Risk, protection, and resilience: Toward a conceptual framework for social work practice

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In both the academic and popular press, the related concepts of risk, protection, and resilience have emerged as constructs for conceptualizing social and health problems. The idea of “risk” is ubiquitous in social work. In everyday use, the term conveys the notion that an individual, family, group, school, neighborhood, or organization is likely to experience a negative outcome. Although the ideas of protection and resilience conjure up images of extraordinary feats in overcoming adversity, they are elusive. In light of the growing salience of what some call the “risk-and-resilience” perspective, this special issue of Social Work Research highlights social work research that uses the concepts of risk, protection, and resilience. In this introductory article, the authors define key terms, discuss methodological issues, and explore implications for the profession.

Key words: resilience; risk factors; protective factors; social work practice

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RISK FACTORS

Risk, technically, is a probability describing the likelihood of a future event, given a certain condition or set of conditions. If the prevalence of schizophrenia is 1 percent in the population but we know that somewhere between 10 percent and 15 percent of children with a parent who has schizophrenia are likely to develop schizophrenia, we can say that children of parents with schizophrenia are at higher risk than the rest of the population (Richters & Weintraub, 1990). We might even say that the risk of developing schizophrenia is 10 to 15 times higher than the rest of the population.

Risk factors are markers, correlates, and—in a best-case scenario—causes. For example, although other factors are related to serious mental illnesses such as schizophrenia, parental psychopathology is...
thought to influence the likelihood of developing the disorder. How it does that—whether through genetic or environmental influences—is not yet fully understood. But the word “risk” denotes the fact that a group of people with a similar characteristic is more likely than others in the population at large to develop a problem (in this case, schizophrenia).

Risk is a central concept in the field of public health, where it has been coupled with the concepts of covariation and prediction. That is, risk refers to the relative influence of a variable on some outcome such as a heart attack, stroke, or hip fracture. Risk factors may be individual characteristics (such as traits and dispositions), specific life experiences or events (such as the death of a parent), or contextual factors (such as neighborhood safety). Risk is defined probabilistically as any influence that increases the likelihood of the onset of a problem or maintains a problem state (Coie et al., 1993). It is applied also to influences that cause regression to a more serious state, as in relapse or the recurrence of symptoms after a period of remission (Kirby & Fraser, 1997).

Nonspecific Risk Factors

Some individual, familial, and extrafamilial factors appear to affect many disorders concomitantly and in that sense they are “nonspecific” risks. They elevate risk for a variety of conditions. These risk factors include child abuse; chronic family conflict; unskilled parenting; academic failure; peer rejection; poverty; racism, sexism, and other types of discrimination; and neighborhood disorganization (for reviews, see Coie et al., 1993; Kirby & Fraser, 1997).

The discovery of these generic or cross-cutting risk factors has led some scholars to argue that cumulative risk may be more important than problem-specific risk (Rutter, in press). This view is rooted in recent research that suggests there is no single pathway leading to many social problems. In a recent longitudinal study of approximately 1,500 first-, fourth-, and seventh-grade boys, Loeber, Farrington, Stouthamer-Loeber, and Van Kammen (1998) found that low levels of academic achievement, high attention deficit and hyperactivity, poor family supervision, and poor family communication related commonly to delinquency, substance use, conduct problems, physical aggression, covert (concealing) behavior, depression, and shy or withdrawn behavior. Such findings have led Sameroff and others to contend that the number of risk factors is a better predictor of outcomes than specific risk-based path models (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1999; Sameroff, Seifer, Baroces, Zax, & Greenspan, 1987; Sameroff, Seifer, Zax, & Baroces, 1987). In fact, Garmezy (1994) argued that “a focus on specific stressors as antecedent to disordered behavior now has an old-fashioned ring to it” (p. 7). In this special issue of Social Work Research, Kalil and Kunz demonstrate the cumulative risk approach in identifying risk and protective factors for adolescent childbearing.

Specific Risk Factors: Need for an Integrated Perspective

A cumulative risk perspective does not imply that problems are explained fully by generic risks. It merely suggests that the effects of poverty, racism, gender discrimination, child maltreatment, unskilled parenting, and other negative conditions elevate the odds for many types of problems and disorders. Some risk factors are clearly associated with specific social and health problems. Failure to use contraception, for example, is a more important risk factor for sexually transmitted diseases than it is for dropping out of school (Rounds, 1997). Along these same lines, Loeber et al. (1998) found that lack of guilt was associated more strongly with conduct problems, physical aggression, and delinquency than with depression, substance use, and shy or withdrawn behavior. In this issue, Miller and MacIntosh examine the relationship between academic achievement and linear combinations of stress, daily hassles, neighborhood safety, ethnic identity, racial socialization, and “racelessness.” Demonstrating a specific risk and protective factor perspective, their work suggests that having an ethnic identity may reduce the effect of daily hassles and promote academic achievement among African American youths. These kinds of findings argue for an integrated perspective that includes both cumulative risk and specific risk indicators.

