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THE SEARCH FOR EFFECTIVE PREVENTION PROGRAMS: What We Learned Along the Way

Richard H. Price, Emory L. Cowen, Raymond P. Lorion, Julia Ramos-McKay

Efforts by an American Psychological Association task force to identify model prevention programs for high-risk groups throughout the life span are summarized. Criteria for selection and program content are described, and implications for the construction, implementation, and evaluation of effective programs are discussed.

In 1984, the National Institute of Mental Health *(Eaton & Kessler, 1985)* reported that 43 million people in the United States, 19% of the nation's population, were suffering from some form of psychological disorder or distress. There will never be enough mental health professionals to provide help for such widespread distress. For that reason, prevention advocates have argued that we must mount large-scale preventive efforts, as public health pioneers did in dealing with diseases such as polio, small pox, and measles.

Although a growing number of researchers agree that a wide range of psychological and health problems are preventable, the logic of prevention must be turned into concrete reality. One approach is to identify model programs that work. Identifying effective programs has two aspects. First, research evidence for claims of program effectiveness must be examined carefully. Many preventive measures that look as if they should work actually may not. Second, once identified, model programs can serve as examples to be repeated in other settings such as schools, communities, or work organizations. It was this idea that led an American Psychological Association task force to launch a major search for effective model prevention programs *(Price, Cowen, Lorion, & Ramos-McKay, 1988).*

Unfortunately, not everything called a prevention program is, in fact, a real prevention program. Practitioners about to start a prevention program must know how to evaluate its promise of real success. To do so, they must consider not only its content, the appropriateness and ease of its application, and how well specified its target groups are, but also the quality of the research upon which a program stands. For those reasons, the Task Force concluded that it could best contribute to the field by conducting a search for model preventive programs with well

Based on a report of the American Psychological Association Task Force on Promotion, Prevention and Intervention Alternatives. The Task Force consisted of the authors, who are at: University of Michigan (Price); University of Rochester (Cowen); University of Maryland (Lorion); and Hartford (Conn.) Police Department (Ramos-McKay); as well as Beverly Hitchins of APA. *Research was supported by APA and by a Pew Memorial Trust grant to APA and the National Council of Community Mental Health Centers.*

documented features and solid outcome findings.

Before beginning the search for model programs, the Task Force identified several benchmarks to be used in its mission. First, we hoped to find programs relevant to all stages of the life span. Prevention is clearly important not only for children but for adults and the elderly as well. In addition, we hoped to find programs that were being delivered in many different community settings, including hospitals, schools, service agencies, and the workplace. Finally, we hoped that the exemplary prevention programs identified would be aimed at a wide range of different health, mental health, and criminal justice outcomes.

The Task Force contacted experts throughout the country whom we believed were knowledgeable about prevention programs. We received many replies describing a variety of prevention efforts and then set about examining these programs, searching for evidence of effectiveness. In the end, we identified a number of programs that we believe could serve as models. Our search was certainly not exhaustive; there are surely many effective programs that we were unable to identify. Nevertheless, what follows is a brief sketch of the search itself, the criteria we developed, the procedures we used to evaluate candidates for model programs, and some information about the kinds of program submissions we received.

PROGRAM CRITERIA

Our screening efforts involved the consideration of program descriptions using multiple criteria. These criteria reflected four aspects of the interventions: *1)* the problem addressed; *2)* the program's targeted goals; *3)* procedures followed in reaching those goals; and *4)* evidence documenting the attainment of program goals. Program descriptions were examined by members of the Task Force who sought specific information about the following characteristics of the intervention: *a)* a clear description of the group at risk and the emotional or behavioral condition to be prevented; *b)* a statement of a rationale for the intervention including its timing, duration, and sequencing; *c)* a description of the actual intervention; *d)* a description of the skills necessary to conduct the intervention; *e)* a specification of the program steps taken to recruit intervention participants; *f)* a specification of observable and measurable program objectives; *g)* a description of the program evaluation, monitoring, and follow-up data; *h)* a description of how the program relates to community groups, organizations, and agencies; *i)* consideration of ethical issues; *j)* the transferability of the intervention to other settings; and *k)* roles of professional and nonprofessional caregiver resources.

