Etiology and Risk and Protective Factors: New Understanding and Challenges for Prevention

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Refined Concepts, New Frontiers, and Challenges

• **Refined Concepts for R & Ps**
  – Underlying mechanisms of etiology/ risk/ protection?
  – Individual vulnerability within micro- and macro-level environments

• **New Frontiers for Science and Practice**
  – Reconceptualization of prevention – Where do we intervene and how?

• **Challenges – Where Are Prevention Services?**
  – The ‘invisible’ nature of prevention
Refining the Concepts
Etiology and Risk/Protection - Definitions (1/2)

- **ETIOLOGY** “… the science that deals with the causes or origin of disease, the factors which produce or predispose toward a certain disease or disorder”

- **CAUSALITY** (Hill, 1965) adapted
  - strength of the association;
  - consistency of the association;
  - specificity of the factor to the outcome of interest; and,
  - temporal order of the variables.
  - rekindled interest in the definition of and criteria for causation and its assessment (Hofler, 2005; Phillips and Goodman, 2006).
Etiology and Risk/Protection - Definitions (2/2)

- **RISK**
  - Not equivalent to causality
  - An increased **probability** of developing a negative health outcome and is an informed statement of epidemiological probability based on the model of the highly variable complex relationship between manifold antecedent variables and outcomes (Glantz, 2009; Kraemer et al., 1997; Kazdin et al., 1997).
Etiologic Studies

• Determinants of or factors involved in substance use initiation
  – Longitudinal studies of children and adolescents
    • General populations
    • Children of substance users
Risk and Protective Factors: Background (1/2)

• In the mid-1970s, several longitudinal studies were conducted that followed cohorts of early adolescents into adulthood that examined factors that were related to substance use initiation.

• In 1992 two significant works summarized this research on factors related not only to the initiation of substance use but also to the progression from use to abuse.

Risk and Protective Factors: Background (2/2)

• **Risk factors** are defined as measures of behavior or psychosocial functioning (including attitudes, beliefs, and personality) that were found to be associated with increased risk to use psychoactive substances
  – Contextual factors
  – Individual and interpersonal

• **Protective factors** involve measures that appear to prevent the use of psychoactive substances or reduce the untoward negative effects of risk. Protective factors identified through research include strong bonding to family, school, community and peers that hold prosocial attitudes and support prosocial behaviors.
Intriguing Research Directions (1/2)

• Genetics
  – 100% of genetic variance and 80% of phenotypic variance are shared across different drug and other substance use disorders (e.g., Tsuang et al., 1998)
  – Up to 70% of variance associated with diagnosis of drug abuse disorder or dependence is estimated to be inheritable (e.g., Kendler et al., 2003, Kendler et al., 2007)
Intriguing Research Directions (2/2)

• **Neurobiology, Adolescent Brain Development**
  – Cortex changes and functional reorganization of neural circuitry
    • Cognitive functioning (decision making, self-monitoring, abstract thinking, forming goal strategies),
    • Behavioral and affective regulation
    • Evidence shows functional maturity delayed past early adolescence
Judgment last to develop

The area of the brain that controls “executive functions” — including weighing long-term consequences and controlling impulses — is among the last to fully mature. Brain development from childhood to adulthood:

5-year-old brain  Preteen brain  Teen brain  20-year-old brain

*Dorsal lateral prefrontal cortex* ("executive functions")

Front

Top view

Back

**Red/yellow:** Parts of brain less fully mature

**Blue/purple:** Parts of brain more fully mature

*Sources: National Institute of Mental Health; Paul Thompson, Ph.D., UCLA Laboratory of Neuro Imaging*

*Thomas McKay | The Denver Post*
Substance Use Starts with the Young

(Source: Degenhardt et al., 2008)
Vulnerability Goes Deeper than Risk and Protective Factors to Causation
Vulnerability and Development (1/2)

• Each stage of development, from infancy to early adulthood, is associated with the growth of the following as an person matures:
  – Intellectual ability
  – Language development
  – Cognitive, emotional, and psychological functioning
  – Social competency skills

• Any major disruption of this growth will make a person more vulnerable to problem behaviors such as substance use
Vulnerability and Development (2/2)

- Prevention needs to intervene early in each developmental phase to prevent the onset of substance use and dependence
Socialization – An Important Prevention Process

• Human infants are born without any culture.
• Socialization is a process of transferring culturally acceptable attitudes, norms, beliefs and behaviors and to respond to such cues in the appropriate manner.
• Since socialization is a lifelong process, the individual will be socialized by a large array of different socializing agents (e.g., parents, teachers, peer groups, religious, economic and political organization and virtual agents, such as mass media).
Life Course Social Field Concept (Kellam et al., 1975)
Prevention Processes: When/Where to Intervene
Etiology Model: Interaction of Personal Characteristics and the Micro- and Macro-Level Environments

