



The Science of Adolescent Risk-Taking

Report of the Committee on The Science of
Adolescence

INSTITUTE OF MEDICINE AND
NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

Advising the nation/Improving health

Committee on The Science of Adolescence

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Thank you

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Statement of Task

- Summarize the current state of knowledge on biological and psychological changes that occur during adolescence and family, peer, and cultural influences that shape adolescents' lives.
- Highlight lessons learned from those working in related areas.
- Identify the knowledge, research opportunities, and emerging fields of science that offer promise for the design, implementation, and evaluation of prevention programs for adolescents

Committee's Work Plan

Public workshops

Commissioned papers

Summary report

- Summarized workshop presentations & discussion
- Highlighted observations & areas of integration across disciplines
- Did not draw conclusions or make recommendations
- Purpose: stimulate further work on the subject and to encourage more of the cross-disciplinary thinking that characterized the workshops themselves.

Focus of Committee's Work

1. Health status of adolescents (trends on the nature, prevalence, historical trends, developmental course, and demographic variations of adolescent risk behaviors)
2. Influences (individual process & social/environmental) on risk-taking
3. Integration across disciplines

Adolescent Risk Behaviors

Focused on...

- Sexual risk-taking
- Risky driving
- Substance use
- Criminal behavior

Risk Behaviors Cluster

- For example...substance use experimentation...more likely to engage in risky sex.
- Variations among and between groups of youth in the way risks cluster; hard to predict behavior.

Key Questions

- What are certain types of risk-taking more prevalent among adolescents than other age groups?
- Why do some adolescents engage in more risk-taking than others and suffer more negative effects?
- How is risk-taking affected by biobehavioral, psychological, and contextual processes
- What are implications for interventions?

Biobehavioral Processes

Developmental Imbalance in Brain Systems

- Gradual development of prefrontal cortex (supports self-control)
 - Rapidly developing limbic system (governs appetite and pleasure-seeking)
- Adolescents prone to novelty and take risks, but lack mature capacity for self-regulation.

Neuroendocrine Changes in Puberty

- Hormonal changes of puberty affect sensation-seeking
- Age of puberty declining and therefore gap between neuroendocrine developments & development of cognitive capacity for self-control greater than ever.

Psychological Processes

Psychosocial Tasks of Adolescence

- **To stand out:** to develop an identity & pursue autonomy.
- **To fit in:** to find comfortable affiliations & gain acceptance from peers.
- **To measure up:** to develop competence and find ways to achieve.
- **To take hold:** to make commitments to particular goals, activities, & beliefs.

Psychosocial Tasks Relate to Risk Behavior

- Risk behaviors foster or impede successful accomplishment of these tasks.
- May turn to risky behaviors to help cope with failure to succeed in one of these areas.

Adolescent Decision-Making & Reasoning

- Classic model: estimate risks, weigh potential rewards & act on the balance between them.
- Verbatim thinking: memories of specific facts or situations affect decision-making.
- Gist-based reasoning: intuitive reactions based on education & experience affect decision-making.

Adolescent Decision-Making Different Than Adults

→ Hypothesis: adolescents think they are invulnerable and underestimate or do not understand risks.

In fact...

- Adolescents often overestimate risks, but rate potential benefits of risky behavior very high.
- Adults use experience to engage in gist-based reasoning to avoid risky behavior
- Adolescents lack experience to employ gist-based reasoning.

Contextual Processes

Social & Environmental Influences

- Schools
 - Family
 - Community
 - Media/Technology
- Both positive & negative effects of these influences.
- Interventions may target broad population or specific families/individuals.
- Target youngest adolescents before problems are firmly established.

Looking to the Future

- Do certain processes and theoretical understanding cut across these different domains?
 - How do we best integrate ideas, technologies, and data that have emerged from these individual domains?
- Understanding these reciprocal dynamics can support prudent decisions about policy and programming investments in a climate of limited resources.

Tension Between Different Goals

- Prevention of problems: Make sure young people come through adolescence alive, not pregnant, and not in jail.
- Promotion of positive health: Actively promote positive outcomes, such as high school graduation and healthy emotional development.

Correlations Among Problems and Risks

- Problem behaviors are correlated
 - Individual characteristics (such as high intelligence, self-confidence, and social and other competencies) offer protection.
 - Social and environmental opportunities (prosocial activities and influences; bonding with positive peers, adults, and institutions; and clear standards for healthy behavior) offer protection.
- Both vary in the strength of their effect.

Common Mechanisms of Influence Underlie Certain Risk-Taking Behaviors

- Common mechanisms: facets of brain development and biological processes; developmental challenges of adolescence; proximal and distal contextual factors.
- Interactions among these shared mechanisms and sources of individual variation in risk-taking are not yet fully understood.
- Even among target populations of individuals with high levels of risk factors, only a subset typically encounters severe problems.

Complex Determinants of Adolescent Problem Behavior

- Immediate or proximal determinants of particular risk behaviors
 - Mid-level determinants
 - Contextual and distal determinants
- Complex ways in which these different levels of determinants and variables influence adolescent problem behaviors.

Approaches to Intervention Discussed at the Workshops

- Begin early
- Focus on risk and protective factors that have been shown to influence multiple problem behaviors
- Focus on risk reduction and improved protection of the populations exposed to the greatest cumulative risk
- Consider public policies aimed at prevention of risk at the community level
- Promote protective factors

Final Thoughts

- Reciprocal dynamics among brain development, pubertal changes, psychological traits and development, and contextual factors are compelling.
- Great opportunities for scientists to collaborate across disciplines and risk domains to uncover the causes of risk-taking as well as to develop innovative interventions.
- It is not enough to identify the determinants of adolescent behavior.
- It is important to develop effective intervention strategies to either change the determinants or minimize or accentuate their influence.