

COMMON RISK AND PROTECTIVE FACTORS IN SUCCESSFUL PREVENTION PROGRAMS

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A review of 1,200 outcome studies in six areas of research identified common risk and protective factors emerging from successful and often multilevel prevention programs, some of which had prevented multiple problems. The inter-relatedness of the factors is explored, as is their association with multiple outcomes. Implications for further research and for the design of future intervention programs are discussed.

It is now generally agreed that most adjustment problems are multiply determined. Rather than search for a single explanation for a particular negative outcome, it is deemed more helpful to identify multiple factors influencing adjustment and to understand the different negative developmental trajectories that can occur. In other words, there can be many explanations for children's problems.

In conceptualizing the multiple influences that affect development, those working in prevention have emphasized the utility of a risk and protective factor paradigm (Coie *et al.* 1993). A risk factor is usually defined as a variable that increases the probability of a future negative outcome, and a protective factor as a variable that decreases such a probability. These factors can be demographic or social indicators, e.g., low socioeconomic status (SES) or peer rejection; behavior, e.g., aggression; or characteristics of institutions and communities, e.g., high quality schools, effec-

tive social policies. Some factors are more amenable to change than others. The general idea, however, is that if we can reduce risk or increase protection, or both, future problems are less likely.

In a risk and protective factor paradigm, it is important to identify the relevant factors for different types of problems and to understand how these factors operate and interact for different target populations at different times. Although our understanding of risk and protection is incomplete, research suggests that it is usually the accumulation of risk rather than the presence of any single risk factor that affects outcomes, and that multiple risks usually have multiplicative rather than merely additive effects. For instance, Rutter (1979) reported there were no adjustment differences between children exposed to one risk factor and those exposed to none; however, children exposed to four or more of six risk factors experienced 20 times, rather than 4–6 times, the rate of psychological prob-

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lems as children exposed to a single factor or none.

Studies also indicate that many children exposed to multiple risks do not have problems, and that this may be due to the presence of protective factors. In the Kauai longitudinal study, Werner (1989) found that several protective factors characterized those who were not seriously affected by multiple risks. These factors consisted of an outgoing social orientation and a personal sense of competency and control, a strong positive relationship with at least one parent, and social support from someone outside the home—a relative, neighbor, friend, or teacher.

The purpose of the present paper is to identify several common risk and protective factors that have emerged in successful prevention programs for children and adolescents and to discuss their implications. Observations are based on a review of approximately 1,200 prevention outcome studies (Durlak, 1997) conducted in six areas: behavioral and social problems, academic problems, child maltreatment, physical injuries, drug use, and physical health problems (which encompasses such topics as cardiovascular health, nutrition, physical exercise, adolescent pregnancy, sexuality and AIDS). Within these broad literatures, the survey focused on exemplary studies that were defined as successful interventions, and were carefully conceptualized, conducted, and evaluated. For instance, exemplary often used random assignment to treatment and control conditions, had clear specific goals, based the intervention on previous theory and research, employed psychometrically sound multiple outcome measures for assessing immediate and longer-term impact, examined the social or practical significance of outcomes, and often reflected programmatic research efforts in which replication and refinement of interventions occurred over several outcome studies.

The results of these studies are impressive. Many interventions have been able

significantly to reduce the subsequent rate of problems or enhance positive adjustment, or both. Exemplary studies existed in each of the six areas of research reviewed, attesting to the ability of prevention interventions to produce statistically significant and socially meaningful changes in the lives of children and adolescents (Allen, Kuperminc, Philliber & Herre, 1994; Barnett, 1995; Clarke et al. 1995; Johnson et al. 1990; Olds & Kitzman, 1993; Olweus, 1994; Tremblay et al. 1992). Admittedly, not every preventive intervention has been effective or able to match the magnitude of effects achieved in the most successful programs. Nevertheless, exemplary studies illustrate what can be accomplished given the right circumstances.

