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Risk Behavior in Adolescence: A Psychosocial Framework for Understanding and Action

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There is a growing awareness that American society is squandering its most precious asset, its youth. Large segments of our young people are growing up in circumstances of limited resources and pervasive adversity that, for many of them, their health, their development, indeed their lives as a whole, are certain to be severely—and perhaps irretrievably—compromised. Those who manage to supervene these conditions and "make it" in the larger society deserve an accolade for heroism. Those, on the other hand, whose lives have been deflected from a trajectory of possibility can only be seen as its victims. These remarks about the larger social context are a deliberate prolegomenon to my discussion of adolescents and risk; in too much of the discourse in this field there has been a failure to recognize the fundamental role of socially organized poverty, inequality, and discrimination in producing and maintaining a population of at-risk youth. This concern with the larger society will emerge later on from the logic of the conceptual analysis of risk.

The key task for this presentation is to sketch out a conceptual framework that might facilitate both understanding of and action in the arena of adolescent risk. Pursuit of that objective will involve a brief exploration of recent developments in epidemiology, particularly the emergence of behavioral epidemiology, and in social/developmental psychology, particularly its application to adolescent problem behavior. There is an increasing consonance between these disparate fields that is compatible with the subtitle of this conference: "medical and social perspectives."

The exploration begins with some considerations about the basic notion of *risk* itself; it then turns to an examination of the organization of adolescent risk behavior and the utility of the concept of *life-style*. It leads next into a general conceptual framework for understanding risk behavior and an explication of its content. Finally, some implications of the conceptual framework for action, in terms of prevention/intervention, will be noted. I have chosen not to review the literature in the field but, instead, to distill a perspective from several decades of theoretical and empirical work on these issues. Where useful, illustrative data will be drawn from our own research.

A Psychosocial Concept of Risk

In the tradition of epidemiology, the use of the concept of risk has been essentially biomedical, reflecting a concern for adverse outcomes related to morbidity and mortality. The epidemiological search has been to locate agents or conditions that are associated with an increased probability of outcomes that compromise health, quality of life, or life itself. Such agents or conditions are referred to as *risk factors*, and the search for such factors has kept its focus primarily on biology and, to some extent, on the physical environment as well. Biological risk factors, such as high serum cholesterol level and hypertension, have been linked to increased probability of cardiovascular disease; cervical dysplasia to cancer; abnormalities in trisomy 21 to Down syndrome. Various physical environment risk factors such as radiation, lead, or contaminated water have also been

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linked to adverse health outcomes and to death. The identification of risk factors has been a major achievement of epidemiology; it not only constitutes an initial step in establishing causal understanding but often suggests a locus for effective intervention.

More recently, the epidemiological search for risk factors for disease and illness, especially for the chronic diseases, has expanded into two new domains, social environment and behavior. With respect to the social environment, considerable attention has been given, for example, to such risk factors as stress and its implications for heart disease. The availability of and access to alcohol and tobacco, yet another aspect of the social environment, have been implicated as risk factors for cirrhosis and lung cancer. But perhaps the most reverberating development in epidemiology has been the new awareness of *behavior* as a risk factor, and the accompanying elaboration of the subdiscipline of behavioral epidemiology. It is increasingly apparent that much of the burden of illness—heart disease and stroke, cancer, liver disease, unintended injury, human immunodeficiency virus (HIV) infection—can be linked to patterns of human behavior. Eating behavior, sedentary behavior, drinking behavior, driving after drinking, smoking behavior, unprotected sexual intercourse, unsanitary practices, and other such actions can, it is now clear, compromise health and safety.

Insofar as behaviors constitute risk factors for morbidity and mortality, the challenge for epidemiology is to move beyond its usual biomedical focus and address a new task, the understanding of behavior and its antecedents and consequences. It is in undertaking this enterprise that epidemiology has begun to find a confluence with social/developmental psychology. For the latter, of course, the understanding of social behavior has been a traditional and important raison d'être.

