

# **Pre-and Postnatal Exposure to Alcohol and Other Drugs: The Effects on Children's Development: Clinical Perspectives**

## **Early Interventions in the Path to Alcoholism**

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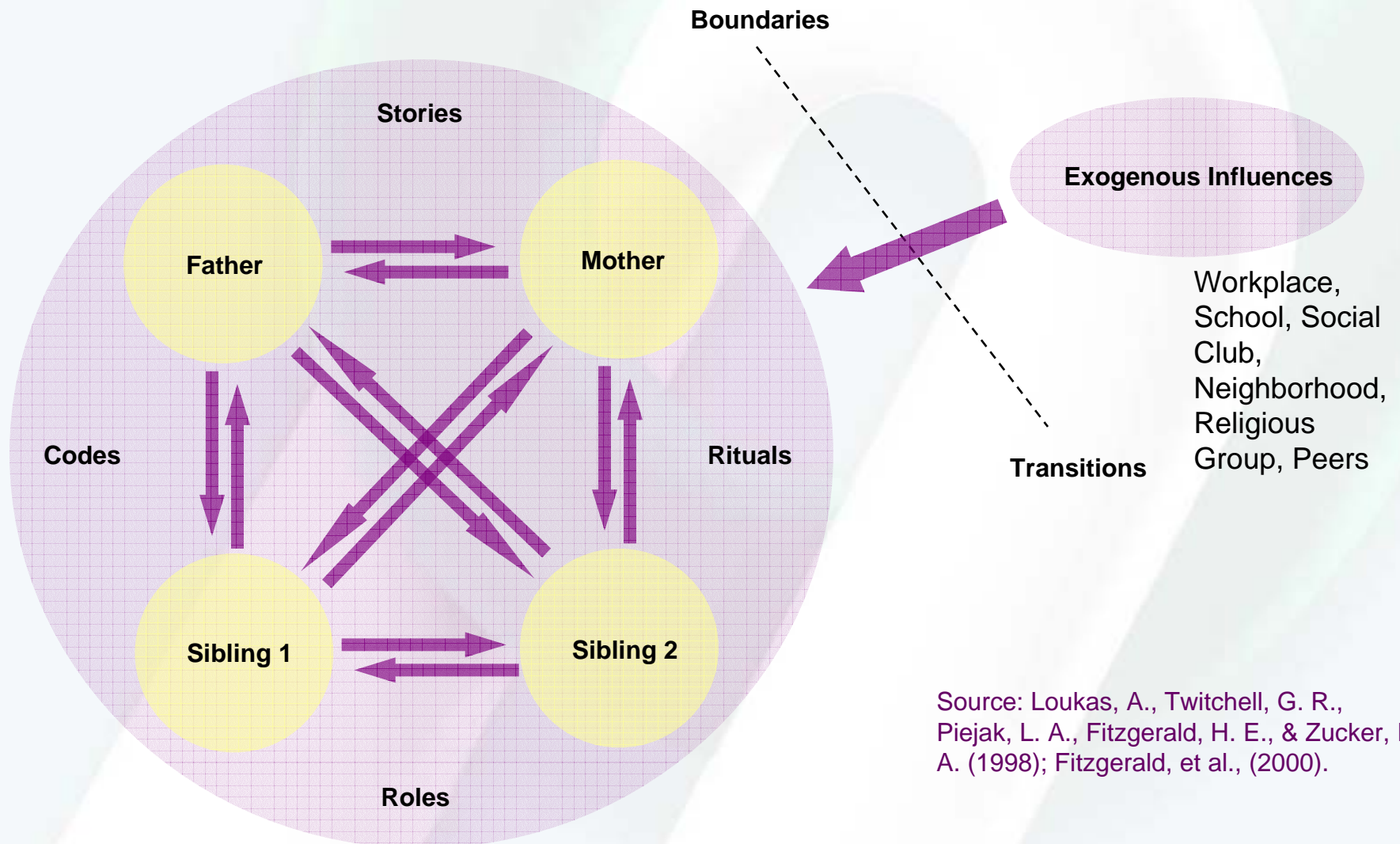
Oslo, Norway

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Michigan Longitudinal Study: Robert A. Zucker, PI; Hiram E. Fitzgerald, Co-PI

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# Possible Transactional Linkages in a Primary Family System



Source: Loukas, A., Twitchell, G. R., Piejak, L. A., Fitzgerald, H. E., & Zucker, R. A. (1998); Fitzgerald, et al., (2000).