RISK FACTORS

TABLE 1 presents the prominent risk factors most commonly associated with eight major negative outcomes such as behavioral problems, school failure, and physical abuse. Not every possible risk is listed for each outcome, and the relative influence of different factors is unknown. The outcome categories are broad to permit synthesis across areas. Behavioral problems refer primarily to externalizing problems (aggression, noncompliance, and antisocial behavior), which have been targeted much more frequently than have such internalizing difficulties as anxiety and depression. School failure might refer to poor academic achievement, dropping out, grade retention, or placement in special education classes. The physical health and injury categories refer to a variety of medical illnesses and conditions, ranging from minor illnesses and infections to chronic disabilities and fatalities.

Many of the risk factors—parental psychopathology, punitive child-rearing practices and peer rejection—are well known, but others deserve comment. Poor school quality is listed as a risk factor for school failure rather than individual characteristics such as low IQ, low motivation, or in-

Table 1.
RISK FACTORS FOR EIGHT MAJOR OUTCOMES

LEVEL OF ANALYSIS	OUTCOMES							
	BEHAV. PROB-LEMS	SCHOOL FAILURE	POOR PHYS. HEALTH	PHYS. INJURY	PHYS. ABUSE	PREG-NANCY	DRUG USE	AIDS
Community								
Impoverished neighborhood	X	X	X	X	X	X	X	
Ineffect. social policies	X	X	X		X	X	X	
School								
Poor quality schools	X	X	X			X	X	X
Peer								
Negative peer pressure/modeling	X	X	X			X	X	X
Peer rejection	X				X			
Family								
Low SES	X	X	X	X	X	X	X	X
Parental psychopath.	X	X	X	X	X	X	X	X
Marital discord	X	X			X	X	X	
Punitive childrearing	X	X	X	X	X		X	
Individual								
Early onset of target problem	X	X	X	X	X	X	X	X ^a
Problems in other areas	X	X	X	X	X	X	X	X
Other								
Stress ^b	X	X	X	X	X	X	X	X

^aEarly sexual activity is a risk factor.

^bStress can occur at all levels and affect children directly or indirectly through parents, peers, and teachers.

effectual study skills. The latter variables are important but are under considerable environmental influence. Most educators agree that except for those with severe organic or neurological impairments, all children should be able to achieve basic competence in academic subjects (Walberg, 1984). Parents play an important role in fostering their child's academic performance, but they frequently need guidance and support from educators in fulfilling this role most effectively.

Poor quality schools are characterized by historically low levels of academic achievement, correspondingly low expectations for student performance and a nondemanding curriculum, ineffective leadership, and generally poor relationships among teachers, principals, parents, and students. Schools of this type tend to produce students who not only have low levels of academic achievement and high dropout rates but also have higher rates of behavioral problems, adolescent pregnancies, and drug use. Poor school quality thus places a child

at risk for several negative outcomes.

Stress is related to all eight negative outcomes and is listed in an "other" category because it can be present at all five levels of analysis and occur at different levels simultaneously. Stress can affect youth directly or indirectly, through its effects on parents, teachers, and peers.

While developmental and longitudinal research has identified some individual characteristics, such as temperament and sociability, that increase the risk of later problems (Werner, 1989), the two individual level factors noted in TABLE 1 are those most frequently studied in prevention research. Early onset of problems in any outcome category places individuals at risk for more serious development of those problems subsequently. Children with early learning problems are at greater risk for later, more serious, learning difficulties, early behavioral problems presage more serious behavioral problems, and so on. These findings provide justification for indicated prevention (formerly called sec-

ondary prevention), which is prompt intervention for problems detected early. Moreover, the presence of problems in one of the eight areas tends to place children at risk for additional problems in the remaining areas. Children with serious learning difficulties are at risk for problems related to behavior, drug use, etc. This interconnectedness among problems reflects the high rates of comorbidity present in many populations.

Two notable patterns are evident in TABLE 1: risk factors exist at multiple levels of analysis for each major outcome, and the outcomes have several risk factors in common.