The incorporation of behaviors into the rubric of risk factors entails a reformulation of thinking about the very concept of risk and about what is at risk. First, it requires that the traditional restriction of the concept of risk to biomedical outcomes alone be loosened. Although behaviors do indeed have biomedical consequences, they also eventuate in social and personal or psychological outcomes. The behavior of, say, marijuana smoking by an adolescent may well increase the probability of pulmonary disease, but it also may increase the probability of legal sanctions or conflict with parents or loss of interest in school or sense of personal guilt and anxiety. These latter are psychosocial outcomes or consequences that are linked, simultaneously, to the very same risk behavior. A *psychosocial* understanding of risk, when behaviors are risk factors, requires attention to all of their potential outcomes or consequences, not just to those that are biomedical.

Second, the reformulation requires that the restriction of the concept of risk to adverse, negative, or undesirable outcomes be loosened. Returning to the preceding example, it is clear that some of the outcomes or consequences of the behavioral risk factor of marijuana smoking can be positive, desirable, and sought by adolescents. Smoking marijuana can lead, for example, to social acceptance by peers and to a subjective sense of autonomy and maturity. When behaviors are risk factors, the notion of risk needs to be expanded to encompass positive or desired outcomes as well as those that are adverse or negative. A psychosocial reformulation of risk calls for a thorough cost *and* benefit analysis of risk factors rather than the traditional preoccupation with their potential costs alone. Behavior, including risk behavior, is clearly influenced by both.

The bankruptcy of the exhortation "Just Say No!" is evident in the failure to acknowledge that drug use and other risk behaviors can serve important social and personal functions for adolescents and are unlikely to be abandoned in the absence of alternatives that can provide similar satisfactions. Considerable research has shown that adolescent risk behaviors are functional, purposive, instrumental, and goal-directed and that these goals are often central to normal adolescent development. Smoking, drinking, illicit drug use, risky driving, or early sexual activity can be instrumental in gaining peer acceptance and respect; in establishing autonomy from parents; in repudiating the norms and values of conventional authority; in coping with anxiety, frustration, and anticipation of failure; or in affirming maturity and marking a transition out of childhood and toward a more adult status. There is nothing perverse, irrational, or psychopathological about such goals. Rather, they are characteristic of ordinary psychosocial development, and their centrality helps to explain why risk behaviors that serve such functions are so intractable to change. In failing to allocate resources to promote alternative behaviors that can serve the same goals but are less health- and life-compromising for adolescents, the "Just Say No!" campaign revealed its moral cynicism.

The concept of psychosocial risk implicates, and is concerned with, the entire range of personal development and social adaptation in adolescence. Thus, *what* is at risk from engaging in risk behavior

includes, but far transcends, physical health and physical growth. Risk behaviors can jeopardize the accomplishment of normal developmental tasks, the fulfillment of expected social roles, the acquisition of essential skills, the achievement of a sense of adequacy and competence, and the appropriate preparation for transition to the next stage in the life trajectory, young adulthood. The term *risk behavior* refers, then, to any behavior that can compromise these psychosocial aspects of successful adolescent development. Substance abuse, withdrawal from school involvement, unprotected sexual intercourse, driving after drinking, and engaging in violence are some obvious examples.

It should be noted that I have not been using the term *risk-taking behavior*. I am concerned that the latter has been responsible for a certain amount of terminological mischief in the field. Its wide currency is unfortunate because it eliminates the problematic nature of adolescent risk behavior and tends to foreclose further inquiry. When referred to as risk-taking behavior, risk behavior is already "explained." That is, it is accounted for simply by the taking of risks, the satisfaction or thrill of engaging in something risky. There is an associated unfortunate tendency as well, and that is to characterize adolescents as "risk-takers." This not only results in a bit of tautological thinking that further confounds explanation but it also divests the social context of any contributory role.