## Establishing Risk

- **Through Family Characteristics**
  - Children of alcoholics
  - Children of drug abusing or drug addicted parents
  - Children of parents with antisocial personality disorder
  - Children of parents with clinical depression
  - Children of parents in conflict
- **Through Individual Characteristics**
  - Externalizing behavior, aggression, behavioral undercontrol, oppositional defiant disorder
  - Negative emotionality, depression
  - Attention problems, ADHD
  - Shyness, social withdrawal, social phobias
  - Biological diathesis (genetic, congenital, perinatal)
- **Through Social Environments**
  - High drug use environments
  - High stress environments (violence, poverty, unemployment)



**How early are these factors detectable?**

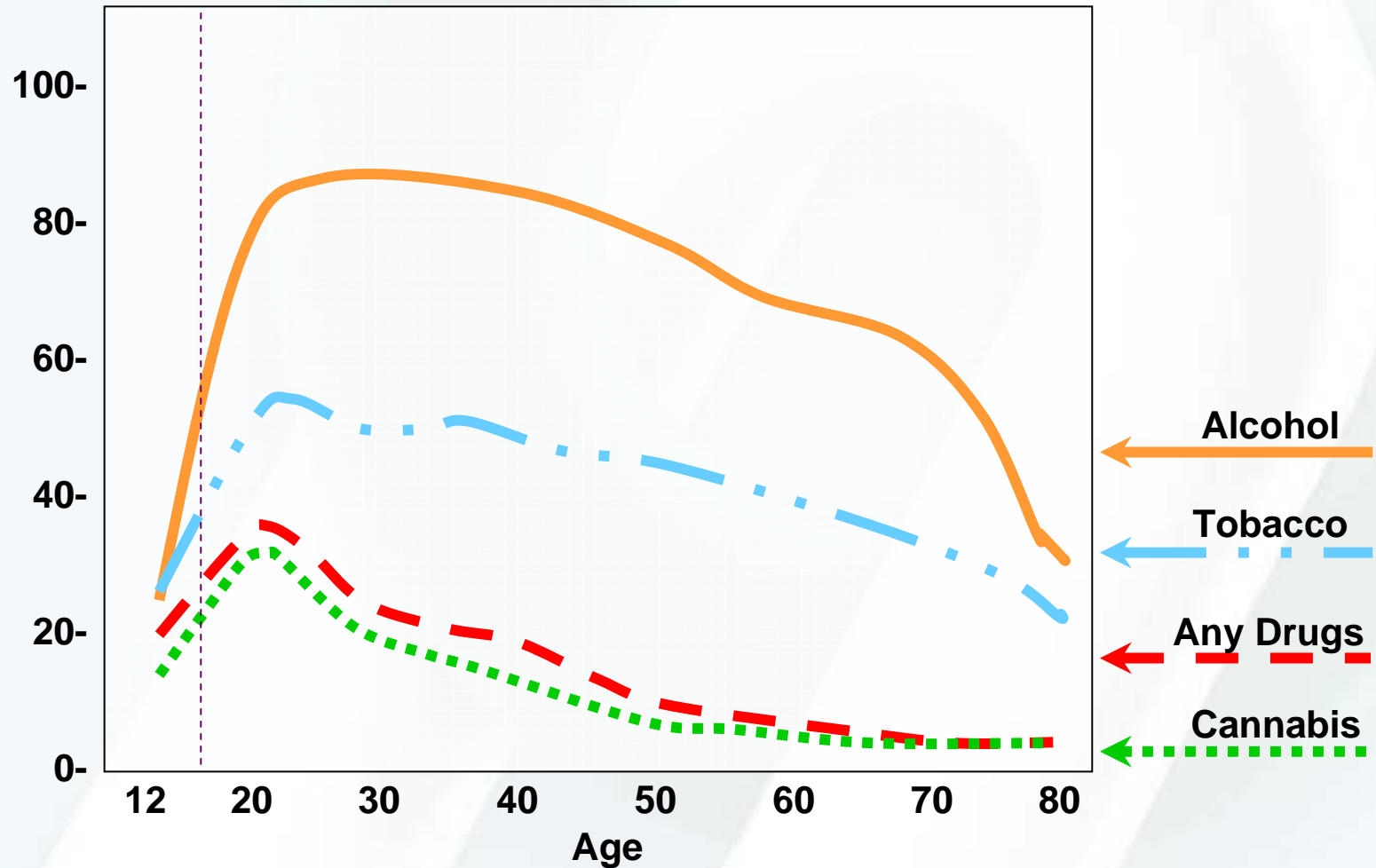
## **Individual Risk**

- We now can identify risk for substance abuse 12 years before it happens.
- These findings inform us about different times when we should intervene and prevent.



**What We Know About the Development of High Risk:**

# Primary Onset of Substance Use Occurs between Ages 12 and 20



Source: Anthony, J.C., & Arria, A.M. (1999). Epidemiology of substance abuse in adulthood. In P.J. Ott, R.E. Tarter, & R.T. Amerman (Eds). Sourcebook on substance abuse. Etiology, epidemiology, assessment and treatment. Boston, MA: Allyn and Bacon.

## Early first drink (EFD $\leq 14$ vs. NFD) as a proxy for . . .

- Adult alcoholism: Rate of alcohol dependence 4 **times** higher among EFD (Grant & Dawson, 1997).
- Lifetime risk of injury: 12 times greater (Hingson et al., 2000).
- Adolescent problem drug use: More problem drinking, injuries, violence, other drug use during adolescence (Gruber et al., 1996).