Multilevel Nature of Risk

The five risk domains identified in TABLE 1 are the community, school, peer group, family, and individual. No outcome is associated with risks at only one level of analysis. In five cases—behavioral problems, school failure, poor physical health, adolescent pregnancy, and drug use—risks exist at all five levels. This has important implications for intervention. Many exemplary prevention programs contain components that address risk factors present at multiple levels. For instance, the Midwestern Prevention Project (*Johnson et al. 1990*), a successful drug prevention program, has components for all five levels of analysis. They include individual skill-training for school children, parent training and involvement, changes in school policy and curriculum, efforts to use positive peer modeling, and social action strategies designed to modify community policies and social norms about drug use. Other successful projects are less ambitious but still intervene at multiple levels by combining individual and parent programs, school and individual programs, or peer, individual and parent components (*Allen et al. 1994; Barnett, 1995; Olds & Kitzman, 1993; Olweus, 1994; Perry et al. 1996; Tremblay et al. 1992*).

Multilevel interventions are guided by the logical implications of current risk re-

search. If risk exists at multiple levels and if multiple risk factors have multiplicative rather than additive effects, as several lines of research have suggested, then multilevel prevention programs are more likely to be successful than single-level interventions. The success of exemplary projects conducted in diverse areas of prevention lends credence to this approach. While some interventions focusing on a single level (most often the individual level) have had success, the most impressive results have been obtained by multilevel programs (*Durlak, 1995, 1997*). Multilevel interventions are not as easily transported to other settings as are single-component programs, however, because of the extensive planning, resources, and collaboration necessary for their successful execution.

Nonspecificity of Risk Factors

It is apparent, in reading across rows in TABLE 1, that each factor increases risk for multiple negative outcomes. In fact, each of the ten risks shown in TABLE 1 is associated with at least six of the eight outcomes, and five of the ten (such as parental problems, low SES, and stress) are associated with all eight. Further details on these risk indices are available from several sources (*Dryfoos, 1990; Durlak, 1995, 1997; Hawkins, Catalano, & Miller, 1992; Institute of Medicine, 1994; Peterson & Brown, 1994*).

Some risk factors, such as low SES and living in an impoverished neighborhood, can be highly related but they are not synonymous. Impoverished neighborhoods refer to resource-poor communities in which there are low levels of social services; high rates of crime, violence, and drug use; few social ties among residents; and a general climate of hopelessness or negativity (*Garbarino & Kostelny, 1992*). Poor families tend to congregate in relatively less affluent communities but these communities are not necessarily impoverished in all resources; there may be close communal or ethnic ties, good social support, and a strong and positive sense of community.

COMMON PROTECTIVE FACTORS

Researchers have historically given more attention to pathology than to competence, but those involved in prevention are beginning to focus on protective factors. Eight protective factors that have emerged in successful prevention programs are listed in TABLE 2 in relation to the same eight negative outcomes listed in TABLE 1. Again, the pattern across factors and the relationships among the factors and outcomes are striking. Multiple protective factors occurring at different levels of analysis (from community to individual) are related to each of the eight outcomes, no outcome is associated with only one protective factor, or factors present at just one level of analysis. Moreover, each factor plays a protective role for more than one outcome. In fact, current findings suggest that five of the eight listed factors may protect against all eight outcomes. These findings on protection have implications for prevention that are similar to those from risk research. Multilevel preventive interventions that target more protective factors need to be mounted. Programs restricted to a single level will miss opportunities to enhance protection in target groups.

Social support is listed as an "other" fac-

tor in TABLE 2 for the same reason that stress was so listed in TABLE 1: it can be present at all five levels of analysis, can occur simultaneously at different levels, and can affect children indirectly, through parents and teachers, or directly. The parallel between stress and social support is not coincidental. Social support can serve a protective function in the presence of stress (*Cohen & Wills, 1985*).

Only three of the eight factors listed in TABLE 2 (self-efficacy, a good parent-child relationship, and social support) have received much previous attention. Current prevention research thus offers five new variables for consideration as protective factors. Most of those shown in TABLE 2 are multidimensional constructs requiring research to ascertain which of their elements are important in different situations, and through which processes the protection occurs.

