Healthy Youth Development: Science and Strategies

Debra Hilkene Bernat and Michael D. Resnick

Research over the past decade indicates that healthy youth development strategies—the deliberate process of providing *all* youth with the support, relationships, experiences, resources, and opportunities needed to become successful and competent adults—are promising approaches for preventing or reducing a wide range of adolescent health-risk behaviors. In this article, we describe the history, science, and practice of healthy youth development. First, a brief overview of barriers to healthy youth development including obstacles the United States will face in the coming decades for meetings the needs of all youth is provided. We present the history of resiliency research that illuminated the concepts "risk factors," "protective factors," and "healthy youth development," and provide definitions of each of these concepts. Next, we discuss select empirical evidence supporting youth development strategies and highlight the events and experiences in the lives of youth that have been consistently shown to protect youth against a broad range of health-risk behaviors. Finally, we describe elements of effective interventions for promoting the healthy development of all young people.

KEY WORDS: adolescents, health-risk behaviors, healthy youth development, protective factors, risk factors

Recent research suggests that healthy youth development strategies are promising approaches for preventing a wide range of adolescent health-risk behaviors. Healthy youth development strategies are grounded in the premise that youth are "resources to be developed, rather than problems to be solved,"[1] and can be defined as deliberate processes of providing youth with the support, relationships, experiences, resources, and opportunities needed to become successful and competent adults.[2] Research across multiple disciplines including psychology, sociology, nursing, public health, social work, and medicine show that enhancing positive factors in the lives of youth, such as connectedness to family, school, and community, can reduce the likelihood youth will engage in a number of health-jeopardizing behaviors.

In this article, we provide an overview of threats to healthy youth development and challenges we will face in meeting the needs of all youth in the United States in the coming decades. We discuss the history of resiliency research that gave prominence to the dynamic interplay of the concepts "risk factors," "protective factors," and "healthy youth development," and provide definitions for each of these concepts. We highlight empirical evidence supporting youth development strategies using results from the National Longitudinal Study of Adolescent Health (Add Health). Finally, we discuss elements of effective interventions for promoting the healthy development of all young people.

Threats to Healthy Youth Development

Many factors may jeopardize the healthy development of young people, including personal and familial

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characteristics, the quality of the schools they attend, and the communities in which they live. Among the greatest risks to healthy development are adolescents' behavior and health (particularly in terms of compromised health status) and the contexts in which youth live. Engagement in risky behaviors is common during adolescence, and future demographic changes in the youth population (particularly the proportion of youth expected to grow up in impoverished environments) will create even greater challenges for promoting healthy development among all youth.

Involvement in risky behaviors such as substance use, violence perpetration, and unsafe sexual practices is common during adolescence and remains a significant public health problem. Results from the 2003 Youth Risk Behavior Surveillance Survey conducted by the Centers for Disease Control and Prevention show that 30 days prior to the survey, 17 percent of high school students had carried a weapon to school (eg, gun, knife, or club), 28 percent had drunk five or more drinks in a row, 22 percent had smoked cigarettes, and 30 percent had ridden in a car with someone who had been drinking alcohol.[3] Twelve months prior to the survey, 33 percent had been in a physical fight and 9 percent of high school students had attempted suicide. In addition, nearly half (47%) of all high school students reported having had sexual intercourse in their lifetime, and more than one third (37%) of these youth reported not using a condom at last intercourse.

Several other areas of adolescent health, including mental health and obesity, are receiving increased attention, and appropriately so. Children's mental health has reached crisis levels, with 1 in 10 children and adolescents suffering from a mental health disorder associated with considerable impairment.[4] The prevalence of overweight among youth is also an increasing public health concern, with 15 percent of high school students being moderately overweight and 14 percent being overweight.[3]

Changes in the US population in the next few decades will create greater challenges than ever before in meeting the needs of all youth. The number of adolescents aged 10 to 19 will grow from 41 million to a record 50 million teenagers by the year 2040.[5] The ethnic diversity of the adolescent population in the United States is also growing. Projections from the US Census Bureau show that non-Hispanic White youth will comprise only 56 percent of the adolescent population by 2020 (compared with 63% in 2000), and by 2040 will no longer be the majority adolescent population. The Hispanic and Asian American adolescent populations are the fastest growing and are expected to represent respectively 23 percent and 6 percent of the population by 2020. The number of children and youth living in poverty is also rising. According to the National Center for Children in Poverty, 38 percent of children currently live in low-income families, and the number of youth living in low-income families increased by 13 percent in the past 4 years.[6]

Both the urgency and complexity of health and social challenges to young people's well-being, coupled with these demographic shifts, have compelled researchers, practitioners, and advocates to struggle with the question of "what works and for whom?" and how successful youth development approaches can be mainstreamed and sustained.