The concept of risk-taking behavior is certainly appropriate for that subset of risk behaviors that entail a conscious awareness of the risk or danger involved and a deliberate seeking for the thrill that issues from the uncertainty of beating the odds. Playing the game of "chicken" on the highway, taking chances on avoiding detection during certain delinquent acts, or pursuing activities like rock climbing may be examples. But the larger class of adolescent risk behavior simply does not lend itself to that kind of analysis. Few adolescents continue cigarette smoking for the thrill of seeing whether they can avoid pulmonary disease; few engage in unprotected sexual intercourse for the thrill of beating the odds of contracting a sexually transmitted disease (STD) or becoming pregnant. Indeed, a key concern of health education is to make adolescents aware that there *are* risks associated with many of the behaviors in which they engage. It seems best, then, to employ the term *risk behavior* rather than *risk-taking behavior* and to apply it to any behavior that can compromise adolescent development—whether or not the adolescent is motivated by, or even aware of, the risk involved. Such usage would not only keep the explanation of adolescent risk behavior problematic but encourage the quest for a more general conceptual account.

The Organization of Adolescent Risk Behavior and the Concept of Life-Style

Another issue requires attention as we explore the way toward a general conceptual framework for adolescent risk behavior. This issue is the degree to which there is structure and organization among the different risk behaviors in adolescence. Stated in other terms, the issue is whether there is intraindividual covariation among risk behaviors so that they cluster or form what might be called a risk behavior syndrome. It makes an enormous difference, for both understanding and intervention, to be dealing with separate, independent, and isolated risk behaviors or, instead, with an organized constellation of risk behaviors that are interrelated and covary. The former perspective has sustained what might be called the "problem-of-the-week" approach, in which efforts are mobilized to fight teenage pregnancy one week, drunk driving the next, illicit drug use the next, crime after that, and so on. It is also the perspective that characterizes the separate mission orientations of the various federal agencies, one for alcohol abuse, one for drug abuse, one for mental health, sexual behavior in yet another agency, and delinquency elsewhere. The latter perspective, on the other hand, suggests a more comprehensive and simultaneous concern with the entire array of adolescent risk behaviors and promotes efforts to understand and alter the circumstances that give rise to and sustain such clusters or syndromes of risk behavior in adolescence.

By now, a fair amount of evidence has been accumulated on this question, and there is considerable support for the covariation perspective. The evidence for covariation is strongest for those risk behaviors that are also problem behaviors, for example, drug use, delinquency, alcohol abuse, and sexual precocity. In one of our early longitudinal studies of high school youth, for example, we found that 61% of marijuana users were sexually experienced compared with only 18% of nonusers (1). In our later research, using maximum-likelihood factor analysis, we provided additional support for the interrelatedness of adolescent problem behaviors by showing that a single factor accounts for their positive intercorrelations (2,3). Further support comes from latent variable analyses of data from our recent

study of samples of junior and senior high school youth that include White, Black, and Hispanic adolescents. These analyses show, once again, the interrelatedness of adolescent problem behavior; they also show that a single, second-order latent variable can account for that interrelatedness within all of the ethnic, gender, and school-level subgroups.

The evidence for covariation has been less strong where nonproblem, health-risk behaviors, such as eating, exercise, and safety behaviors, are involved. In the recent study just cited, however, we have been able to show that modest interrelations do obtain among such health behaviors and that, again, a single, second-order latent variable accounts for those relations (4). In addition, there are modest negative correlations between the problem behaviors and the health-promoting behaviors. The literature on the entire covariation issue has recently been reviewed in extensive detail (5,6).

Overall, the empirical evidence supports the existence of organized patterns of adolescent risk behaviors. These structures of behaviors, taken together, reflect an adolescent's way of being in the world. Their structure or organization raises interesting questions about the origin or source of the covariation and patterning. Part of the answer probably lies in the social ecology of adolescent life, an ecology that provides socially organized opportunities to learn risk behaviors together and normative expectations that they be performed together. Part of the answer probably also lies in the fact that different risk behaviors can serve the same functions: for example, both illicit drug use and precocious sexual activity can provide a way of affirming independence from parents.

The key import of the evidence about covariation among risk behaviors is the support it provides for the organizing concept of life-style. Drawn from the lexicon of common language, the life-style notion has a core meaning denoting an organized pattern of interrelated behaviors. According to one scholar seeking to formalize the term, life-style consists of "expressive [i.e., functional] behaviors . . . a distinctive and hence recognizable mode of living" (7). The utility of the concept of life-style, referring as it does to the constellation or syndrome of risk behavior, is that it directs our attention to the adolescent as a whole actor rather than to each of the risk behaviors, one after another. Equally important, it raises a serious question about whether intervention efforts should remain focused, as they have been, on specific behaviors (e.g., illicit drug use) or rather on influencing an adolescent's life-style as a whole.

