does not imply, however, that their counterparts in affluence experience salutary life circumstances, or for that matter, even stress-free ones.

INTERACTION EFFECTS VERSUS WITHIN-GROUP ANALYSES

A third critical conceptual issue has to do with the role of statistical interaction effects in resilience research. As frequently noted, interaction effects are conceptually very intriguing.[17] On the other hand, searching for them can sometimes be counterproductive.[18] We illustrate this with a hypothetical example from a study on youth in poverty. The focus here is on various family predictors with the hypothesis that stringent limit setting will be a critical "protective factor." This is, in fact, borne out by simple correlations in this study, with high limit setting linked with responsible, prosocial behaviors. In multivariate regressions, moreover, this effect remained significant even with the inclusion of several other family-level variables.

If the researchers then wished to document interaction effects—showing benefits of stringent limit-setting among low-income youth but not others—they would include a comparison group of middle class youth. Multivariate regressions would then be conducted based on the entire sample, with initial controls for several variables (e.g., age, gender, ethnicity of the child), and then main effects (e.g., limit-setting along with other family dimensions), followed by interaction terms: SES by limit setting, and in interaction with other family variables.

Whereas limit setting showed positive simple correlations with competence among low-income children, it was negatively correlated with competence among middle-income youth (for whom stringency can imply harshness[5]). With all the children considered together in the regressions, then, these effects would serve to work against each other, rendering the main effect for limit-setting weak or statistically nonsignificant. Furthermore, the multiple interaction terms included in the equation would use several degrees of freedom so that the block as a whole also could become nonsignificant. Thus, the pursuit of interaction effects might essentially have obscured the fact that stringent limit setting was, in fact, potentially beneficial for youth in urban poverty.

The point underlying this illustration goes well beyond whether or not researchers should focus on interaction effects; we are arguing for more *within-group analyses* with discrete groups of people at risk. When researchers work with particular at-risk children, they seek to illuminate what makes a difference for *these* youth—not whether these factors affect sundry other comparison groups. Reverting to the previous example, then, the critical question is not whether limit setting "matters more" for poor youth than for their more affluent counterparts, but rather, "Given the different forces salient in the lives of low-income teens, which particular ones prevail in compensating for their adversities?" Fortunately, the value of within-group studies is being increasingly acknowledged.[19–24] Developmental scholars endorse shifts in designs from comparative approaches that document group differences, to within-group analyses illuminating the particularly critical processes for youth from given subcultural backgrounds. Such studies are often the strategy of choice when seeking to learn about intervention priorities in subgroups of the population about whom we currently understand little.[5]

FOCUS ON BIOLOGICAL AND GENETIC FACTORS: CONSIDERATIONS FROM AN APPLIED PERSPECTIVE

For decades, resilience research was focused entirely on psychological or behavioral variables; and we are now well into a new era with concerted attention to biology and genetics as well.[25,26] In a seminal overview paper, Curtis and Cicchetti[27] explained the importance of diverse biological processes ranging from neuroendocrinology to capacities for emotion regulation. With regard to genetic influences, Rutter, Caspi, Kim-Cohen, Moffitt, and their colleagues have written extensively on genetic factors potentially involved in resilience.[4,28,29] Recent studies have identified gene–environment interactions—wherein both genes and child-specific environmental influences contribute to behavioral resilience—as well as specific gene markers that contribute to protection or vulnerability in the face of childhood adversities.[30,31]

From an intervention perspective, there are several obvious advantages of these lines of inquiry. Most obviously, we are making great scientific strides as we learn about the biological aspects of the human body that impose constraints, or confidence intervals, within which environments can be helpful. Another benefit is that in demonstrating the power of environmental inputs, biological evidence tends to be particularly compelling. If intervention researchers could demonstrate that good early interventions result in increased

brain mass and enriched neural networks, this tends to be more powerful evidence, to the minds of many, than simply reports of improvements in children's observed or self-reported adjustment. Similarly, attempts to prevent adolescent substance use might be bolstered if families and youth are made aware of the neurodevelopmental risks involved, especially the high plasticity and hence vulnerability of the developing brain during adolescence.

At the same time, researchers operating from an intervention perspective need to be careful about moving hastily to an overwhelming focus on genes and biology. This cautiousness is warranted for at least two reasons. First, as exciting as discoveries of gene markers are, we are limited in how much we can change these. Second, we have limited funds for research to promote resilience (unfortunately, increasingly limited funds for health-related research altogether). And the reality is that as we devote more to studying biology and genes, we have that much less toward developing creative interventions to alter factors that we already *know very well* can make an enormous difference—not just factors like poverty and community violence, but also maltreatment in homes, lack of services for families, and so on.

If a fundamental goal is to promote the psychosocial well-being of vulnerable children and families, therefore, we believe that it is critical to ensure balance in our scientific priorities. Discovering biological risk and gene markers constitutes groundbreaking science. At the same time, much is still to be learned about using research-based interventions that attenuate potent and well-known environmental risks affecting the lives of thousands of today's children.

GUIDELINES FOR THE SELECTION OF VULNERABILITY AND PROTECTIVE PROCESSES IN FUTURE RESEARCH

In considering future research on resilience, we consider, next, how we might most productively focus our future inquiry on psychosocial vulnerability and protective factors. There are so many candidate constructs from which to choose, all potentially alleviating or exacerbating risk. Weighing this issue again, from an applied or interventions perspective, we present a set of four criteria that might be helpful.[5]

First, given a particular at-risk condition, there must be concerted attention to factors that are *salient in that particular life context,* those that affect a relatively large number of people in that group. Second, we should prioritize attention to indices that are relatively *malleable*—risk modifiers amenable to change via external interventions or "modifiable modifiers." Third, focus should be afforded to indices that tend to be relatively *enduring* in a child's life, or those that continue to exert their (positive or negative) effects for some length of time. Finally, it is critical to attend to indices that are *generative* of other assets; those that set into motion "cascades"[2] wherein they catalyze other protective processes.