Overview of Resiliency

The concept of "resiliency," as applied to young people, grew out of the work of such pioneers as Norman Garmezy, Emmy Werner, Ruth Smith, Michael Rutter, and Arnold Sameroff beginning in the later 1960s and early 1970s.[7–12] Especially known for its longevity is the work of Werner and Smith who followed a cohort of children born in 1955 on the Island of Kauai at risk for negative outcomes including poverty, family instability, and health problems. The participants in this study were followed until their 40s, and were assessed at birth, infancy, childhood, late adolescence, and in adulthood. The investigators found that many of the children experienced negative outcomes as they entered adolescence and adulthood including teen pregnancy, delinquency, and mental health problems.[13] The investigators also found that despite the challenging contextual conditions for these young people, approximately one third of the children became competent and successful adults.

The process in which individuals show positive outcomes, despite adversity, is referred to as *resiliency*.[14] Although initial research on resiliency implied that youth who showed positive outcomes in spite of risk were extraordinary in some way (often termed "invulnerable"), further research has demonstrated that resilience is a more common phenomenon.[15] Resiliency refers to a pattern of behavior, rather than an individual attribute. In fact, the resiliency construct is grounded in an ecological model that emphasizes the importance of factors extrinsic to the individual along with key intra-individual assets in promoting healthy youth development. But rather than referring to a fixed trait, individuals may show resilient behavior in one situation and not in another. Understanding why some youth experience negative outcomes while others become competent adults, despite experiencing similar challenges growing up, became a primary research agenda.

Risk and Protective Factors

The focus on identifying and understanding risk and protective factors intensified through the work of the Kauai investigators, guided by a resiliency paradigm. *Risk factors* are elements and experiences in a child or adolescent's life that increase the likelihood of negative outcomes and decrease the likelihood of positive outcomes. Werner and Smith, for example, examined factors related to negative outcomes in their study of children on the Island of Kauai and found that poverty, low maternal education, family instability, single parenthood, and health concerns were related to problems during adolescence and into adulthood.[13,16] Subsequent research has shown that the effects of risk are cumulative, such that exposure to multiple risk factors at a single point in time or over time increases the likelihood of negative outcomes.[10,17]

Protective factors, on the other hand, are events or experiences that reduce the likelihood of negative outcomes and increase the likelihood of positive outcomes. Protective factors have been defined as both bipolar and unipolar constructs.[15] As a *bipolar construct*, risk is at one end of the continuum and protection at the other. For example, academic achievement is related to numerous positive outcomes, whereas low achievement increases the likelihood of negative outcomes. *Unipolar constructs* represent a continuum of an attribute, but the absence or diminished amounts of the attribute are not necessarily associated with greater risk for negative outcomes. Volunteerism and involvement in extracurricular activities are examples of unipolar constructs.[18] Participation in more extracurricular activities, for example, may be associated with better outcomes, but not participating in these activities may not increase the likelihood of negative outcomes.

Risk and protective factors have several similar qualities. First, both can be intrinsic (eg, humor, temperament) or extrinsic (eg, exposure to violence at school) to an individual and can occur at all levels of influence: at the individual level, within a family, at school, or within the community. Second, risk and protective factors tend to co-occur within individuals, such that an individual with one risk or protective factor is likely to be characterized by another. Generations of research have amply demonstrated the clustering of risk factors[19,20] as well as the covariation of protective factors.[21] Finally, effects of risk and protective factors are not entirely uniform across social groups. For example, a study of youth violence showed that working 20 or more hours per week was a risk factor for boys, but not for girls.[22] On the other hand, low self-esteem was a risk factor for violent behavior among girls, but not for boys. Thus, a risk or protective factor for one group of youth may not be as powerful a risk factor or protective factor for another group.[23,24]

What do Youth Need to Develop Into Successful Adults?