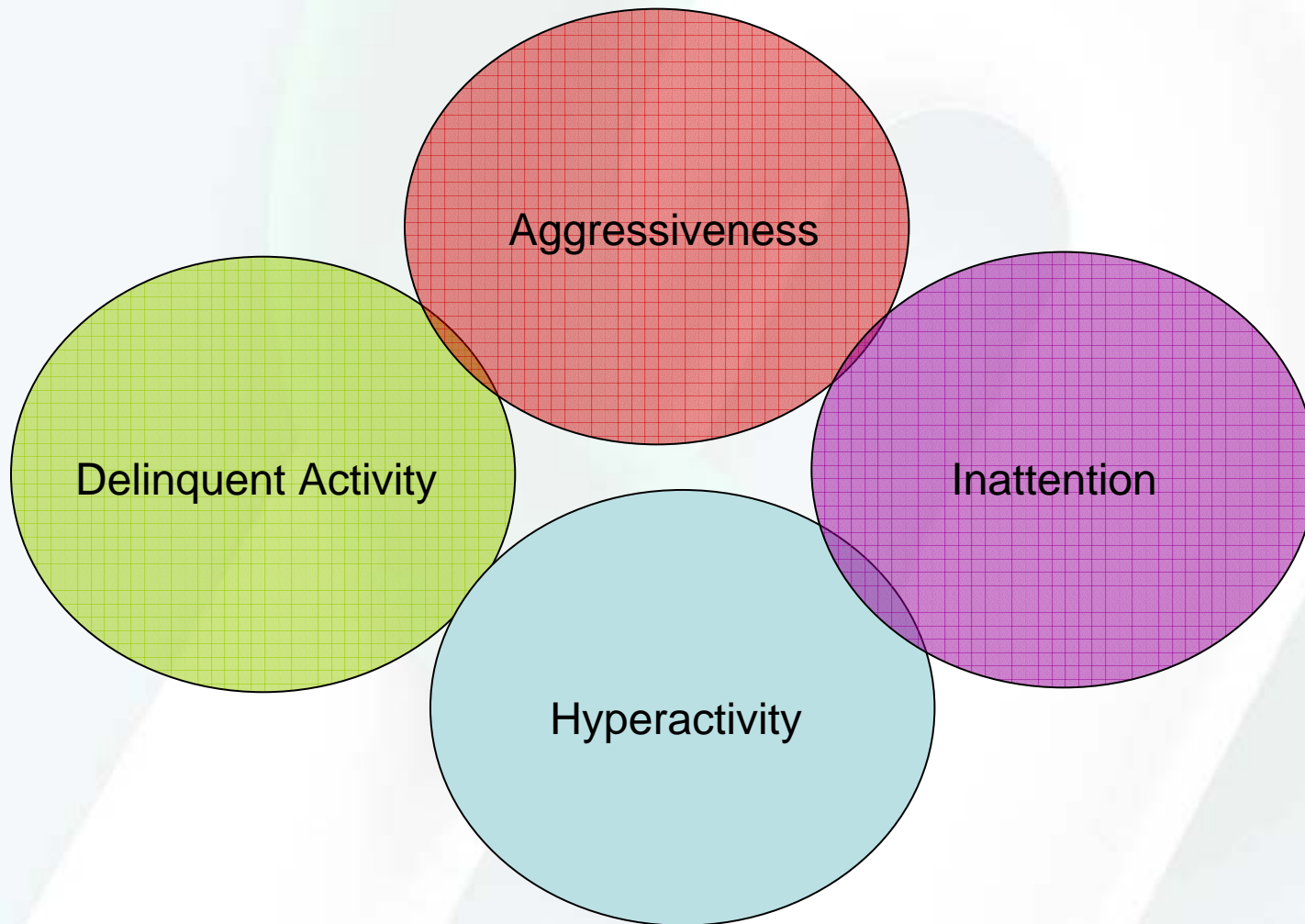
## **Cautions Associated with Early Intervention**

1. A marker of a damaged social environment: What kind of family would let one so young have access? (Indicates a failure in monitoring, or even more significantly, the early encouragement of addictive behavior).
2. Creates disruption of life tasks (school achievement, peer competence).
3. Provides a head start on problem use, with more troubled peers, where use is more likely to continue.