For example, a good parent-child relationship probably develops from effective parenting practices. Many programs have sought to enhance two general aspects of parenting that contribute to a positive parent-child relationship and are applicable to many situations and age groups. These aspects consist of 1) understanding by par-

Table 2.
PROTECTIVE FACTORS FOR EIGHT MAJOR OUTCOMES

LEVEL OF ANALYSIS	OUTCOMES							
	BEHAV. PROB-LEMS	SCHOOL FAILURE	POOR PHYS. HEALTH	PHYS. INJURY	PHYS. ABUSE	PREG-NANCY	DRUG USE	AIDS
Community								
Social norms	X	X	X	X	X	X	X	X
Effective social policies	X	X	X	X	X	X	X	X
School								
High quality schools	X	X				X	X	X
Peer								
Positive peer modeling	X	X		X		X	X	X
Family								
Good parent/child rel.	X	X	X	X	X	X	X	X
Individual								
Personal & social skills	X	X	X	X	X	X	X	X
Self-efficacy	X	X				X	X	X
Other								
Social support*	X	X	X	X	X	X	X	X

*Social support can occur at all levels and help children directly or indirectly by helping parents, peers, and teachers.

ents of their child's unique personality and developmental needs; and 2) child-rearing methods that communicate warmth and acceptance, reinforce prosocial behavior, and involve appropriate disciplinary strategies. Analyses indicate these aspects of parenting can be improved in preventive interventions and that such improvements lead directly to a better parent-child relationship and, indirectly, to desirable outcomes such as less drug use among adolescents (Spoth, Redmond, Hockday, & Yoo, 1996; Spoth, Redmond, & Shin, 1998).

Other aspects of parenting assume particular importance at certain developmental periods. For example, such basic child care practices as feeding, soothing, and contingent attention during infancy seem to promote a more secure attachment bond. Reading to children and other forms of stimulation during toddlerhood and the preschool years advances cognitive and social development and prepares the child for formal schooling. To promote physical health during infancy and the preschool years, parents must learn the importance of regular medical checkups and proper child immunizations. Close monitoring and supervision of child behavior is particularly important during the early years to protect against physical injury, and parental monitoring is also important during early adolescence when association with deviant peers increases the possibility of behavioral problems, drug use, and early sexual activity (Dishion & McMahon, 1998).

As another example, different features of social policies influence rates of youthful smoking and alcohol consumption. There is less smoking in communities that have comprehensive clear-air laws that prohibit smoking in more public places (Wasserman, Manning, Newhouse, & Winkler, 1991). Fewer students smoke in schools that have more consistent and comprehensive no-smoking policies; for instance, policies that apply to students *and* faculty and staff, at any time during the school day, and during any school-related social and sporting func-

tions (Pentz *et al.* 1989). Increased taxation of alcoholic and tobacco products has also been associated with lower consumption of these products by young people (Manning, Blumberg, & Moulton, 1995; Peterson, Zenger, Remington, & Anderson, 1992). In some cases, a good policy is in place but is not effectively implemented. Although most states outlaw the sale of tobacco products to minors, many merchants routinely violate this law. When police enforce tobacco sale laws through sting operations and fines, however, the percentage of stores selling cigarettes to minors drops precipitously (Jason, Ji, Arnes, & Birkhead, 1991).

Finally, the protective character of social norms should not be overlooked. Project Northland was a multilevel drug prevention program that produced a 19% reduction in alcohol use among adolescents over a three-year period (Perry *et al.* 1996). During that same period, there were significant changes in participants' normative beliefs. At the end of the intervention fewer adolescents thought it acceptable to drink or thought that most of their peers did so.

Norms can be established and promoted in various ways, for example, through legislation or public policies, community-wide initiatives involving many different individuals and agencies, and sustained and intensive media campaigns. Norms can have a strong influence on behavior if they are clearly articulated and constantly expressed and emphasized, if normative behavior is modeled by respected leaders, and if sanctions or rewards are applied to norm violation or compliance. Changing of norms may be important for long-term maintenance of intervention effects (Levine, 1998).