Emmy Werner and Ruth Smith were among the first to investigate protective factors in the lives of youth. They examined factors that contributed to the positive outcomes experienced by the youth in the Kauai study, despite being exposed to risk. They found that youth who experienced more positive outcomes were more likely to have (1) a close relationship with a role model or a caregiver, (2) an easy temperament, (3) friends and interests, and (4) good language and reasoning skills.[25]

Many studies have now examined factors that protect youth from negative outcomes and a recurring set of positive attributes, events, and experiences have been identified across studies.[26–28] A review of the resiliency literature by Masten[14] reported 10 factors that buffered youth from a variety of risk factors including parental mental illness, economic hardship, teen parenting, maltreatment, and delinquency. The 10 protective factors in her review included (1) effective parenting; (2) connections to nonparental adults; (3) appeal to others, particularly adults; (4) intellectual skills; (5) talent or accomplishments valued by others; (6) self-efficacy, self-worth, and hopefulness; (7) religiosity; (8) socioeconomic advantages; (9) school and community assets; and (10) fortuitous circumstances. Although many protective factors have been identified through resiliency research on at-risk populations, it has become clear that most youth benefit from these factors, whether they are at heightened risk for negative outcomes or not. Thus, recent research has begun to focus on the effects of protective factors not only in high-risk populations but also in the lives of adolescents in general, using cross-sectional and longitudinal surveys of youth health and behavior. Prominent among these are analyses of the National Longitudinal Study of Adolescent Health (Add Health).

Empirical Support for Protective Factors

Add Health is one of the most comprehensive current surveys of health behaviors among adolescents in the United States. These data have been used extensively to examine the role of protective factors in the general adolescent population. The study began in 1994 with 90,000 adolescents from 80 communities across the United States. The subsequent core cohort of approximately 20,000 youth has been followed for three waves of data collection, with a fourth under development. The study, ordered by Congress, was designed to examine how social contexts (ie, families, schools, and communities) affect health and behaviors among adolescents, and includes assessments of both risk and protective factors. A primary goal of this study was to

provide decision makers with information on key determinants of adolescent health and behavior. Beyond its obvious research applications, results from the Add Health study have been used for advocacy, curriculum, program, and policy development, and grant writing at local, state, and national levels to further develop services for youth. Data from the Add Health study are being used extensively to understand success and well-being among young people, particularly those living in challenging environments.

Add Health analyses demonstrate that connectedness to family, other adults, school, and community are robust, recurring protective factors across social groups of young people.[29–34] Resnick and colleagues,[33] for example, examined risk and protective factors for four domains of adolescent health including emotional health, violence, substance use, and sexual behaviors and outcomes among adolescents in grades 7 to 12. They found that parent-family connectedness and school connectedness were protective factors for all health behaviors studied except history of pregnancy. Since that initial analysis, collectively, these studies show that various dimensions of connectedness serve to protect youth against a broad range of health-risk behaviors, with applicability across gender, race, and ethnic groups.[35]

These findings on connectedness accentuate the importance of attachment in healthy human development, which has had a long history in the child development and psychiatry literature.[36–38] Analyses also demonstrate that these dimensions of connectedness appear more important than demographic characteristics, such as family composition (eg, two parent vs single parent), in protecting youth against high-risk behaviors.[39] Recent advances in technology have also furthered the scientific evidence supporting the importance of connectedness in the lives of adolescents. Laboratory research, for example, on animals to brain imaging studies on adolescents and young adults suggest that human beings are biologically "hardwired" to connect with others, and to seek meaning and purpose in life. Specifically, this research shows that the experience of connectedness stimulates reward mechanisms in the brain.[40]