The Task Force invited submissions of model programs from approximately 900 prevention researchers and practitioners, through direct written requests as well as announcements in professional publications and newsletters. Each of 300 submissions was reviewed by two Task Force members and rated along several five-point continua for: overall promise for more detailed scrutiny, importance of the problem, and probable quality of the evaluation. Interrater agreement was examined for each program description. In cases of marked disagreement, a third or fourth rater was used.

Fifty-two programs emerged from this process as especially promising. The developers of these 52 programs were then asked to submit detailed program materials, manuals, and research reports and other indicators of program effectiveness. These materials were examined by Task Force members for their informative and scientific quality, resulting ultimately in the selection of 14 model programs. Although these 14 varied somewhat in their reported evaluation findings, each had specifically documented the achievement of intended outcomes. Moreover, each was judged to be an "exportable" program, that is one that had a defined, replicable set of procedures that could be adopted by practitioners. Finally, in selecting the model programs, the Task Force attempted to provide at least reasonable coverage of target groups across the life span, service setting, and possible prevention outcomes.

TABLE 1 provides a brief description of the final 14 prevention programs identified by the Task Force. The first column of the table identifies the primary program developers and makes references to reports of their research; the balance of the table summarizes target groups, major objectives, major intervention methods, and program outcomes. More detailed descriptions of these programs are set forth in Price et al. (*1988*).

IMPLICATIONS FOR POLICY, PRACTICE, AND RESEARCH

In the process of sifting evidence, examining program protocols, and conferring with model program developers, the Task Force identified a number of issues and future needs that require the attention of researchers, practitioners, and policy makers. In what follows we discuss some of them, both to qualify our findings and to point to issues for further research and policy action.

Prevention programs can be effective. The programs described in TABLE 1 involve a wide range of target groups across the life span, have been implemented in a variety of settings, and address a number of different preventive goals. Even though all 14 are identified as model programs, the persuasiveness of the evidence they present for effectiveness varies. Nevertheless, the existence of these programs underscores a fundamental point. Preventive strategies can be effective and represent an important alternative to the frequent assumption that treatment or remediation is the only way to deal with mental health, health, developmental, or psychosocial problems.

Effective programs share a number of features. Although the programs presented in TABLE 1 are quite diverse, they share several common features that can guide future prevention efforts. First, these programs are targeted. Their focus, in each case, is shaped by at least a preliminary understanding of the risks and problems encountered by the target group. Second, all programs are designed to alter the life trajectory of their participants. They are aimed at long-term change, setting individuals on a new developmental course, opening opportunities, changing life circumstances, or providing support. Many of these programs provide people with new skills to cope more effectively or provide social support in the face of stressful life conditions. Another common denominator of successful programs is that they strengthen the natural support from family, community, or school settings. Finally, although it may seem obvious, successful programs have managed to collect rigorous research evidence to document their success. Indeed, in a variety of different ways, each of the model programs has provided evaluation evidence of its effectiveness.

Programs for adults and the elderly are underrepresented. Examination of the initial pool of submitted programs provided useful insights into the profile of preventive interventions available at the time of the initial Task Force survey. In general, these preventive interventions were targeted predominantly to children and adolescents; fewer than 20% focused on adults or the elderly. Demographically, the recipients of preventive interventions tended disproportionately to be poor, minority group members, and otherwise disenfranchised. Programs were, for the most part, provided through schools and social service agencies. Most prevention service providers were nonprofessional community caregivers, educators, or members of participants' families. Although we have no way of knowing whether this sample of programs reflects the actual distribution of preventive efforts across the life span, we suspect that preventive programs for adults and the elderly are indeed underrepresented. Preventive efforts are obviously not only for the young, but are needed across the entire life span.