The Developmental and Contextual Sensitivity of Some Risk Factors

Clearly, different risk factors are salient at different ages and stages of development. In the Pittsburgh Youth Study, for example, Loeber et al. (1998) found that the effect of physical punishment (spanking or slapping) on behavior varied by the child’s age. For seven- and 10-year-old boys, it doubled the odds of physical aggression, but for 13-year-old boys, it more than quadrupled the odds of physical aggression. In the same way, the influence of some contextual factors is age and development related. For example, peer rejection and acceptance begin to exert an influence on children’s behavior in elementary
school, and by middle school, they compete with parental influence (Williams, Ayers, & Arthur, 1997). Throughout one’s life, individual risks can be thought of as nested in the context of family, school, neighborhood, and broader societal influences that both affect and are affected by individual factors.

A central issue in understanding individual risk—such as genetic risk for a mental disorder—is whether individual vulnerability directly affects developmental outcomes or whether it is mediated or moderated by adverse environmental conditions (for a review of biological risk factors, see Vance, in press). That is, is high genetic risk sufficient in and of itself to produce a disorder? Or is its effect somehow triggered or perhaps exacerbated by environmental risk factors? The answer is probably both. Intellectual level (which many believe has both environmental and biological components) has been found in a number of studies to be modestly negatively correlated with aggressive behavior. However, when it is combined with family adversity, it exerts a far stronger effect on behavior (Moffitt, 1990; Rutter, in press). To the extent that intellectual level represents an individual risk factor, such data suggest that risks can be triggered by adversity. Individual vulnerability appears to have a direct effect on behavioral outcomes, but the effect of some individual risks may be intensified by environmental conditions.

Risk Differences by Gender, Race, and Ethnicity

Prevalence data suggest that risk factors differ by a variety of sociodemographic characteristics—gender, race, ethnicity, culture, religion, and other issues of difference. For example, census data show that school dropout rates vary by race and ethnicity, with African American and Hispanic children at greater risk of dropping out than white students (Livingston & Miranda, 1995; Richman & Bowen, 1997). In the same vein, data on delinquency and violence indicate that African American youths are more likely than white youths to be victimized by and to be involved in serious violent crime (Williams et al., 1997). And with regard to gender, boys tend to be classified as having attention deficit and hyperactivity disorder more frequently than girls, although the reasons for this classification may be because of inadequate information about girls (Barkley, 1997; Dedmon, 1997). Conduct disorder, too, is found consistently at a much higher rate in boys than girls (Robins, 1991).

We are just beginning to develop deeper understandings of the ways in which risk and protective factors vary according to gender, race, and ethnicity. For example, Werner (1990) reviewed several studies and described gender differences in child-rearing practices that differentially affected males and females. Werner noted that resilience in girls was promoted by parenting styles that placed emphasis on risk taking, independence, and stable emotional support. For boys, resilience was promoted by parenting styles that provided higher degrees of supervision and structure, the presence of a male role model, and support for expressing emotions. Similar to gender differences, race and ethnicity differences are beginning to be understood. For example, Vega and colleagues (1993) studied risk factors for drug use in sixth and seventh graders and found that among Cuban, other Hispanic, black, and non-Hispanic white youths, risk patterns differed by race and ethnicity. Although the distribution of risk factors for all groups was not significantly different, the mean number of risk factors varied by race and ethnicity, with African American children having the highest mean number of risk factors.

Although they are not well elucidated, these gender, race, and ethnicity differences clearly represent a complexity of effects. These include the effects of discrimination and poverty, but they include also the presence of affirming cultural patterns that derive from common heritages or experiences. Among African American families, for example, strong social ties, a deep sense of spirituality, racial identity, and flexibly configured families that include kin and nonkin were reported recently to contribute to resilience (McAdoo, 1998).