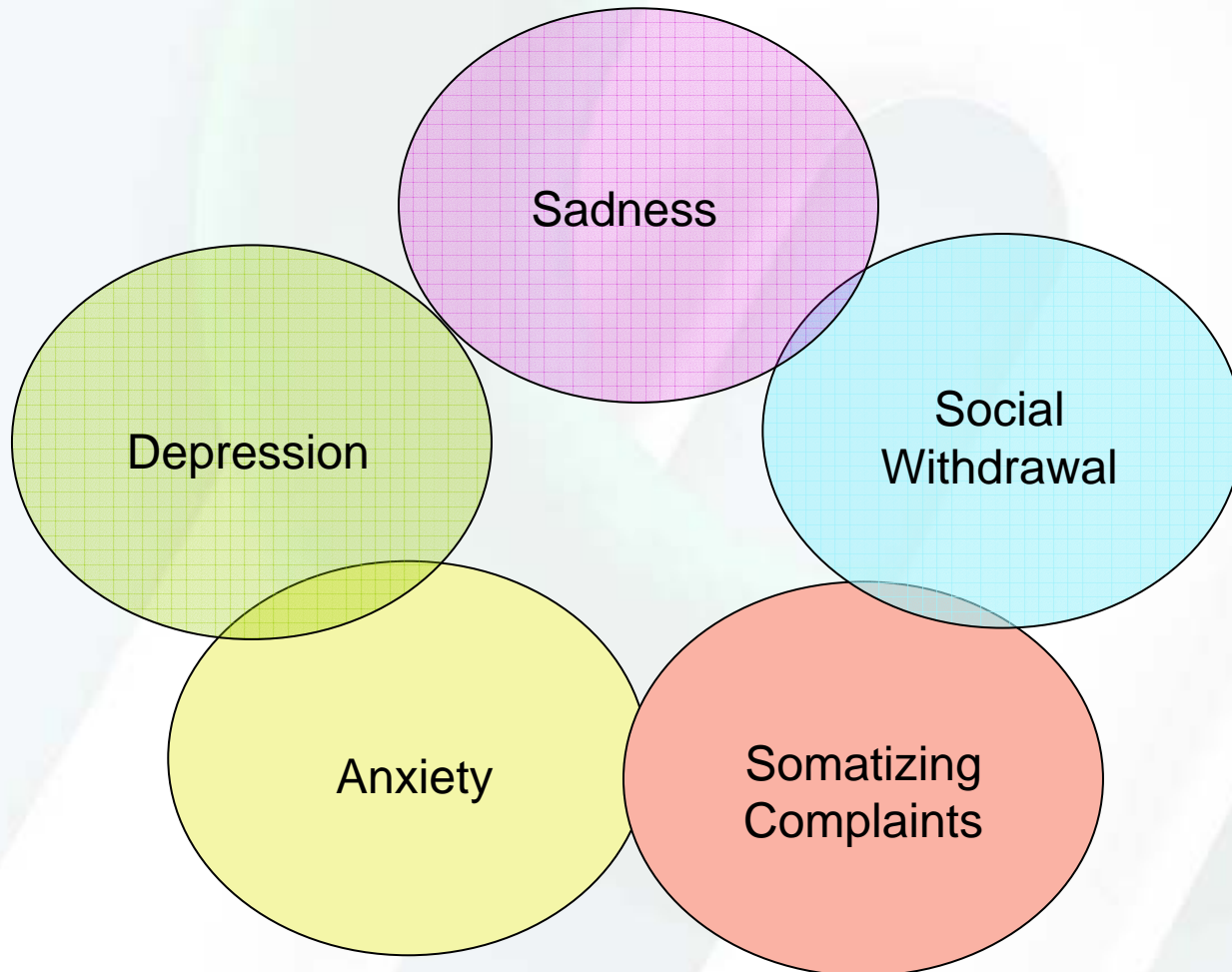


**What predicts early alcohol and other drug use?