A General Conceptual Framework for Adolescent Risk Behavior

The discussion to this point has sought to incorporate adolescent behavior into an epidemiological perspective on risk factors. That has involved some reformulation of traditional thinking about risk and about what it is that is at risk, a reformulation hospitable to psychosocial, as well as biomedical outcomes. We have argued that, as risk factors, behaviors such as illicit drug use, school dropout, unprotected sexual intercourse, and delinquency can compromise successful adolescent development and jeopardize the life chances of youth. The focus, thus far, has been on the psychosocial outcomes and consequences of risk factors when they are behaviors. It is now possible to explore behavioral risk factors in the other direction, that is, in terms of their psychosocial antecedents and determinants. Such exploration will lead us to a general conceptual framework for adolescent risk behavior and will illuminate, at the same time, the merging of the epidemiological perspective with that of social/developmental psychology.

The effort to conceptualize and elaborate the antecedents or determinants of risk behaviors, as established risk factors, can continue to use the orientation of epidemiology in the identification of risk factors. Now the key question becomes, What are the risk factors for the (behavioral) risk factors? Or, in the present case, What are the risk factors for the risk behaviors? That epidemiological concern turns out to be identical to the standard concern of social-psychological inquiry, namely, how to explain complex social behavior. In both endeavors, the aim is to move back from identified risk factors to establish what one epidemiologist termed the "web of causation" (8), that is, the explanatory framework in which they are embedded and which can provide a logical account of their distribution and occurrence. Indeed, it was another epidemiologist, Milton Terris, who chastised his colleagues for their excessive preoccupation with proximal risk factors—the microorganism in infectious disease, tobacco or salt in chronic disease—while largely ignoring those that are distal: "the whole complex of social and other environmental factors that create that cause, and bring it into effective contact with the host" (9). The web of causation in epidemiology is isomorphic with explanatory theory in social psychology when behaviors are the risk factors at issue.

A comprehensive social-psychological framework for explaining behavior generally includes four

major explanatory domains or sources of variance: social environment, perceived environment, personality, and (other) behavior. Although not traditional, more recent explanatory efforts have increasingly sought to engage a fifth domain, namely, biology/genetics. Taken together and fully articulated, these five domains would constitute the "web of causation" or the general explanatory framework for adolescent risk behavior. The schema presented in Figure 1 represents the five domains, illustrates their content, and specifies their relationships to each other, to risk behavior, and to potential outcomes of risk.

Before elaborating on the specific content of the various conceptual domains in the schema, I want to make some general comments about the framework as a whole. First, the framework makes apparent the complexity that is required of any responsible account of adolescent risk behavior. That account would need to engage multiple explanatory domains as well as their interactions; an explanation that confines itself to any single domain—whether genetics, the social environment, or personality—is certain to be incomplete at best and parochial at worst. Further, the widespread proclivity in the field to fasten on single-variable interventions, increasing self-esteem, say, or providing adolescents with mentors, can garner little support from such a framework, given the large array of factors and domains that must be seen to influence risk behavior.

Second, the domains that constitute the web of causation are each represented as having direct effects on adolescent risk behavior. That makes it useful to consider each domain as a separate source of risk—social environment risk, perceived environment risk, personality risk, and so on—and to try to articulate their component variables or determinants or, in epidemiological terms, their risk factors. Third, the various risk domains are also represented as having indirect effects on adolescent risk behavior, effects that are mediated through other risk domains (for reasons of clarity, not all the interconnecting arrows have been drawn). Thus, beyond their direct effects, social environment risk factors, say, poverty and racial/ or ethnic discrimination, may influence the risk factor of low perceived life chances in the personality domain and, thereby, indirectly influence risk behavior. Knowledge of direct and indirect effects ought to be of great importance to the design of intervention efforts and to decisions about the most promising loci of intervention.