Rigorous evaluations of preventive pro-

Table 1

MODEL PREVENTION PROGRAMS

PRIMARY AUTHORS	TARGET GROUP	OBJECTIVES	METHODOLOGIES	OUTCOMES
Bernard L. Bloom, William F. Hodges, U. of Colorado, Boulder. *(Bloom et al., 1985)*	Newly separated persons.	To provide social support and facilitate competence building in socialization, child rearing and single parenting, career planning and employment, legal and financial issues, housing and homemaking.	6-month program provided by a paraprofessional and subject matter experts in the form of individual and group consultation, upon demand, on topics identified in the program objectives.	Intervention group members were significantly higher in adjustment, had fewer separation-related problems, and reported significantly greater separation-related benefits than controls. Positive program effects still evident after four years.
Gilbert Botvin, American Health Foundation, NY. *(Botvin et al., 1984)*	Junior high school students.	Provide students with skills to resist pressures to smoke, drink and use drugs, help develop self-esteem, help to cope with social anxiety, and increase knowledge of immediate negative consequences of substance use.	Life skills training in a school-based 12-unit curriculum delivered by classroom teachers or older peer leaders. Booster sessions are added in subsequent years.	Significant reduction in new smoking in program students based both on self-report and saliva tests. Additional effects were observed on smoking, psychosocial and advertising knowledge, and on social anxiety and suggestablility.
William S. Davidson, Michigan State U. *(Davidson et al., 1985)*	Youth charged with person, property, or status offenses and referred by court referee.	To provide an intervention for delinquent youths outside the criminal justice system which will reduce the likelihood of recidivism.	Trained, selected, college student volunteers work one-on-one with youth for 18 weeks, 6 to 8 hours per week. Specific intervention conditions included behavioral contracting, relationship building, youth advocacy within the family.	Significantly lower levels of recidivism as measured by court petitions 2.5 years after intervention. Number of police contacts were also lower for interventions conducted outside the court system.
Robert Felner, U. of Illinois. *(Felner et al., 1982)*	Young, low-income adolescents entering high school	Reducing predictable negative effects of the crisis of transition to high school.	Increasing peer and teacher support, minimizing environmental flux and complexity.	After 1 year the experimental group had higher grades and better school attendance. Experimental group has less negative self-concepts and perceptions of school environment than controls. At 4-year follow-up, experimental group has better grades, fewer absences and lower dropout rates.
Dale L. Johnson, Dept. of Psychology, U. of Houston. *(Johnson & Walker, in press)*	Low-income Mexican-American families with a one-year-old child.	To enhance school performance and to reduce the incidence of behavior problems in school-age children.	Mothers are visited 25 times/year by paraprofessionals in year 1 and given information on baby care, creating a stimulating home environment, emotional development, and coping with stress. Families attend many weekend sessions and mothers participate in English classes. In year 2, children participate in nursery school while mothers participate in child management classes at Center.	At five to eight years post-program, participating children show fewer aggressive, acting-out behaviors and are less hostile and more considerate than controls.

Table 1

Continued

PRIMARY AUTHORS	TARGET GROUP	OBJECTIVES	METHODOLOGIES	OUTCOMES
Nathan Maccoby, Dept. of Communication. Stanford U. Heart Disease Prevention Program. *(Meyer et al., 1980)*	Entire communities and, in particular, residents who are overweight, smoke, practice poor nutrition, and do not exercise.	To stimulate and maintain changes in lifestyle that will result in a community-wide reduction in risk for cardiovascular diseases.	A community education program aimed at smoking, nutrition, exercise, hypertension, and obesity. Mass media, community organization, and social marketing of health promotion programs.	Increase in knowledge and modification of behavioral and physiological indicators of risk, particularly when mass media campaigns were supplemented with face-to-face instruction.
David Olds, U. of Rochester Medical School. *(Olds et al., 1986)*	Socially disadvantaged primaparas and their children (women who are either teenagers, unmarried, or poor bearing their first child).	Improve prenatal health habits and behavior, informal social support, use of community services; reduce low birthweight, improve infant health and development, improve maternal school and occupational achievement, reduce repeat pregnancy and welfare dependence, reduce child abuse and neglect.	Pre- and post-natal nurse home visitation, transportation for health care, sensory and developmental screening.	Nurse-visited women during pregnancy made better use of community services, experienced greater social support, improved their diets, and reduced number of cigarettes smoked: improvements in birthweight and length of gestation for young adolescents and smokers. Nurse-visited mothers at highest social risk (poor, unmarried teenagers) had fewer verified cases of abuse and neglect during first 2 years postpartum.
Donald E. Pierson, Deborah K. Walker, Terrence Tinvan, Brookline Early Education Project. *(Pierson et al., 1983)*	Families of preschool children.	To reduce learning difficulties in preschool children and to develop effective parent-school communication links.	Parent education and support, diagnostic monitoring, periodic health and developmental exams for children from 6 months and, beginning at age 2 years, weekly playgroups followed at ages 3 and 4 by a daily morning pre-kindergarten program.	Structured observation of classroom behavior showed program children to have less learning difficulty and fewer reading problems in second grade than comparison children. Parents of program children had more relevant interests with their child's second grade teacher as well. Cost effectiveness analyses showed that more intensive versions of the program were more effective for children whose parents are not highly educated.
Craig T. Ramey, Frank Porter Graham, Child Development Center, U. of North Carolina. *(Ramey & Campbell, 1984)*	Disadvantaged rural black preschool children at risk for mild mental retardation.	To provide a learning environment to develop children's communication, language, motor, and social skills.	Child-centered prevention program delivered in a day care setting from infancy to age 5, emphasizes language, cognitive perceptual motor and social development.	Beginning at age 18 mos. and intervals thereafter to 54 months, program children scored significantly higher than controls on a range of mental ability tests, with experimentals exceeding national averages while controls declined.