Although evidence is accumulating on gender, racial, and ethnic differences, it is sparse. Studies that contain adequate information on African Americans, Latinos, and other people of color are needed. In this issue, Miller and MacIntosh find important differences on ethnic identity, racial socialization, and racelessness in a sample of African American children. Such findings suggest that between- and within-group differences must be assessed to understand the life events, stressors, and risk mechanisms that underlie risks related to gender, race, and ethnicity. (For a discussion of cultural differences and race and ethnicity, see Merrell, 1999.)

Risk Processes: Passive, Reactive, Reflexive, and Opportunity Effects

Underlying individual risk factors and risk-related life events are processes that influence life course outcomes. Much research to date has focused on risk as an event, such as the death of a parent or grade
retention in elementary school. Although the death of a parent is a traumatic event that holds the potential for a stress disorder, probably it initiates a process of ramifying change that affects child development for many years. For example, it may affect family resources, living conditions, homework supervision, discipline, extended family relationships, and other family-related conditions. Understanding these proximal risk processes likely will prove more important in advancing practice knowledge than noting a specific event as a marker for elevated risk.

A next generation of studies is beginning to attack the problem of illuminating these risk mechanisms and chains. These risk processes are likely to contain linkages across and be rooted in four kinds of effects. The processes that affect individuals over time, for example, clearly will involve passive effects over which an individual has little or no control: These might include poor prenatal care, exposure to environmental hazards, or highly influential random events, such as being involved in a disfiguring accident. Moreover, processes are likely to involve the reactive effects of others (for example, rejection by one’s peers) and reflexive effects or one’s response to events (for example, actively seeking friends of a like mind). The cumulative influence of passive, reactive, and reflexive effects is likely to have a profound opportunity effect, shaping the kinds of opportunities afforded by the environment (for example, employment in the licit versus illicit marketplace). To make a risk and resilience perspective more useful to practitioners, risk chains involving passive, reactive, reflexive, and opportunity effects must be articulated, and points of intervention must be distinguished (Capaldi & Stoolmiller, 1999).

PROTECTION AND PROTECTIVE FACTORS

Like risk factors, protective factors predict future outcomes. Often conceived as conceptually distinct from risk factors, protective factors modify risk (Rutter, 1987). Moreover, they compensate for risk by directly reducing a disorder or dysfunction, and they mediate risk in chains of risk and protective factors (Coe et al., 1993). Sometimes, too, they provide resistance to risk by moderating the relationship among risk factors and problems or disorders (Bryant, West, & Windle, 1997). The latter usually is called a “buffering” effect, because it buffers an individual against the full effect of risk. Protective factors are important because they provide clues for designing more effective social programs. They identify potentially targetable influences that, if fostered by a program, may directly affect a problem or moderate a risk related to a problem (Burt, Resnick, & Novick, 1998).

Not merely the opposite of a risk factor, protective factors should be thought of as separate constructs that affect risk or problem states (for discussions, see Jessor, Van Den Bos, Venderyn, Costa, & Turbin, 1997; Newcomb & Felix-Ortiz, 1992). The means for defining and categorizing protective factors are not well specified. Whether high social support, for example, is defined as a protective factor or whether low social support is defined as a risk factor depends on earlier research and the nature of the relationship between social support and a specified outcome. Few variables are perfectly linearly related to outcomes. With theoretical justification, nonlinearities in relationships can be used to classify a variable as a risk or protective factor. That is, in seeking to classify a variable as a risk or protective factor, the threshold at which the odds ratios change can be used to supplement theoretical knowledge. Defined in part by these threshold effects, protective and risk factors can be thought of as reflecting “the critical component of a predictor” (Newcomb & Felix-Ortiz, p. 281).

Compared with risk, less is known about protection. Like risk factors, protective factors may be individual characteristics (for example, an easy-going temperament), family factors (for example, parental warmth and supervision), or extramilateral conditions (for example, having a network of supportive friends or attending regularly a place of worship) (see, for example, McLoyd, 1998; Runyan et al., 1998; Stewart, Reid, & Mangham, 1998). In seminal research on protection, Werner (1996) studied 201 high-risk youths from the island of Kauai and identified five clusters of protective factors. The first included characteristics of temperament—being easy going and deliberate—that leveraged advantage in social and school relationships. The second cluster included skills and values—tenacity, responsibility, and positivism—that led to maximizing opportunities in the context of personal limitations and environmental adversity. The third was related to family support and structure, especially a style of parenting that promoted self-efficacy. The fourth cluster consisted of the broader network of adults and extended family members that might be called on to assist in solving problems or to provide guidance at points of transition (for example, from school to work). The fifth cluster had to do with the larger opportunity structure that differentially opened chances for supplemental education and training through the
military, community colleges, and job training and other agency programs.