**

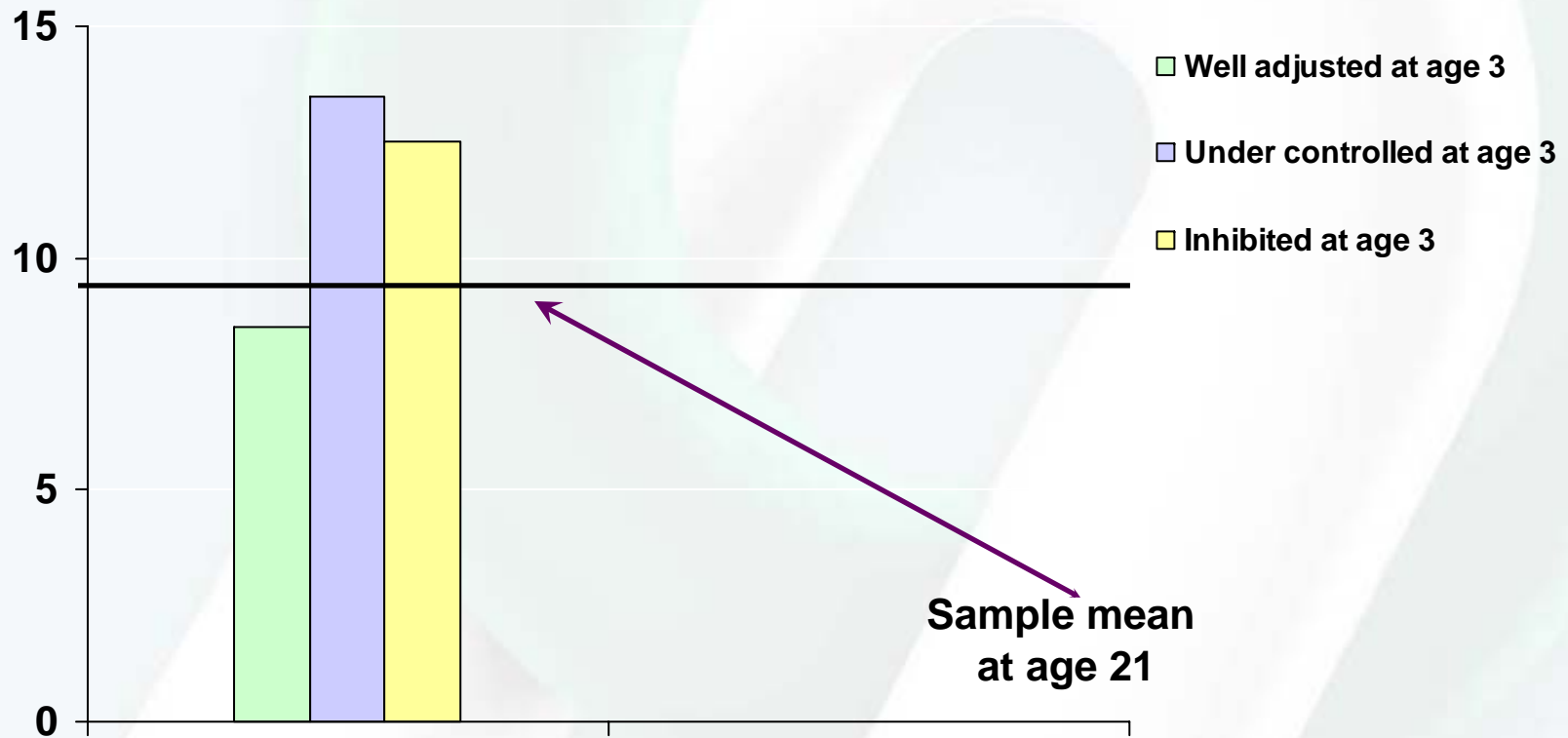
## Externalizing Behavior as a Predictor