(Continued)

Table 1

Continued

PRIMARY AUTHORS	TARGET GROUP	OBJECTIVES	METHODOLOGIES	OUTCOMES
Mary Jane Rotheram, Columbia U. *(Rotheram et al., 1982)*	Fourth and fifth grade children.	To improve social skills, assertiveness, and interpersonal competence in 4th and 5th grade children.	Group-based social skills and assertiveness training 2 hours per week for 12 weeks focused on training nonverbal behavioral skills, interpersonal problem-solving, and emotional self-control in role play context.	Teacher rated adjustment (or behavior), achievement and peer popularity were all superior in assertiveness/skills group. Grade-point averages were higher for experimental group 1 year post-intervention.
Phyllis Silverman, Inst. of Health Professions, Massachusetts General Hospital, Boston. *(Silverman, 1986; Vachon et al., 1980)*	Recently widowed women.	To provide social support, mutual help to newly widowed women to reduce psychological distress.	Widows contacted newly bereaved women, provided one-to-one support, located community resources, made supportive telephone calls, and led small group meetings.	Experimental group members evidenced improved mood, lower anxiety, made more friends, and began more activities. Overall, experimental group women progressed more rapidly in the course of adaptation, reduction of internal distress, and resocialization.
George Spivack, Myrna Shure. *(Shure & Spivack, 1982)*	4–6 year old urban preschool and kindergarten/first grade children.	To teach children interpersonal problem-solving skills in order to promote positive social behavior and decrease/prevent high-risk negative behavior.	Formal 12-week training programs and associated procedures for use throughout the day (one for preschool and one for kindergarten/first graders) both enhanced the ability of children to generate alternative solutions to peer and adult problems and anticipate potential consequences of interpersonal acts.	Experimentals acquired higher levels of problem-solving skills than controls, enhanced positive social behavior, and decreased impulsive and inhibited behavior. Effects endured over time, the incidence of new high-risk cases was diminished, and linkages between cognitive and adjustive gains were shown.
Ciporah S. Tadmor, Rambam Medical Center, Haifa, Israel. *(Tadmore et al., 1988)*	Pregnant women undergoing cesarean birth.	Mobilize natural and organized supports, provide information, share decision-making processes, and develop task-oriented activity to enhance emotional, cognitive, and behavioral control and prevent emotional dysfunction.	Anticipatory guidance session familiarizes couple with medical setting and personnel. Provide detailed information on birth process, anesthesia, anticipated reactions, pain, duration. Cesarian birth support group provides support, guidance and help during hospital stay. Discharge planning occurs before release.	Experimental mothers released from hospital sooner than controls, initiated independent care of the baby sooner and continued nursing longer. After day 1, experimental mothers requested less medication than controls and experimental fathers showed closer attachment to babies than control fathers. Experimental mothers had speedier psychological recovery.