Fourth, complex as the schema is already, it represents only the structure of risk factors, risk behaviors, and risk outcomes cross-sectionally, that is, at a moment in time. Of fundamental importance, and entirely missing from the figure, are the *changes* going on in each of the domains. Processes of developmental change in the adolescent and of social and historical change in the adolescent's context are, although unrepresented, clearly not meant to be ignored. Fifth, causal influence in the figure needs to be thought of as bidirectional from top to bottom and also from bottom to top. Although the primary concern of this paper has been with providing an account of risk behavior (therefore, a top-to-bottom emphasis), the bidirectional arrows indicate that, of course, engaging in risk behavior can also affect the various domains of risk factors (a bottom-to-top influence). It is this bi- or multidirectionality of the social-psychological framework that makes the web of causation metaphor so apposite.

The particular risk factors that have been listed in each of the different risk domains are, for the most part, drawn from the research literature or implicated in various conceptual analyses of adolescent risk behavior. They are only a selected set, obviously, and meant to be illustrative. Measures of many of the variables, especially those in the perceived environment, the personality, and the behavior domains, have been employed repeatedly in our own work on Problem-Behavior Theory, which is a specific variant of the general framework in Figure 1. Multiple regression analyses, employing a dozen or so of the measures, generally yield multiple correlations (*R*s) of about .70 when accounting for an index of multiple-problem behavior among adolescents, and the *R*s range between .50 and .80 when various specific risk behaviors such as problem drinking or illicit drug use are being predicted. Thus, between 25% and 65% of the variance in adolescent risk behavior is explained, and close to 50% is modal (1,10,11). The measures that tend to be invariantly important across our different studies include low expectations for school achievement and low attitudinal intolerance of deviance in the personality domain; models for problem behavior among friends in the perceived environment domain; and marijuana use and poor schoolwork in the behavior domain.

These results, ours and those of many other workers in the field, provide encouraging empirical support for the web of causation shown in Figure 1. At the same time, however, they reveal that a large segment of the variance is left unexplained. In our