PREVENTING MULTIPLE PROBLEMS

The finding that many common risk and protective factors exist for several important negative outcomes has important implications for prevention. Programs that successfully modify these common factors are likely to prevent multiple problems simul-

taneously, according to the relative weight or influence of the risk and protective factors modified.

Although only a few investigations have collected the relevant outcome data, results indicate that some exemplary programs have prevented multiple problems. For example, some early childhood programs have prevented later learning problems and serious antisocial behavior (*Yoshikawa, 1995*). Some mental health programs have reduced subsequent behavioral maladaptation and improved school performance (*Durlak & Wells, 1997*). There are also examples of physical health programs that have simultaneously reduced later illnesses and levels of physical abuse or behavioral problems (*Infant Health Development Program, 1990; Olds & Kitzman, 1993*).

Relationship of Risk and Preventive Factors

Most risk and protective factors are continuous rather than dichotomous variables. There are varying degrees of marital discord, stress, social support, and so on. Nor are risk and protective factors simply each other's opposites. Low SES is a risk factor, but wealth is not a protective factor. In a few cases (e.g., social policies and school quality), risk and protection seem to lie along the same continuum and are inversely related. For these factors, protection increases as risk decreases, although at present we do not know at what level the balance tips from risk to protection. Otherwise, however, levels of risk and protection should be assessed separately. We cannot assume that lowering risk automatically raises protection. Decreased parental punitiveness (a risk factor) does not, for instance, imply increased warmth (a protective factor).

DISCUSSION

The analysis presented here of common risk and protective factors in successful prevention programs has important implications for how future interventions should

be conducted, evaluated, and funded. Those working with prevention in different fields must realize that the convergence of their approaches in targeting common risk and protective factors means that the results of their programs are likely to overlap. For example, the successful prevention of drug use is also likely to have positive consequences in other areas of young people's lives. We are just beginning to learn how this occurs. Categorical approaches to prevention that focuses on single domains of functioning should be expanded to more comprehensive programs with multiple goals. Future prevention programs, therefore, will need to be more multidisciplinary and collaborative. Also needed are comprehensive process and outcome assessments of how risk and protective factors influence outcomes in multiple domains.

Finally, these findings imply that funding agencies should support more comprehensive interventions. Restricted funding for prevention creates artificial boundaries and turf battles among investigators who could otherwise be working cooperatively to achieve common goals. Prevention funding should include sufficient staff and resources for comprehensive process and outcome assessments and should permit researchers to combine interventions from different areas in innovative ways (e.g., melding components that target drugs, physical and mental health, and academic performance). These cross-disciplinary interventions may be the most cost-effective way to achieve multiple positive outcomes. Categorical approaches to problems appear to be an inefficient use of precious resources. Some good models are now emerging of ways for multidisciplinary collaborations to address multiple community needs systematically and effectively (*Fetterman, Kaftarian, & Wandersman, 1995; Institute of Medicine, 1988*).

Four important qualifications to the current findings should be noted. 1) Most of the preventive interventions surveyed have been multicomponent programs, and it is

not possible to conclude which specific elements contributed to the different outcomes. A program may target two risk factors and one protective factor, but how modifications in these factors relate to specific outcomes is unclear. 2) Not all possible risk and protective factors are listed in TABLES 1 and 2. Genetic factors, which are seldom targeted in prevention programs, play a role in different outcomes, and future research may identify additional factors. 3) In addition to common factors, those specific to certain outcomes need consideration. For example, temperament may play a role in the development of acting-out problems and anxiety disorders (Werner, 1989). 4) For the current synthesis, it was necessary to translate the different terminology used by multidisciplinary investigators across preventive areas into a common set of constructs. As a result, the inferences and interpretations offered here need additional confirmation.

Much is still to be learned about which risk and protective factors are causally related to outcomes, as opposed to correlated with them, how factors interact, the specific mechanisms through which they operate, and how the relative importance of factors differs across target populations and at different developmental periods. Nevertheless, the current synthesis of common risk and protective factors and their implications may provide a useful model for future prevention research and practice.

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