Table 1

Continued

PRIMARY AUTHORS	TARGET GROUP	OBJECTIVES	METHODOLOGIES	OUTCOMES
David Weikart, Lawrence Schweinhart, High Scope Educational Research Foundation, Ypsilanti, MI. *(Berrueta-Clement et al., 1984)*	Black children, ages 3–4, from families of low socioeconomic status who were at risk of failing in school.	To implement a high quality preschool curriculum, involve parents, with coordinated staff, administration, and parent involvement for preschool children.	High quality, early childhood education for 2 years, 2½ hours per school day for 7½ months per year. Children participated in cognitively-oriented curriculum. Weekly home visits were conducted.	Significant cognitive gains, improved scholastic placement and achievement during school years, decreases in crime and delinquency, use of welfare assistance at age 19. Experimentals also had better high school graduation rates, post-secondary enrollments, and higher employment than controls. Analyses show benefits exceed costs seven-fold. Findings persist through age 19.

grams are scarce. If so few programs survived the initial screening, a major reason is that only one-third had attempted to evaluate their efforts systematically. Moreover, a significant number of these lacked program manuals or other means of documenting their efforts. Programs that had only vaguely defined procedures had little chance to be replicated successfully in other settings. For these reasons, it is misleading to use total number of submissions as a framework for assessing the efficacy of existing prevention efforts. A more accurate indicator of the state of the field might be the 52 programs that the Task Force considered in detail. Of these, however, nearly 25% lacked follow-up information considered essential by Task Force members to document the enduring achievement of preventive goals. Many others had evaluation designs or results that cast doubt on program outcome statements or lacked the documentation needed to permit program replication. Although we do not represent the final group of 14 programs as flawless in these respects, they nevertheless provide a reasonable estimate of the profile of currently "mature" preventive intervention strategies.

Many of the remaining programs submitted represented interesting, potentially promising ideas which had not yet evolved into fully developed preventive interventions. For some, too little time had passed to assess the preventive strategy in terms of the desired outcome. Others simply lacked systematic program evaluations. Task Force members were nevertheless persuaded, by the range and substance of the submittals, that evidence for effective prevention programs will increase significantly over the coming years as necessary outcome data are obtained using longitudinal evaluations. We therefore view the results of the original survey optimistically and look forward to continued healthy growth in the development of effective preventive interventions.

Benefit-cost assessments are possible but seldom attempted. Benefit-cost analysis is a critical consideration for policy makers and the general public in evaluating preventive program models of the kind reported here. Both technical and value issues must be addressed before benefit-cost evaluation methodology can be applied thoughtfully to preventive programs.

It is worth noting that some preventive

programs may *never* be truly cost beneficial in the narrow sense. Even so, as a society we may choose to develop and implement such programs because they reduce human suffering, increase human dignity, or otherwise reflect deep human values. Preventive programs obviously should not be rejected simply because the "bottom line" does not indicate that the program saves money in the short term. That much said, it is inevitable that, as sophistication in conducting research and evaluation on preventive programs grows, benefit-cost questions will be raised and researchers will attempt to do benefit-cost analyses on preventive programs.

An example of such a pioneering effort is the Perry Preschool Program described by Berrueta-Clement, Schweinhart, Barnett, Epstein, and Weikart *(1984)*. They documented the costs of early education and the long-term benefits resulting from the positive program outcomes. As the authors observed, "changes in economic success, self-sufficiency, and social responsibility can be predicted quantitatively from observed effects at age 19" (p. 89). In commenting on these findings, Gramlich *(1984)* made several important points that policy makers and prevention researchers should consider. First, benefits from prevention programs may increase over time. Short-term evaluations of benefits may show that they are either small or nonexistent, but benefits may accrue over time as children are, for example, engaged in less crime, depend on welfare less, or begin to reap the benefits of higher levels of educational achievement.

Another critical issue is that sensitive benefit-cost analyses should identify gainers and losers in society. For example, Gramlich's *(1984)* analysis identified net social benefits received by participants in the program, by taxpayers, and by potential victims of crime. As Gramlich observed, elected officials are concerned about who gains and who loses, as well as how big the overall gain or loss actually is. For example, benefit-cost analyses of the Perry Preschool Program suggest that the total net benefits to each preschool participant were approximately $5,000. On the other hand, by the time the program recipients are 19 years old, total net benefit to taxpayers and potential crime victims is estimated at around $23,000 for each year of preschool experience.

Although preventive programs are time consuming and costly to develop and evaluate, their cost is trivial compared to the social costs of drug abuse, school dropout, depression, or delinquency. As health care costs and state expenditures continue to soar, we are becoming more aware that, for every problem of this kind, someone is paying the bill in tax dollars, insurance premiums, or productivity losses to employers.