Compensatory Protective Effects

Compensatory protective factors directly reduce a problem or disorder. One usually thinks of a compensatory effect as a statistical main effect. That is, it does not affect risk but rather exerts a direct effect on a problem or disorder. In a study of over 36,000 seventh- through 12th-grade students in Minnesota, compensatory protective effects for externalizing problem behaviors were found for family, school, and religious connectedness, plus low exposure to poverty, parental unemployment, parental substance abuse, and domestic violence (Resnick, Harris, & Blum, 1993). With clinical data, Wolin and Wolin (1995) identified seven “resiliences” that help children respond adaptively to neglect, criticism, family violence, and other risks. These protective influences—largely personal attributes—include insight, independence, fulfilling relationships, initiative, creativity, humor, and the capacity to distinguish good from bad (Wolin & Wolin, 1995). These attributes clearly would help all children, and in studies that use a compensatory perspective, they are conceptualized as directly altering the chances of negative future outcomes.

Buffering Protective Effects

Although more complicated conceptualizations of protection have been advanced (Rutter et al., 1997), Rutter (1987) and others have argued that protective factors are defined both by compensatory effects and, perhaps more important, by interactional effects. That is, they are defined, in part, by the degree to which they moderate risk. This interactional perspective does not exclude the possibility that a factor exerts an influence on people who are at risk. It merely argues that the more important influence is on people whose risk levels are high (Dubow, Roecker, & D’Imperio, 1997). From this perspective, high intelligence may have a compensatory effect on all children, and it may interact with risk to produce a buffering effect for children exposed to higher levels of risk. To be a buffering protective effect, a factor must exert an even stronger, positive effect on children who have been exposed to adversity. In this issue, for example, with a representative sample of 2,099 middle and high school students, Nash and Bowen assess the competing effects of compensatory and buffering influences on perceptions of peer behavior.

In studies of high-risk populations (where there is no normative sample), it is difficult—if not im-
correlated (−.42), suggesting that risk and protection are not orthogonal in practice and that higher risk is associated with lower levels of protection. Jessor et al. controlled for sociodemographic differences among the students and found that both the risk and protective factor indices explained significant amounts of variation in problem behavior. However, the risk index explained 13 percent of the variation, whereas the protection index added only 1 percent increment to the $r^2$. An interaction term composed of cumulative indices added an additional one percent. Curiously, when the indices were disaggregated and individual variables entered into a specific risk and specific protection model, the final total $r^2$ was twice that of the $r^2$ when the cumulative indices were used. In this model too, risk was found to explain the greatest percentage of problem behavior, and the findings supported both the compensatory and buffering protection perspectives. However, the use of cumulative indices—that is, the nonspecific risk perspective—may mask the effects of individual protective or risk factors and depress the $r^2$.

From a practice perspective, a startling pattern emerged when time was factored into the Jessor et al. (1997) models (that is, when lagged models were estimated). Compared with cumulative protection, cumulative risk was associated more strongly with the initial escalation of behavior from normative to problematic levels. In contrast, cumulative protection was associated significantly with reductions in problem behavior over time—that is, with the de-escalation of problematic levels of behavior. Counterintuitively, cumulative risk was not associated with changes in problem levels over time. This suggests that protective factors may exert a greater influence on the maintenance, digression, and exacerbation of problems than on the initiation of problem behavior (see, for example, Bowen, 1998). It may be then that treatment programs that work with clients who have demonstrated high problem levels (and where risk is addressed ipso facto) will benefit greatly from an approach that promotes protective factors (see, for example, Bowen, 1999; Runyan et al., 1998).

**RESILIENCE: LEARNING FROM SUCCESS**

Although it is sometimes applied to families, groups, or organizations (see, for example, Walsh, 1998), the term “resilience” usually is used to describe individuals who adapt to extraordinary circumstances, achieving positive and unexpected outcomes in the face of adversity. We know that some children who are exposed to hostile environments survive without developing serious problems (Smith, Lizotte, Thornberry, & Krohn, 1997). These children seem to have a self-righting capacity, an ability to respond with resourcefulness and tenacity when confronted with untoward challenges. Rather than an invariant trait, resilience is a dynamic response to a multiplex of biological, psychological, social, and other environmental influences. For children, resilience is closely tied to development. The skills and competences that characterize resilient functioning at one point in time may obsolesce in the face of new developmental challenges or new contingencies in the environment. Today, scholars discuss three related aspects of resilience:

- overcoming the odds—being successful despite exposure to high risk
- sustaining competence under pressure—adapting successfully to high risk
- recovering from trauma—adjusting successfully to negative life events.