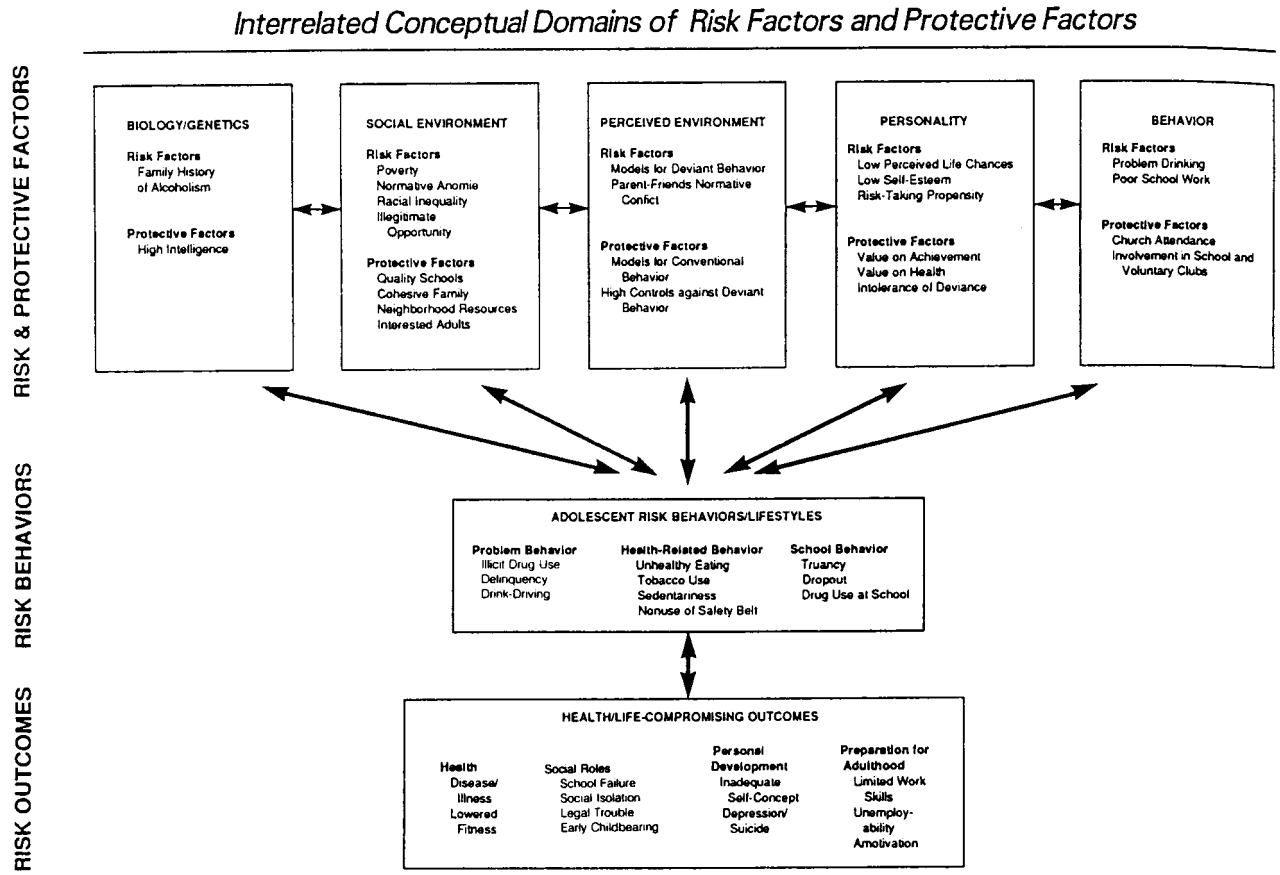

Figure 1. *A conceptual framework for adolescent risk behavior: risk and protective factors, risk behaviors, and risk outcomes.*

own work as well as in that of others, I believe this is due, at least in part, to a less than satisfactory grasp on the properties of the social environment, whose ultimate importance cannot be gainsaid. The distribution of a variety of adolescent risk behaviors reflects the circumstances of poverty, racial or ethnic marginality, and limited life chances, as well as the presence of an underground structure of illegitimate opportunity. Such circumstances are not well captured, however, by the usual measures of socioeconomic status, especially for adolescents, and this issue presents a crucial challenge to researchers in this field.

The Role of Protective Factors in Adolescent Risk Behavior

There is a final aspect of the framework shown in Figure 1 that remains to be addressed, namely, the *protective factors* that are listed in each of the risk domains. The conceptual role of protective factors is to help explain a fact that is part of common awareness, namely, that many adolescents who seem to be at high risk nevertheless do not succumb to risk behavior, or are less involved in it than their peers, or, if involved, seem to abandon it more rapidly than others. Stated otherwise, many adolescents growing up under conditions of pervasive adversity, limited resources, and intense pressures toward the transgression of conventional norms manage to overcome such circumstances and to "make it." What enables them to avoid entanglements with the criminal justice system, to remain aloof from antisocial peer groups, to avoid becoming pregnant, to do well in school, to acquire the necessary skills for the transition to work and other adult roles, and to develop a sense of personal adequacy and competence?

One answer to that query would be that, appearances to the contrary notwithstanding, those who make it were, in fact, not really at high risk. For some reason, they were fortunate in not actually being exposed to or experiencing the variety of risk

factors that seemed to be part of the context of their lives. In short, they were, somehow, not actually at risk or at as high risk as might have been expected. Although that is conceivable, a more likely answer is that there were indeed exposure to and experience of risk, but that they were countered by exposure to and experience of protection. Protective factors are considered by both Garmezy (12) and Rutter (13) to moderate, buffer, insulate against, and, thereby, mitigate the impact of risk on adolescent behavior and development.

It is useful to think of protective factors as operating within each of the conceptual domains: in the social environment, a cohesive family, a neighborhood with informal resources, a caring adult; in the perceived environment, peer models for conventional behavior, and strict social controls; in the personality domain, high value on academic achievement and on health, and high intolerance of deviance; and, in the behavior domain, involvement in conventional behavior, such as church attendance and participation in school activities. To the extent that protective factors such as these are present and operative, they should attenuate, counter, or balance the impact and effects of risk factors.