Reviews of more than 50 years of research on childhood resilience[5,32] show that across different risks—ranging from parental divorce and bereavement to maltreatment and community violence—close, supportive family relationships clearly meet all four criteria. These relationships are obviously salient and proximal in children's lives; they can be changed via interventions; parents are present in children's lives for almost two decades or longer; and good parent–child relationships can generate other assets, such as feelings of confidence, security, and self-efficacy.

At the same time, there is still a great deal more to be learned about parents, families, relationships, and resilience. Most importantly, we have very little research on what *makes for* good parenting.[5] In child development studies, parenting dimensions are almost always

predictor variables and almost never outcomes, so that we know little about how it is that parents facing formidable challenges are still able to function reasonably well. Thus, in future research it must be a priority to understand how parents, particularly mothers who are usually primary caregivers, are able to do well despite considerable odds (e.g., chronic poverty along with serious psychiatric problems).

We also need more research on the specific demands of parents in particular risk contexts, and on how to optimally harness the resources available from adults other than parents. As an illustration relevant to the first point, parental monitoring and supervision are critical in violence-prone, inner-city settings whereas in upper-class suburbia, guarding against crushing achievement pressures can be crucial.[10] With regard to the recommended increased focus on nonparent adults, this is important because the reality is that even with our best efforts, we will not be able to reach some parents at high risk. Juxtaposed with this unfortunate reality, however, is a more comforting one (a truism put forth decades ago by pioneers in resilience[33–35])—what is critical is a strong, enduring relationship with *at least one caring adult*; this may or may not be a biological parent. For vulnerable children in contemporary society, there are in fact many adults who could potentially fulfill this function—not only informal mentors, but also teachers at school, often cited as having turned people's lives around.[5] Stated differently, we know without question that good relationships are fundamental to children's resilient adaptation. We need, now, to work harder on developing interventions that harness the relationship resources existing in children's lives, toward systematically fostering strong, supportive relationships in the lives of vulnerable youth.

CONCEPTUAL DIFFERENCES BETWEEN RESILIENCE RESEARCH ON CHILDREN VERSUS ADULTS

The last set of issues we will address concerns conceptual differences between contemporary research on resilience in children versus resilience in adults. A particularly intriguing difference pertains to the types of outcomes typically considered. In work with children, researchers usually consider behavioral competence, or the degree to which they meet society's expectations in stage salient tasks.[30] Assessments are based on reports from their teachers, their classmates, and their parents, about whether they are getting good grades, getting on with peers, and are generally well behaved. In the adult literature, conversely, the focus is on how the person herself or himself feels. Prominent are indices, such as subjective well-being, happiness, self-reported absence of distress, and so on.

The two approaches to assessing well-being—based on others' versus self-reports—have apparently been largely exclusive to children and adults, respectively. Few if any studies on resilience among adults have defined "doing well" in terms of others' ratings of them, gauging whether they functioned as good spouses, parents, bosses, or mentors. In parallel, researchers do not ask children about their subjective well-being. Feelings of depression or anxiety are commonly measured, but for some reason, assessments of happiness have not been considered relevant for our children. In future studies on resilience, therefore, researchers working with adults and children would each do well to borrow a little from each others' methodologies as they consider different strategies to define and explore resilient adaptation.

SUMMARY

To summarize the different themes touched upon within this article: First, as we uncover statistical "main effect" findings, labels of "protective" factors versus "vulnerability" factors should not be chosen arbitrarily. Examining the distribution of scores vis-à-vis norms can be

critical in illuminating whether the construct connotes exceptional well-being at one end, or exceptional dysfunction at the other. Second, the need to unpack underlying processes is important not only with regard to risk modifiers, but with risk indices themselves. Effects of particular parent mental illness, for example, can operate through many conduits, and disentangling which of these is the most prominent is critical to guide interventions. Third, when the goal is to inform interventions for a given at-risk group, within-group designs are optimal; these help us understand which of several major influences are most potent in affecting children's lives. Fourth, increased attention to biology and genes is invaluable, illuminating critical aspects of the human body that can compromise well-being. At the same time, we must ensure balance in our research priorities; there is still much to be learned about context-specific environmental risks, and about how we can effectively mitigate the many risks already well known to have profound ill effects.

If researchers seek to guide interventions, it would be prudent to prioritize somewhat, in choosing "risk modifiers" for our studies. Especially useful would be a focus on factors known to be *salient* in that risk context, that are *malleable* or amenable to interventions, that are *enduring*, affecting children for relatively long periods, and that are *generative* of other assets. Strong relationships with adults meet all these criteria; at the same time, we need much more research on antecedents of good parenting—within different risk contexts—and how to optimally use other adults, such as mentors or teachers, to promote resilience. Finally, researchers working with children and adults could usefully learn from each others' methodologies. In particular, it would be useful to define adults' resilience in terms of others' views of how well they are doing and not just their own feelings of well-being, as it would help to look at what makes for children's subjective feelings of happiness.

The field of resilience research has grown momentously over the last several decades, and with further integration of diverse approaches to science, research in the years ahead will be invaluable in helping the children and families with whom we work. This research can inform interventions that help at-risk individuals to function adaptively, and to feel some sense of personal well-being, despite the many and considerable adversities with which they contend.

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