In all three, resilience is characterized by successful functioning in the context of high risk. Because people are malleable, we must distinguish resilience from simple survival. Survivors can become immobilized by anger or absorbed by victimization (Wolin & Wolin, 1993). The term “resilience” is reserved for unpredicted or markedly successful adaptation to negative life events, trauma, stress, and other forms of risk. If we can understand what helps some people to function well in the context of high adversity, we may be able to incorporate this knowledge into new practice strategies. That is the promise of resilience: to learn from success. But it is fraught with methodological problems.

**Defining Success.** In operationalizing resilience, the way success is defined and the degree to which it is evidenced in various aspects of functioning are controversial. Some studies suggest that people who survive trauma and other adversity are rarely “resilient” across all domains of functioning. (See, for example, Brodsky, 1999; Luthar, 1991.) Other studies have found little evidence of differential adaptation in resilient populations (Neighbors, Forehand, & McVicar, 1993). In a recent longitudinal study of 205 urban children, Masten et al. (1999) observed that resilient children differed little in emotional adjustment, academic performance, self-concept, or other indicators of well-being compared with equally competent children who had low exposure to adversity. In this sample, resilient children appeared to be developmentally comparable to children who had not been exposed to risk.

Resilience, however, does not intimate invulnerability. In the Kauai Longitudinal Study, children
described as resilient were not immune to painful memories and other social or health problems (Werner & Smith, 1992). Similarly, in a longitudinal study of about 150 students in the ninth grade of an inner-city public school, Luthar, Doernberger, and Zigler (1993) found that “resilient” youths manifested depressive symptoms comparable to highly stressed but low-performing youths. Although recent studies suggest that success in one domain may spill over into another domain (Masten et al., 1999), the fact that a high-risk child is functioning well does not necessarily imply invulnerability or lack of problems experienced in other domains. At a minimum, the conflicting findings raise the possibility that resilience can be too broadly conceptualized.

**Individual Adaptation in Context**

To be resilient, one must be exposed to risk and then respond successfully. Resilience is a successful adaptational response to high risk. By definition a person who is not exposed to risk cannot be said to be resilient. By definition resilience is measured by an individual adaptational response.

Conceptually, resilience is the transactional product of individual attributes and environmental contingencies. Because adaptational responses are often tied to skills, competences in problem solving, communication, and coping, as well as an ability to act in a planful way are considered to be core elements of resilience (Hetherington & Blechman, 1996). In addition, attitudes (such as an optimism bias), beliefs (such as commitment to conventional lines of action), and dispositions (such as an easy-going temperament) contribute to resilience (see, for example, Murphy, 1987). These individual attributes are sometimes considered the defining or axiomatic elements of resilient people. But the presence and potency of individual attributes must be viewed in context. Individual characteristics interact with and often depend on familial and extrafamilial resources. Resilience is context dependent.

**Possibly Low Levels of Resilience in High-Risk Populations**

To date, we have no reliable estimates of the proportion of children or adults that may be resilient at any moment in time. In their sample of 205 urban school children, Masten et al. (1999) found 43 (57.3 percent) of 75 high-adversity children to be “doing reasonably well on . . . major developmental tasks” (p. 144). These children were defined as “resilient” by virtue of scoring one-half standard deviation above the mean on measures of academic achievement, peer acceptance, and conduct. In contrast, in a study of 213 children from low-income families, of whom 133 were victims of maltreatment, Cicchetti and Rogosch (1997) found only two (1.5 percent) highly adaptive maltreated children and only eight (4.3 percent) highly adaptive nonmaltreated children. Children were defined as “highly adaptive” if they scored in the upper one-third on at least five of seven measures of interpersonal behavior, psychopathology, and school achievement. In a similar study of 667 preschool children from low-income families, who had been maltreated or were at risk of maltreatment, 13 percent were observed to be functioning “unequivocally . . . well” (Runyan et al., 1998, p. 14) on developmental and behavioral tests. But, in the subsample of children who had been maltreated, “few . . . were doing well” (p. 17). On balance, the proportion of children who were found to be resilient appeared to depend on the degree to which researchers sampled children with high cumulative risk. Moreover, it depended on the degree to which they subscribed to a Rutter-like definition of resilience (emphasizing highly successful adaptation) (Rutter, 1987) versus a competence-based definition of resilience, in which success is more normatively operationalized (that is, demonstrating better outcomes than might be predicted by normative expectations for adaptation in a particular set of adverse circumstances) (Masten, 1994).