Understanding the dynamic interplay of risk and protective factors has also been enabled by the breadth and scope of the Add Health study. Researchers argue that it is an imbalance in risk and protective factors in the lives of adolescents that result in negative outcomes. That is, youth may develop into competent adults despite numerous risk factors, if there are adequate protective factors in their life.[41] Add Health analyses have focused on the likelihood of involvement in high levels of violent behavior on the basis of varying combinations of risk and protective factors.[22] Longitudinal results demonstrate that protective factors can buffer the effects of risk factors. Among youth who were characterized by all the risk factors examined (eg, repeating a grade, carrying a weapon to school, being a victim of violence, and high levels of emotional distress), and none of the protective factors (eg, feelings of connectedness to family and other adults, high parental school expectations, high-grade point average, and religiosity), 71 percent of boys and 61 percent of girls were predicted to be involved in violent behavior at the time of survey follow-up. In contrast, the likelihood of involvement in violent behavior was significantly reduced for boys and girls still characterized by all risk factors but also with all of the protective factors present (42% for boys and 21% for girls).

Healthy Youth Development

The resilience literature provides a compelling rationale for redirecting interventions from the traditional emphasis on the prevention and treatment of problem behaviors to capacity building in youth. Youth development programs informed by the resiliency framework work to develop skills, competencies, and positive experiences with caring adults who have high expectations and a positive attitude toward young people. Although youth development programs vary greatly in both their focus and strategies, they tend to be guided by a philosophy that regards young people as inherently capable, with an emphasis on deliberately cultivating their talents and skills. Such programs also accept the premise that healthy youth development is a complex process that cannot be left to chance alone.[42]

Although some communities and families are already providing the nutrients required for youth to succeed in the second decade of life, others are not. Thus, healthy youth development is the deliberate process of providing *all* youth with the support, relationships, experiences, resources, and opportunities needed to become successful and competent adults.[2]

Components of Effective Youth Development Programs

Empirical studies on risk and protective factors have important implications for programs and social policies designed to promote healthy youth development.[9,10] The following section provides an overview of some critical elements of youth development programs. Although several of the elements listed are essential elements of all successful prevention and intervention program, we discuss the elements as they pertain to youth development programs.

Programs should be informed by pertinent theories and incorporate validated strategies and/or best practices

Empirical evidence is increasingly available about "what works" to promote healthy youth development. Many protective factors have been repeatedly identified and shown to be effective in promoting positive outcomes. Consideration of the population targeted by the program and the specific risk factors being addressed (eg, violence exposure, maltreatment, poverty), however, need to be considered when selecting specific intervention targets. Many studies show that risk and protective factors are fairly consistent across gender, race, and ethnicity. However, some differences do exist as to how risk and protective factors work for different groups and in different contexts. Thus, in addition to theory, findings from research studies examining the specific population being targeted should be used to guide the selection of applicable risk and protective factors.[43]

Promote protective factors and reduce risk factors

It has long been debated whether youth programming should focus on reducing risk factors, promoting protective factors, or both. Recent research suggests that the most effective strategies for reducing health-jeopardizing behaviors are those designed to simultaneously reduce risk factors and promote protective factors.

Empirical evidence regarding the importance of developing competencies, building capacity, and enhancing connectedness calls for schools and communities to promote a strong sense of connection while enhancing young people's competencies by providing them with opportunities to develop new skills and use them to be of help or service to others.[39] Providing opportunities for youth to contribute, by assuming meaningful roles in their school and community, is critical for healthy development. Providing young people with the support and opportunities they need throughout adolescence requires supporting youth development programs in school and communities and providing adequate funding to sustain these programs over time.

Although promoting protective factors is a critical element of prevention and promotion programs, this does not negate the urgency of addressing fundamental threats to health, such as poverty. Promoting healthy youth development through programmatic means must be coupled with policy-based approaches that address the broader social determinants of health. Such change will occur only in the face of strong and ongoing advocacy by those working with and on behalf of young people.[42]

Multiple behaviors and multiple systems focus

In contrast to the targeted focus of categorical programs, a generation of research on risk and protective factors for young people has underscored the utility of addressing multiple behaviors and outcomes through multilevel interventions. Results from the Add Health study, for example, show that parent-family connectedness and school connectedness are protective factors for emotional health, violence, and substance use. Multilevel interventions have amply demonstrated that reducing risk factors and promoting protective factors in ways that both enhance youth competence and transform their social environments result in multiple, positive long-term outcomes for young people. Some of these interventions have affirmed the desirability of implementing dual generation programs that include both young people and the adults that care for them.[41,44] The growing evidence on the short-term and long-term impact of such youth development programs suggests that targeting a critical set of risk and protective factors at the individual and contextual levels will increase the likelihood of sustained positive results, beyond the narrow focus of one or a few risk behaviors.[45]

Focus on prevention and health promotion

Healthy youth development programs developed from a resiliency framework suggest a focus on positive rather than negative outcomes. For programming purposes, this suggests that the primary focus should be on preventing problems before they begin when possible (primary prevention), and focusing on secondary prevention when necessary, including the reduction of risk factors and enhancing protective factors.