- Genetics
- Temperament
- Physiology

Beliefs Attitudes Behaviors
Environmental Influences

• Micro-Level Environmental Factors
  – Family
  – School
  – Peer
  – Workplace

• Macro-Level Environmental Factors
  – Social environment
  – Physical environment
Micro-Level Influence: Parents and Family

• Parents and families:
  – nurture children and keep them safe
  – instill social and emotional regulatory skills
  – teach children about sharing and reciprocity
  – reinforce accepted norms, values, and age- and gender-specific behaviors of the community/society

• Parenting and family continue to be important through adolescence when youth have more autonomy and opportunities for risky behaviors
Socialization Teaches Norms and Behavior

- Socialization is the process for internalizing social norms and values that define or govern conduct and behavior particularly self-regulation through:
  - Behavioral interventions
  - Environmental interventions
Early Childhood Factors have the longest potential impact as they may interfere with normal and successful development

• Chaotic home environments
• Ineffective parenting
• Lack of mutual attachments and nurturing
Micro-level Influence: Peers

• Peer relationships are influential socializing experiences that affect attitudes, skills, and “normative” behaviors.
After the family, the next major socialization agents in a society are schools and/or other education-related groups (such as guilds or apprenticeships) and religious organizations.

- provide the needed skills to transition from childhood into the expected adult roles are important to any society
- reinforce societal values, norms, and acceptable behaviors.
Macro-Level Environmental Factors

General
• Social and cultural environment
• Poverty
• Physical environment

Environmental Prevention
• Restricts access to substances, especially for youth;
• Modifies the context of use; and
• Promotes non-substance use norms
Macro-Level Influences of the Social and Cultural Environment

• The social environment of the larger community influences beliefs, attitudes and behaviors through:
  – Shaping social norms
  – Influencing beliefs about the risks and consequences of using psychoactive substances
  – Effecting stress responses
  – Enforcing patterns of social control

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Etiology Model: How the Interactions of Personal Characteristics and the Micro- and Macro-Level Environments Work

- Genetics
- Temperament
- Physiology

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Risk is the Interface between Individual Characteristics and the Micro- and Macro-Level Environments
Protection is the Interface between Individual Characteristics and the Micro- and Macro-Level Environments
Interaction between Personal Characteristics (Vulnerability) and Environment

Figure 1. Interactions between behavioral disinhibition and family management in adolescence predicting alcohol abuse (left panel) and dependence (right panel) criteria at age 27.

Source: Hill et al., 2010.
Youth vs. Adult Motor Vehicle Fatalities: Alcohol Related Percent of Each Total

Stewart & Carmona, 1999
Future for Prevention

• Risk factor approach to prevention targets the risk factor

HOWEVER

• Vulnerability approach to prevention targets the underlying mechanism that makes an individual or community susceptible to engaging in high risk behaviors
Points of Intervention

- Biological/Personal Characteristics
  - Micro-Level Environments
  - Macro-Level Environments

- Beliefs and Intent
  - Social and Cognitive Competence Skills
  - Socialization

- Behavior

= Points of Intervention

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Behavioral Interventions - Prevention Professionals

- May either **train** socialization agents, such as parents and teachers to help them:
  - Improve their socialization skills (parenting, classroom management)
- Or **directly engage** in the socialization process, thus becoming socialization agents themselves to help individuals:
  - Understand what is expected of them in different social and emotional contexts
  - To “try on” new behaviors
  - To weigh the potential outcomes for these behaviors within their own social and emotional context.
Environmental Interventions (EI’s) - Prevention Professionals

• Create healthy environments that maximize the strengths of the community and minimize negative influences that might exist.
• Deliver EI’s to change the context in which people make decisions about behaviors
  – Physical environment—Limiting access to and availability of alcohol, tobacco and other substances
  – Social environment—Reinforcing non-use norms and attitudes
Challenges for Prevention Professionals
Where's Prevention?
Here’s Prevention. IT’S ALL OVER THE PLACE

- Personal and Social Skills
- School and Classroom Climate
- School Policies

- Policies
- Climate
- Screening, Brief Intervention, and Referral to Treatment

- Local, State, National laws and regulations
- Prenatal care
- Home visiting

- Parenting Skills
- Server training
- Policies
- Climate
- Screening, Brief Intervention, and Referral to Treatment
Prevention Interventions Are Invisible!

• They may be called something else: e.g., counseling, parenting education, school policies on substance use, laws regarding age restrictions on access to tobacco or alcohol

• They may be called prevention but are ‘hidden’ within an organization: e.g., school-based substance use prevention curriculum, substance use as part of a workplace wellness program
Here’s a Community Prevention Team
More Coming

• In 2019, APSI, in conjunction with the Utah Department of Health Services, will be training on prevention science and its application to the implementation of evidence-based substance use prevention in your communities.

• We hope you will join us!
Thank you!

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