As indicated by the competing definitions of resilience used by researchers, reliably estimating the numbers of resilient children or adults is difficult because measurement problems are not resolved in the field. Percentages have to be based on as-yet controversial operationalizations of both adversity (risk) and adaptation (resilience). In this special issue, Pollard, Hawkins, and Arthur found few highly protected children—less than 1 percent—at the highest level of risk. They argue that high levels of protection either do not exist or are insufficiently potent to help children at the highest levels of adversity. In contrast to binary operationalizations (high adversity versus low adversity), Pollard et al. articulate five levels of risk and five levels of protection. Their approach suggests that important information may be lost when children who are exposed to severe adversity are aggregated with children who are exposed to less severe adversity. The percentage of children who adapt successfully to severe trauma (for example, physical or sexual abuse) appears to be substantially lower than the percentage of children who adapt successfully to major but more prevalent forms of stress (for example, divorce or residence in poor conditions).
urban areas). The different ways researchers define risk and protection—even in this issue—highlight the fact that there are no accepted empirical or theoretical grounds on which to assess degrees of risk and protection. To date, data suggest that resilience is rare among the highest risk children who are disadvantaged by poverty, poor prenatal care, abusive or neglectful parenting, and dangerous neighborhoods.

DEFINING RESILIENCE

In our view, resilience is a dynamic construct that includes a broad “class of phenomena involving successful adaptation in the context of significant threats to development” and other life course outcomes (Masten et al., 1999, p. 143). Although resilience is ipso facto an individual response, it is not an individual trait. It is conditioned on both individual and environmental factors. It should not be viewed as one person’s heroic or tenacious efforts to overcome disadvantage. Rather it must be viewed ecologically. Individual attributes that produce resilience under one set of environmental conditions may not produce resilience under another set of environmental conditions. Resilience emerges from a heterogeneity of individual and environmental influences that conspire to produce exceptional performance in the face of significant threat.

Methodological Issues

In studying resilience, one must specify the risk factors that threaten adaptation, the criteria for determining successful adaptation, and the conceptual framework for organizing the individual and environmental factors that may promote positive outcomes. The latter may include individual resources and a variety of family, school, and neighborhood resources that promote positive outcomes directly (compensatory protective effects) or exert a relatively greater positive effect in the presence of elevated risk (buffering protective effects). Thus, the search for factors that promote resilience always must include family, school, neighborhood, and other influences that promote successful adaptation in the face of adversity.

Design Implications for Social Work Research

The concepts of risk, protection, and resilience emerged from longitudinal studies. These studies used survey methods, and they provided valuable information on developmental pathways leading to both prosocial and antisocial developmental outcomes in children (see, for example, Garmezy, 1974; Robins, 1966; Rutter, 1979; Werner & Smith, 1982). Moreover, the researchers in these studies were able to chart changes in behavior over time—the initiation, escalation, and de-escalation of problem behaviors such as delinquency. In the course of these studies, scholars were puzzled to find children who defied the odds, who were functioning successfully despite high risk. Often, the numbers of these children were small. Their anomalous and intriguing character gave rise to the study of resilience.

Qualitative Methods. What is needed now are many different kinds of research designs, including naturalistic, narrative studies that describe the interconnection of people, events, and time. Because the number of resilient children, youths, and adults appears to be small, qualitative studies are needed to shed light on the protective mechanisms that permit some children and adults to prevail over adversity (see, for example, Brodsky, 1999). For example, qualitative studies might begin to describe the passive, reactive, reflexive, and opportunity risk chains that are disrupted by skilled parenting, protective grandparenting, mentoring by a community elder, or other protective influences. The depth of qualitative analysis and the growing sophistication of qualitative methods make it a method-of-choice for the study of unusual phenomenon and for the study of micro-social, ecologically dynamic processes (see, for example, Smokowski, Reynolds, & Bezruczko, in press).