However, there is general consensus that becoming a competent and successful adult requires skills and competencies above and beyond being free of problems. As articulated so clearly by Karen Pittman, "Problem free is not fully prepared."[46] Thus, promoting healthy youth development involves the development of skills and other competencies, not just preventing negative outcomes. Creating opportunities for youth to participate in challenging and interesting learning experiences, providing leadership opportunities for youth, and building social and academic competencies are among the critical components needed to promote healthy youth development.

Appropriate duration and intensity

A substantial body of research demonstrates that the duration and strength of an intervention must be tied to the challenges facing intervention participants.[47–49] Put in other terms, the intensity of the intervention must match the intensity of the need. This principle, often

neglected because of budgetary constraints and other operations considerations, is nonetheless integral to the success of youth development efforts.[35,42,45,46]

Rigorous evaluation

To date, hundreds of youth development programs have been developed across the United States. Few programs, however, have been rigorously evaluated, making it difficult to assess the effects of these programs on the outcomes targeted by the intervention.[45] The number of youth development programs has grown substantially in the past decade, and evaluations of these programs may be ongoing. However, rigorous evaluations need to be conducted before programs are disseminated for widespread use.

Evaluations of youth development programs are needed to examine whether the programs work to change desired outcomes and for whom they work. Evaluations are needed to assess both short-term and long-term outcomes for young people as well as for families and other systems that may be the target of the intervention. Understanding what works for whom is an enduring question that will continue to challenge us as the social diversity of the United States grows in the coming decades. We need to better understand processes that lead to better outcomes for individuals, families, and social systems that reflect the variety of social groups that comprise the US population.[50] Understanding what works for whom will enable practitioners and policy makers to tailor their efforts more effectively for the populations they are serving. And although the need for such understanding is self-evident, considerable obstacles remain that hamper evaluation from becoming a mainstay of youth development programs. Overcoming these obstacles will require strategic advocacy and persuasion directed at funders and other decision leaders. Scholars and practitioners will need to effectively join their voices so that the urgency that surrounds the process of addressing serious, substantive problems does not obscure the need for investment in systematic investigation into what works, with whom, and why.

Conclusion

The field of youth development is maturing from an overarching set of philosophical principles for programs, policy, and practice to include a growing body of scientific evidence about the utility of reducing risks, enhancing protective factors at the individual and contextual levels, and promoting confidence and competence in young people in ways that will serve them now and in the future. Rigorous, systematic investigation into the effects of youth development strategies is the sine qua non for continuing to expand and deepen this area of endeavor. While clarifying what we know and pursuing the myriad questions that have yet to be explored, scientists and practitioners have already developed a critical body of knowledge that warrants wider dissemination, replication, and new investigation into ways of enhancing the healthy development and well-being of our youth.

