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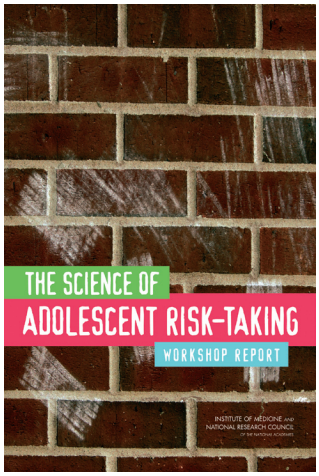
The Science of Adolescent Risk-Taking

Summary of a Workshop



Most adolescents progress to adulthood in excellent physical health and without engaging in behaviors that put themselves or others at risk. Others take many unhealthy risks—particularly involving sexual behavior, driving, substance use, or criminal activity. Many adolescents also experience emotional distress or mental health disorders. These behaviors may limit a young person's opportunities to grow into a productive adult, contribute to lifelong health problems, or cause injury or death.

Researchers in several fields—including neuroscience, psychology, sociology, and public health—study adolescents and their development, but these studies are seldom integrated across these disciplines or across areas of risk. A series of three workshops convened by the Institute of Medicine and the National Research Council brought together researchers who study the adolescent brain; pubertal, cognitive, and psychosocial development; the influences of the family, peer group, school, neighborhood, community, and mass media on adolescent behavior; adolescent physical health, mental health, substance use, delinquency, sexual behavior, and driving; and approaches to the prevention of unhealthy adolescent risk-taking.

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The first workshop, held in November 2008, focused on individual processes in adolescent development. The second, held in May 2009, focused on social and environmental influences, and the third, held in December 2009, was an opportunity for discussants and presenters to integrate the findings from multiple research spheres.

Robert Blum set the context by describing trends in adolescent health. James Jaccard, Laurie Chassin, Wayne Osgood, and Allan Williams, respectively, discussed the features of some of the most prevalent risk behaviors:

sexual risk-taking, substance use, illegal behavior, and risky driving. Daniel Pine provided an overview of mental health outcomes for adolescents.

Biobehavioral Processes

One explanation for the risks adolescents take is that their brains work differently from those of younger children or adults. Elizabeth Susman, B.J. Casey, Linda Patia Spear, and Ronald Dahl each addressed aspects of the role of biological and cognitive development in adolescents' trajectories. New technologies have allowed researchers to trace changes in the size and shape of brain structures and even to link those changes with behavior and development. For example, the prefrontal cortex, which supports self-control, develops gradually, whereas the limbic system, which governs appetite and pleasure-seeking, develops more rapidly. This imbalance helps to explain why adolescents are prone to seek novelty and take risks. At the same time, as young people reach puberty, they are faced with an array of social pressures as well as neuroendocrine changes that may affect their moods and focus their attention on sexuality and sensation-seeking.

Psychological Development

Neurobiological processes must be understood in the context of psychological development and social influences, which were discussed by B. Bradford Brown and Valerie Reyna. Many of the primary developmental tasks of adolescence—including developing an identity, building competence, and gaining acceptance from peers—require some degree of risk-taking. These tasks also help to explain why adolescents' perspectives on risky behavior may differ from those of adults. At the same time, adolescents process decisions related to risk differently from the way adults do. Their goals are different, and they also have different intuitions about what is most important in a particular situation.

Environmental Influences

While adolescents are experiencing the challenges of cognitive, psychological, and physical development, their lives are also influenced by their surroundings. Ronald Dahl, Rand Conger, Nancy Gonzales, Mitchell Prinstein, Kenneth Dodge, Sandra Graham, Douglas Kirby, Tama Leventhal, Harold Holder, Michael Rich, Jane Brown, Stephanie Jones, Deborah Gorman-Smith, and Blair Johnson described the array of influences that affect adolescents—family, school, peers, the community, media, and other factors on adolescent development (see Figure 1).