Longitudinal Studies in Practice Settings. In addition, longitudinal studies that involve assessment in social, health, or other agencies are needed urgently (see, for example, Bowen, 1999; Runyan et al., 1998). It is in practice settings that high risk and low protection intersect to produce the greatest need; and it is in practice settings where services attempt to build support, change opportunities, strengthen skills, and alter beliefs. It is in practice settings that passive, reactive, reflexive, and opportunity effects are changed—hopefully to produce positive outcomes. Longitudinal studies hold the potential to measure the relationship between purposeful changes in risk and changes in outcomes.

Intervention Research. Finally, it is time for researchers to become partners with practitioners in using the results of studies on risk, protection, and resilience in developing social work knowledge. Participation in intervention research—research in which prevention and treatment models are designed and developed (Rothman & Thomas, 1994)—is a critical step in ensuring that current information on risk and protective factors is applied in a systematic
and planful way. Using a design and development approach, pilot studies testing the efficacy of innovative interventions are followed by more rigorous, often experimental, studies that test models in real world contexts. One advantage of this approach is that experimental studies have by their nature the capacity to examine interaction. The use of a design and development perspective would, concomitantly, begin to advance knowledge about buffering and build knowledge regarding intervention.

**Data Analysis: Making Sense of Error**

The relative infrequency of resilience poses special problems in data analysis. Modern data analysis is based on the aggregation of information across individuals by variables. Typically, at the start of a study, the researcher tries to estimate population parameters by use of measures of central tendency. The research often adjusts or conditions estimates on the amount of error in the data. The small number of anomalous subjects whose patterns do not conform to others usually fail to "fit" statistical models. Sometimes, researchers refer to these subjects as "noise" in the data. In studies of resilience, the problem is that the noise counts. In this group are resilient individuals who defy central tendencies. In short, we learn about resilience by making sense of the error.

To be sure, savvy researchers often will examine the errors. Usually, they visually inspect residuals. Seeing large residuals, many researchers will attempt to produce better fit by creating and testing interaction (and, in addition, by transforming variables and by using alternative modeling methods). In the analysis of resilience, the focus is on interactions. Of course, interactions can weaken or strengthen relationships. Moreover, interactions need not be zero-order. Although few researchers to date have tested higher-order interactions, it is quite possible that higher-order interactions will produce important new knowledge about resilience. To undertake such analyses, one must have an adequate sample at the extremes, for a small number of cases can influence the effect size of interactions. In this issue, Kilil and Kunz, Miller and MacIntosh, Nash and Bowen, and Pollard et al. demonstrate ways to describe and estimate the effect of interactions between risk and protective factors.

**Effects of Time and Context.** In addition to the fact that resilience researchers often are more interested in the error than the central tendency, these researchers are confronted by two other challenges. First, because resilience is related to development over the life course and because sequences of interactions between risk and protective mechanisms are important in understanding adaptation, time must be factored into equations. Although only the Zimmerman et al. study in this issue measures individuals over time, future studies of resilience must control for and model the effects of time. Event history and growth curve modeling are designed for this purpose (see for example, Lee, 1992). Second, resilience is context dependent. The goal of analysis should not be to eliminate or control contextual effects; rather it should be to model environmental contingencies (Cairns, Cairns, Rodkin, & Xie, 1998). To do this, procedures such as hierarchical linear modeling must be used. These and other random-effects models permit the estimation of individual effects in the context of estimates for classroom, neighborhood, and other environmental influences (see for example, Bryk & Raudenbush, 1992).

**Order of Entry.** As in many studies of risk and protection, the studies in this issue find that risk explains more variation than protection. Often, researchers enter specific or cumulative risk measures as a first step in building statistical models. Then, they enter specific or cumulative protection measures as a second step. Finally, interaction terms composed of significant risk and protective factors are entered in a third step. This stepwise approach is rooted in an "immunization" perspective in which it is argued that protection accrues value only in the presence of risk. That is, a vaccination (protection) is valuable only in the presence of a pathogen (risk). Consequently, many researchers enter risk, and once risk is controlled, they estimate the effect of protective factors by entering them in a second block. To the degree that risk, protection, and outcomes are correlated, risk will usually explain more variation if this order of entry is used.