There is some argument within the field about whether protective factors are merely the opposite or low end of risk factors or are, indeed, different factors that function actively to promote positive behavior and development and, in so doing, have a direct mitigating effect on the impact of risk factors. Heuristically, the latter position seems more useful, and the various factors selected as illustrative of protection in the different risk domains in Figure 1 were chosen to be of that sort. The mitigating role of protection is only demonstrable logically in the presence of risk (13). In recent analyses of our own data, we classified junior and senior high school males and females, on the basis of a six-component composite-risk factor score, into no risk, moderate risk, and high risk groups. We then cross-classified each risk group into high and low protection subgroups based on a seven-component composite protective factor score. Analysis of variance of involvement in problem behavior showed that high versus low protection made no difference in amount of problem behavior involvement for the no risk groups; it did make a significant difference, however, for both the moderate risk and high risk groups. Those with high protection had significantly lower problem behavior scores than those with low protection, and the interaction was significant. These findings support the logic of protection, and they also illustrate the salutary role that protective factors can play in minimizing the impact of exposure to and experience with risk factors.

Adolescents At Risk: What Does "At Risk" Really Mean?

The conceptual framework can contribute to a more systematic understanding of what is meant when we speak of adolescents' being "at risk" or, perhaps more important, being at "high risk." The issue here is how to deal with variation in the magnitude of psychosocial risk.

What is immediately apparent from the conceptual framework is that being at risk can have two quite different meanings. For adolescents already involved in risk behavior, usually those who are older, "at risk" can mean being at risk for health- and life-compromising outcomes: early pregnancy, school failure, trouble with the law, unemployability, inadequate self-concept. The focus here is on the degree of risk associated with the engagement in risk behaviors—illicit drug use, or problem drinking, or cigarette smoking, or precocious sex, or truancy. What is the risk that such engagement will compromise adolescent health, adolescent life, or successful adolescent development? This meaning of being at risk represents a later developmental stage in the ontogeny of risk, a stage wherein risk behaviors are already practiced and intervention is more appropriate than prevention.

For this stage, the assessment of the magnitude of risk would certainly include (1) the intensity of involvement in any particular risk behavior, from a level of exploration to a level of commitment; (2) the number of different risk behaviors an adolescent is involved in and the degree to which they constitute an organized pattern or life-style; (3) the timing of age of onset of the risk behaviors (since evidence links early onset to chronicity and intensity); and (4) the degree of simultaneous involvement in protective behaviors. High risk, at this stage, would imply serious and long-term involvement in an organized pattern of risk behaviors and little involvement in protective behaviors.

For adolescents not yet involved in risk behavior, usually those who are younger, being "at risk" means something else, namely, the risk for initiating, onsetting, or becoming involved in risk behaviors: for beginning sexual intercourse, for onsetting the use of alcohol and illicit drugs, for starting to cut school, for engaging in delinquent acts. The "at risk" focus here is the degree of risk represented in

the various conceptual domains of risk in Figure 1 and the likelihood that that risk will generate involvement in risk behaviors. This meaning of being at risk represents an earlier stage in the ontogeny of risk, a stage before risk behaviors have been engaged in, and a stage in which the term *prevention*, or *primary prevention*, seems more appropriate. For this stage, the assessment of the magnitude of risk would require consideration of the following: (1) the number and intensity of risk factors in a particular risk domain, (2) the number and intensity of protective factors in that same domain; (3) the pervasiveness of risk factors across the multiple risk domains, (4) the pervasiveness of protective factors across the multiple domains. To be "at high risk" at this stage would mean that there are multiple and serious risk factors in multiple domains and little in the way of protective factors in those same domains.