Systematic knowledge for implementing and sustaining preventive efforts is lacking. Even highly effective model prevention programs are not always easily or automatically transformed into local program replications that will produce the intended preventive effects. Successful implementation of a model prevention program is a form of organizational reinvention *(Rice & Rogers, 1980)*. The term "organizational reinvention" well describes this process because the implementation of a model prevention program is inherently organizational in nature. This process involves the orchestration of both internal and external organizational resources; scanning the organizational and community environment; focusing program goals and objectives; and, finally, implementing the program and monitoring it for fidelity to the original model. The success of these activities depends heavily on how receptive the host organization, whether a school, hospital, or social service agency, is to the new program and the degree to which the implementer is able to work collaboratively with local institutional and community members.

But, even successful collaboration with local community or service organization members raises its own dilemmas. A dilemma facing all practitioners in implementing a model prevention program concerns the potential conflict between fidelity and adaptation. Stolz *(1984)* noted that a major controversy in the field of knowledge diffusion and utilization has to do with whether a model program should be used as close to the original form as possible to insure fidelity, or whether we should encourage organizations to modify and adapt the innovation and therefore enhance the likelihood of local acceptance at the risk of altering critical features of the program. Future research must distinguish between "core" program features that are its effective ingredients and should not be altered, and "adaptive" features that must be modified to suit local circumstances. Although the developers of model programs discuss this and related implementation issues in the context of their own programs *(Price et al., 1988)*, these critical organizational issues remain at the "craft" level of understanding. To date, few generalizable principles are available to guide practitioners wishing to replicate model programs in other settings.

CONCLUSION

The APA Task Force on Promotion, Prevention, and Intervention Alternatives set out to identify effective prevention programs across the life span that could serve as models for practitioners to replicate in local settings. In so doing, the Task Force learned many other things about the prevailing state of the art.

Perhaps most importantly, we conclude that prevention efforts can be effective and that, while still scarce, new and promising programs continue to emerge. Additional research support can accelerate that process. Successful programs have a number of common features including careful targeting of the population, the capacity to alter life trajectory, the provision of social support and the teaching of social skills, the strengthening of existing family and community supports, and rigorous evaluations of effectiveness. We also conclude that programs for adults and the elderly are underrepresented, that rigorous evaluations are extremely scarce, that estimates of benefits and costs are rare, and that knowledge to implement and sustain programs effectively has not yet been systematically developed.

The promise of prevention is clear enough. The need to support systematic research and development to expand current knowledge and skill is equally clear. The Task Force's findings should be encouraging to policy makers and should stimulate efforts to deliver—more speedily and systematically—on the promise of prevention.

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RESEARCH

SUICIDAL BEHAVIOR IN "NORMAL" ADOLESCENTS: Risk and Protective Factors

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Risk and protective factors were examined in suicidal and nonsuicidal public high school students. With life stress and depression as independent risk factors, family cohesion was found to offset the effect of stress, and friendships to have a more indirect effect. Differential effects of ten sources of stress were analyzed from a developmental perspective, and the probability of suicidal behavior associated with clusters of factors was estimated for the general population.

Compared with their nonsuicidal counterparts, suicidal adolescents have experienced more life stress in the form of family disruption through separations, parental divorce or death, parental emotional disorder, or severe family discord; cumulative negative life events of the sort found in life event inventories; and, in some cases, troubled peer relationships in the form of social isolation or the acute loss of a boyfriend or girlfriend (*Hirshfeld & Blumenthal, 1986; Petzel & Cline, 1978*). While many suicidal adolescents have experienced major life stress, most individuals who experience similar stress are not suicidal. Clearly, the known correlates of suicidal behavior are insufficient to account for the phenomenon.

Although the literature contains several studies of risk factors for suicidal behavior in this age group, most of these studies have been conducted on patient populations, either inpatients in a psychiatric facility, individuals who present themselves to the emergency room of a general hospital, or individuals in outpatient psychiatric treatment (*Hirshfeld & Blumenthal, 1986*). Risk and protective factors from population surveys of high-school-age adolescents have not been clearly identified. A further problem with existing studies is that most have examined correlates of adolescent suicidal behavior on a univariate basis, not controlling for the interrelationships among the variables. Thus the independence of each risk or protective factor has not been established. A clearer understanding of adolescent suicidality may be derived from studying this phenomenon in the general population, using multivariate techniques to examine the contribution of each factor with the others controlled.

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