REFERENCES

1. McLaughlin MW, Irby MA, Langman J. *Urban Sanctuaries: Neighborhood Organizations in the Lives and Futures of Inner City Youth*. New York: Wiley; 1994.
2. Center for Youth Development and Policy Research. What is youth development? Washington, DC: Academy for Educational Development, Center for Youth Development and Policy Research. Available at: http://cyd.aed.org/whatis.html. Accessed September 2005.
3. Grunbaum JA, Kann L, Kinchen S, et al. Youth risk behavior surveillance—United States, 2003. *MMWR Morb Mortal Wkly Rep*. 2004;53(SS-2):1–100.
4. Burns BJ, Costello EJ, Angold A, et al. DataWatch: children's mental health service use across service sectors. *Health Aff*. 1995;14(3):147–159.
5. Bureau USC. *Projections of the Resident Population by Age, Sex, Race, and Hispanic Origin: 1999 to 2100*. Washington, DC: Bureau USC; 2000. NP-D1-4A Middle Series.
6. National Center for Children in Poverty. Basic facts about low-income children: birth to age 18. Available at: http://www.nccp.org/media/lic05_text.pdf. Accessed October 17, 2005.
7. Sameroff AJ, Chandler MJ. Reproductive risk and the continuum of caretaking causality. In: Horowitz FD, Hetherington M, Scarr-Salapatek S, Siegel G, eds. *Review of Child Development Research*. Chicago: University of Chicago Press; 1975:187–243.
8. Garmezy N. The study of competence in children at risk for severe psychopathology. In: Anthony EJ, Koupernik C, eds. *The Child in His Family: Volume 3. Children at Psychiatric Risk*. New York: Wiley; 1974:77–97.
9. Garmezy N. Vulnerability research and the issue of primary prevention. *Am J Orthopsychiatry*. 1971;41(1):101–116.
10. Rutter M. *Protective Factors in Children's Responses to Stress and Disadvantage*. In: Kent MW, Rolf JE, eds. *Primary Prevention of Psychopathology: Volume 3. Social Competence in Children*. Hanover, NH: University Press of New England; 1979:49–74.
11. Werner EE, Bierman JM, French FE. *The Children of Kauai: A Longitudinal Study From the Prenatal Period to Age Ten*. Honolulu: University of Hawaii Press; 1971.
12. Werner EE, Smith RS. *Kauai's Children Come of Age*. Honolulu: University of Hawaii Press; 1977.
13. Werner EE, Smith RS. *Overcoming the Odds: High Risk Children from Birth to Adulthood*. Ithaca, NY: Cornell University Press; 1992.
14. Masten AS. Resilience in individual development. Successful adaptation despite risk and adversity. In: Wang MC, Gordon EW, eds. *Educational Resilience in Inner-City America: Challenges and Prospects*. Hillsdale, NJ: Erlbaum; 1994:3–25.