Such models may be misspecified. There are no accepted guidelines for order of entry. Masten et al. (1999) recently entered potential protective factors (IQ and parental support) before entering a cumulative risk measure. In this issue, Pollard et al. demonstrate a graphical approach, plotting levels of protection by risk and outcomes. Alternatively, risk and protective factors can be entered simultaneously (see, Fitzpatrick, 1997). Because risk and protection tend to be negatively correlated, some researchers have combined risk, protection, and risk-by-protection interaction terms in latent variables. Using structural equations, for example, Newcomb and Felix-Ortiz (1992) created a "vulnerability" latent construct composed of a cumulative risk indicator,
a cumulative protection indicator, and an interaction term comprised of both cumulative measures. (Supporting the view that risk explains more variation in behavior than protection, the factor loading for risk [.90] dominated the vulnerability latent variable.) If researchers wish to assess the relative effects of risk and protection, it seems clear that the advantages and disadvantages of alternative entry orders must be explored. In attempts to examine resilience from a somewhat different perspective, some scholars have turned to person-centered rather than variable-centered analysis.

**Person-Centered versus Variable-Centered Analysis.** Person-centered analysis offers an important alternative to variable-centered analysis, even variable-centered analyses that alter order of entry, estimate higher-order interactions (to further explain error), and make use of survival or random-effects models (Cairns et al., 1998). Person-centered analysis disaggregates subjects into like groups and compares groups over time. The family of statistical methods designed to do person-centered analysis is called “cluster analysis.” Many different algorithms have been developed for cluster analysis, but most rely on Euclidean or other distance measures to aggregate similar cases across a set of variables. (For an example of cluster analysis in social work, see Fraser, Jenson, & Lewis, 1993.) Although they do not use a clustering approach, in this issue Zimmerman et al. combine person-centered and variable-centered analysis. They identify groups of similar patients, and then they trace outcomes over time, drawing implications for practice from the different ways patients recover from the adversity of hip fracture. In the study of a nonnormative phenomena like resilience, data analysis techniques that permit the identification of unique groups of cases—groups that might otherwise be relegated to the error term—and that incorporate the capacity to estimate the effects of time and context must be used.

**IMPLICATIONS FOR SOCIAL WORK**

This special issue contains exemplary research that uses a risk, protection, and resilience perspective. The articles demonstrate the relevance of these concepts, and they discuss the methodological challenges confronting both scholars and practitioners who adopt a risk and protection viewpoint.

Risk, protection, and resilience can be used to conceptualize problems in social work practice; to develop plans of action for individuals, families, or communities; to design services at the program level; and to build measurement models for assessing service outcomes. The perspective supports an evidence basis for social work practice (Gambrill, 1999; Gibbs & Gambrill, 1999; Sackett, Richardson, Rosenberg, & Haynes, 1998). “Evidence-based practice” is characterized by a process of systematically identifying and using the best available evidence in making practice decisions (Sackett et al., 1998). Risk and protective factors may be used to identify the varied influences related to social problems and the strategies—reducing risk and enhancing protection—in integral to developing effective plans of service. Moreover, the constructs of risk, protection, and, to a lesser degree, resilience, provide a common language for practitioners and researchers.

In developing understanding of social problems and in devising intervention plans, practitioners, planners, and researchers must address both risk and protection. Although some authors claim that the “right combination of protective influences appears capable of outweighing the effects of exposure to multiple risks and adversity” (Katz, 1997, p. 25), research to date suggests that risk may be more potent than protection. At higher levels of risk, protective factors either do not exist or weakly counteract the poisonous effects of extreme adversity. If we define resilience as successful adaptation—more than survival—resilience appears to be an uncommon phenomenon at the highest levels of risk. **At a minimum, caution is warranted in arguing for interventions that are based exclusively on a protection or a strengths orientation.**

Notwithstanding, protection and a strengths orientation are clearly important. For high-risk children and families, protective factors provide clues for how to buffer risk. It seems likely that protection operates more effectively in a mid-range risk level, where adversity is not life-threatening and does not produce what Rutter (in press) calls “knockout” risks—risks so potent that they change the life course. From a service delivery perspective, reducing risk is of paramount importance. However, in the context of services that reduce risk, enhancing protection may be a central aspect of recovery, of “bouncing back” from adverse experiences.

It is in light of the growing breadth and complexity of the scientific literatures on which social work relies that a risk, protection, and resilience perspective may be useful. The constructs of risk and protection provide an overarching framework for conceptualizing social problems, interventive strategies, practice guidelines, and other practice-related resources (Fraser & Galinsky, 1997; Howard & Jenson, 1999). As research and practice become more closely
conjoined through evidence-based and other practice models, the conceptual framework presented by the risk and resilience perspective has the potential to be an organizing force for the theoretical bases and practice principles informing social work intervention.

REFERENCES


Risk, protection, and resilience: Toward a conceptual framework for social work practice / Fraser, Richman, and Galinsky 141

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