A distinction between the two stages of being "at risk" seems useful for both understanding and action; it should not be drawn too sharply, however. The meaning of being at risk sketched out for older adolescents, those already involved in risk behavior, would also need, of course, to consider the degree of risk and of protection in the various conceptual domains in addition to its focus on the extent of their involvement in risk behavior. Whether a risk behavior such as precocious sexual intercourse puts an adolescent at risk for life-compromising outcomes such as early pregnancy and unemployability is undoubtedly influenced by the risk factors and protective factors in that adolescent's social environment. Remaining in school or returning to school may well hinge on the availability of social support, resources for child care, presence of a caring adult, and so forth, in that environment. In short, risk for health- and life-compromising outcomes should be seen as "nested" in the conceptual framework, with the risk from risk behaviors nested in the risk from the various conceptual domains.

A final point needs to be made in considering the appraisal of variation in magnitude of risk, one that has been assumed in the discussion but not stated explicitly. Degree of risk needs to be treated conceptually as a resultant, an outcome of the balance of risk and protection. Two adolescents characterized by the same pattern of risk factors may be at very different degrees of risk, depending on the protective factors that affect their lives. The logic of the conceptual framework requires arriving at a resultant that reflects the balance of risk and protection. An assessment of risk that ignores protection can turn out to be severely off the mark.

Implications for Prevention/Intervention

First, and perhaps of overriding importance, is the import of the complexity of the web of causation that has been proposed. What that complexity suggests is that prevention and intervention efforts that are comprehensive promise to yield greater success than those that are more limited in scope. Programs that fail to engage multiple risk domains are unlikely to be successful or to generate lasting effects. Second, programs need to design efforts that can simultaneously reduce risk and promote protection; neither strategy alone would seem optimal for effecting change. Third, programs directed at the organization and patterning of multiple risk behaviors may be more appropriate than programs focused on specific behaviors alone. Life-style change, although obviously a challenge, has the promise of more pervasive and more enduring impact on the repertoire of risk behaviors. Fourth, programs that acknowledge the salience of the social environment would seem especially critical. Young people growing up in adverse social environments are in double jeopardy: not only are risk factors more intense and more prevalent in such contexts but protective factors are less available if not, indeed, absent for many. It is in contexts such as these that risk behaviors are more likely to have irretrievable outcomes, whereas the very same behaviors in a less adverse setting often gain for the adolescent a "second chance," that is, the opportunity and support for getting back on track. Finally, the emphasis on risk behavior and on life-style should not be translated into making individuals alone responsible for removing the risk in their lives; such an approach would tend to "blame the victim." The present conceptual framework makes it patently clear that risk is embedded in the larger social context of adolescent life and that reduction in risk requires social change as well.

Conclusion

This presentation has sought to examine how the confluence of epidemiology and social psychology can illuminate an important social problem, adolescent risk behavior. The conceptual framework that has been elaborated is an effort to represent both social-psychological and behavioral epidemiology theory. The epidemiologist Reuel Stallones speaks of "a territory of especial beauty at the intersection of the biomedical and social sciences" (14). It was the attractiveness of that territory for understanding complex human behavior that motivated this effort;

hopefully its attractiveness will draw other scientists and practitioners to explore the same terrain.

I began this discussion with a brief prolegomenon, and I cannot in good conscience resist a brief afterword. It seems to me that the kind of analysis presented here and our shared awareness of the worsening plight of young people growing up poor in our society demand something more from us than collegial and scholarly interchange. Milton Terris has pointed out that issues such as those dealt with in this paper "have become basic questions of economic and social policy . . . [and they bring us] into direct confrontation with some of the most powerful economic and political forces in the nation" (9). A government that was able to find the needed resources for military adventures in Southeast Asia, in Central America, and now in the Middle East surely can find them for its own youth in its decaying cities and on its impoverished farms. Perhaps we also need to consider how to make that happen.

I am indebted to Drs. John E. Donovan and Frances Costa, who have been my colleagues over the past decade in the research that has shaped some of the ideas in this paper. The support of the W. T. Grant Foundation (Grant No. 88119488) for our most recent research on adolescent health behaviors is gratefully acknowledged. My experience on the Carnegie Council on Adolescent Development and my role in the MacArthur Foundation's Research Program on Successful Adolescent Development among Youth in High-Risk Settings have helped me to think more deeply about some of the issues addressed here.

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