15. Masten AS. Ordinary magic. Resilience processes in development. *Am Psychol*. 2001;56(3):227–238.
16. Werner EE. High-risk children in young adulthood. A longitudinal study from birth to 32 years. *Am J Orthopsychiatry*. 1989;59:72–81.
17. Masten AS, Wright MOD. Cumulative risk and protection models of child maltreatment. In: Rossman BBR, Rosenberg MS, eds. *Multiple Victimization of Children: Conceptual, Developmental, Research and Treatment Issues*. Binghamton, NY: Haworth Press; 1998.
18. Fergus S, Zimmerman MA. Adolescent resilience: a framework for understanding healthy development in the face of risk. *Annu Rev Public Health*. 2005;26:399–419.
19. Bachman JG, O'Malley PM, Johnston LD. *Correlates of Drug Use; Part 1. Selected Measures of Background, Recent Experiences, and Lifestyle Orientations*. Ann Arbor, Mich: Institute for Social Research; 1980. Monitoring the Future Occasional Paper 8.
20. Jessor R, Jessor SL. *Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth*. New York: Academic Press; 1977.
21. Donovan JE, Jessor R, Costa FM. Structure of health-enhancing behavior in adolescence: a latent-variable approach. *J Health Soc Behav*. 1993;34(4):346–362.
22. Resnick MD, Rinehart PM. *Influencing Behavior: The Power of Protective Factors in Reducing Youth Violence*. Minneapolis, Minn: Center for Adolescent Health and Development, University of Minnesota; 2004.
23. Rutter M. Resilience: some conceptual considerations. *J Adolesc Health*. 1993;14:690–696.
24. Luthar SS, Zigler E. Vulnerability and competence: a review of research on resilience in childhood. *Am J Orthopsychiatry*. 1991;61(1):6–22.
25. Werner EE, Smith RS. *Journeys from Childhood to Midlife: Risk, Resilience, and Recovery*. Ithaca, NY: Cornell University Press; 2001.
26. Sameroff AJ, Barocas R, Seifer R. The early development of children born to mentally ill women. In: Anthony NF, Wynne LC, Rolf JE, eds. *Children at Risk for Schizophrenia: A Longitudinal Perspective*. New York: Cambridge University Press; 1984:482–514.
27. Masten AS, Garmezy N. Risk, vulnerability, and protective factors in developmental psychology. In: Lahey B, Kazdin A, eds. *Advances in Clinical Child Psychology*. New York: Plenum; 1990:1–52.
28. Long JV, Vaillant GE. Natural history of male psychological health; part XI: escape from the underclass. *Am J Psychiatry*. 1984;141(3):341–346.
29. Svetaz MV, Ireland M, Blum R. Adolescents with learning disabilities: risk and protective factors associated with emotional well-being: findings from the National Longitudinal Study of Adolescent Health. *J Adolesc Health*. 2000;27(5):340–348.
30. Henrich CC, Brookmeyer KA, Shahar G. Weapon violence in adolescence: parent and school connectedness as protective factors. *J Adolesc Health*. 2005;37(4):306–312.
31. Sieving RE, McNeely CS, Blum RW. Maternal expectations, mother-child connectedness, and adolescent sexual debut. *Arch Pediatr Adolesc Med*. 2000;154(8):809–816.
32. Scal P, Ireland M, Borowsky IW. Smoking among American adolescents: a risk and protective factor analysis. *J Community Health*. 2003;28(2):79–97.
33. Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm: findings from the National Longitudinal Study of Adolescent Health. *JAMA*. 1997;278:823–832.
34. Resnick MD, Ireland M, Borowsky I. Youth violence perpetration: what protects? What predicts? Findings from the National Longitudinal Study of Adolescent Health. *J Adolesc Health*. 2004;35(5):424.e421–424.e410.
35. Resnick MD. Protective factors, resiliency and healthy youth development. *Adolesc Med*. 2000;11(1):157–165.
36. Ainsworth M, Blehar M, Waters E, Walls S. *Patterns of Attachment*. Hillsdale, NJ: Lawrence Erlbaum; 1978.
37. Bowlby J. *Attachment: Volume 1. Attachment and Loss*. New York: Basic Books; 1969.
38. Bronfenbrenner U. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge: Harvard University Press; 1979.
39. Resnick MD, Harris LJ, Blum RW. The impact of caring and connectedness on adolescent health and well-being. *J Paediatr Child Health*. 1993;29(suppl 1):S3–S9.
40. Dartmouth Medical School IfAV, YMCA of the USA. *Hardwired to Connect: The New Scientific Case for Authoritative Communities*. A report to the nation from the Commission on Children at Risk. New York: Institute for American Values; 2003.
41. Lonczak HS, Abbott RD, Hawkins JD, Kosterman R, Catalano RF. Effects of the Seattle social development project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Arch Pediatr Adolesc Med*. 2002;156(5):438–447.
42. Resnick MD. Healthy youth development: getting our priorities right. *Med J Aust*. 2005;183(8):398–400.
43. Rew L. *Adolescent Health: A Multidisciplinary Approach to Theory, Research, and Intervention*. Thousand Oaks, Calif: Sage; 2005.
44. Philliber S, Kaye JW, Herrling S, West E. Preventing pregnancy and improving healthcare access among teenagers: an evaluation of the children's aid society-carrera program. *Perspect Sex Reprod Health*. 2002;34(5):244–251.
45. Roth J, Brooks-Gunn J, Murray L, Foster W. Promoting healthy adolescents: synthesis of youth development program evaluations. *J Res Adolesc*. 1998;8(4):423–459.
46. Pittman K. *Promoting Youth Development: Strengthening the Role of Youth Serving and Community Organizations*. Washington, DC: Academy for Educational Development, Center for Youth Development and Policy Research; 1991.
47. Perry CL, Williams CL, Komro KA, et al. Project northland high school interventions: community action to reduce adolescent alcohol use. *Health Educ Behav*. 2000;27(1):29–49.
48. Perry CL, Williams CL, Forster JL, et al. Background, conceptualization and design of a community-wide research program on adolescent alcohol use: project northland. *Health Educ Res*. 1993;8(1):125–136.
49. Schorr L. *Common Purpose: Strengthening Families and Neighborhoods to Rebuild America*. New York: Random House; 1998.
50. Garcia Coll C, Lamberty G, Jenkins R, et al. An integrative model for the study of developmental competencies in minority children. *Child Dev*. 1996;67(5):1891–1914.