These influences can have both positive and negative effects that interact with one another. For example, the stress of economic hardship is likely to have a negative effect on parenting, yet positive parenting can be a strong protective factor in the face of stress. Strong bonds with teachers and peers at school can be a positive influence, but many characteristics of middle and high school do not support the development of such bonds. Communities may offer social networks and resources for young people, but community dysfunction can be a negative influence as well. Similarly, the rapidly expanding universe of media devices and venues has contributed to an expansion of sexual attitudes and an increase in sexual activity, but media resources, such as the Internet, YouTube videos, and text messaging, are also potentially powerful tools for influencing young people in positive ways.

Looking to the Future

The three workshops provided insight into the causes of risk-taking and illustrated the many links among these behaviors. J. David Hawkins, Kathryn Monahan, and Harold Holder pulled together some of the themes of three workshops by discussing interactions among these behaviors and the implications for public policy. Not only are these behaviors correlated—young people who engage in risky behaviors are more likely to

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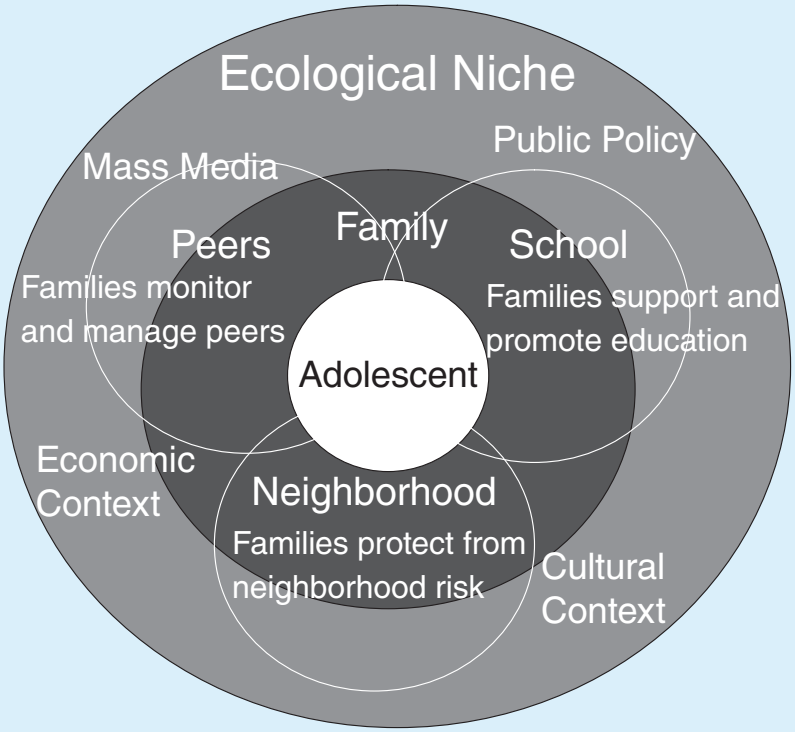
engage in others—but also common risk factors and mechanisms are at work across many behaviors. The science of adolescence continues to progress in identifying the determinants of adolescent behavior; in mapping the complex interactions among those determinants; and in clarifying the way these determinants function through childhood, adolescence, and early adulthood. The field has begun to integrate knowledge about the role of biology in these processes and to identify core scientific principles that can contribute to the design of developmentally appropriate interventions for changing these determinants. This research holds promise for supporting the design, implementation, and evaluation of prevention and health promotion programs for adolescents—and further integration promises to amplify the value of work in each field.

Figure 1: Ecological Transactional Framework



SOURCE: N. Gonzales, presented at 2009 IOM workshop

The ecological transactional framework illustrates the array of influences that affect adolescents.

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For More Information

This brief is based on the workshop summary *The Science of Adolescent Risk-Taking* (National Academies Press, 2011). The responsibility for the published workshop summary rests solely with the workshop committee and the institution.

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