# High Levels of Internalizing Behavior as a Predictor



# Association between Behavior Styles at Age 3 and Adult Alcohol Dependence (Percent at Age 21)

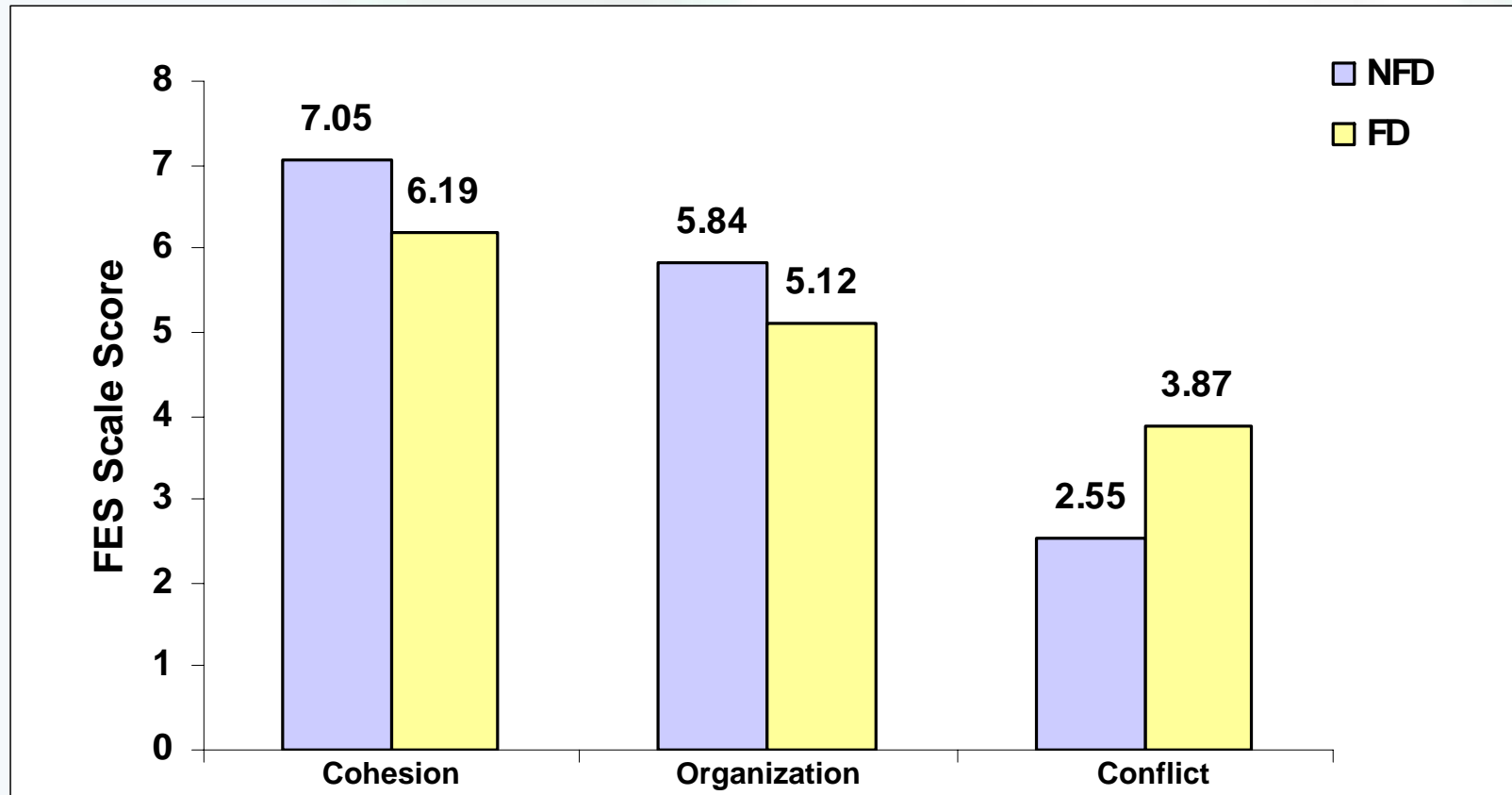


Source: Caspi et al. 1996, p. 1038



**What other factors in early childhood (ages 3 – 4) predict early drinking & drug use onset in adolescence?**

# Relation of Preschool Family Environment Indicators to Early First Drink Experience



Moos Family Environment Scale scores

## **During the preschool years (3 -5 years), early drinkers (12-14 years old) had. . .**

- Exposure to parental drinking in larger quantities
- More externalizing and internalizing behavior problems
- But no differences in temperament, intelligence, or impulsivity

## Relationship between Sleep Problems (Mother's Ratings when Child was 3 -5 Years Old) & Substance Use in Adolescence

	Adjusted for Parent Alcohol Diagnosis	
	Odds Ratio	95% CI
<b>Alcohol only</b>		
Drinking	2.57***	1.45 – 4.57
Drunkenness	1.36	.64 – 2.90
<b>Cigarettes only</b>	1.66a	.90 – 3.05
<b>Marijuana only</b>	2.43*	1.05 – 5.62
<b>Marijuana &amp; other drugs (excluding alcohol)</b>	2.52**	1.23 – 5.19

Note. a  $p = .10$ , \*  $p < .05$ , \*\*  $p = .01$ , \*\*\*  $p = .001$

## **What Happens between Early Childhood and Adolescence?**

- Developmental evidence shows that these risky behaviors are stable over time for some characteristics and not for others.



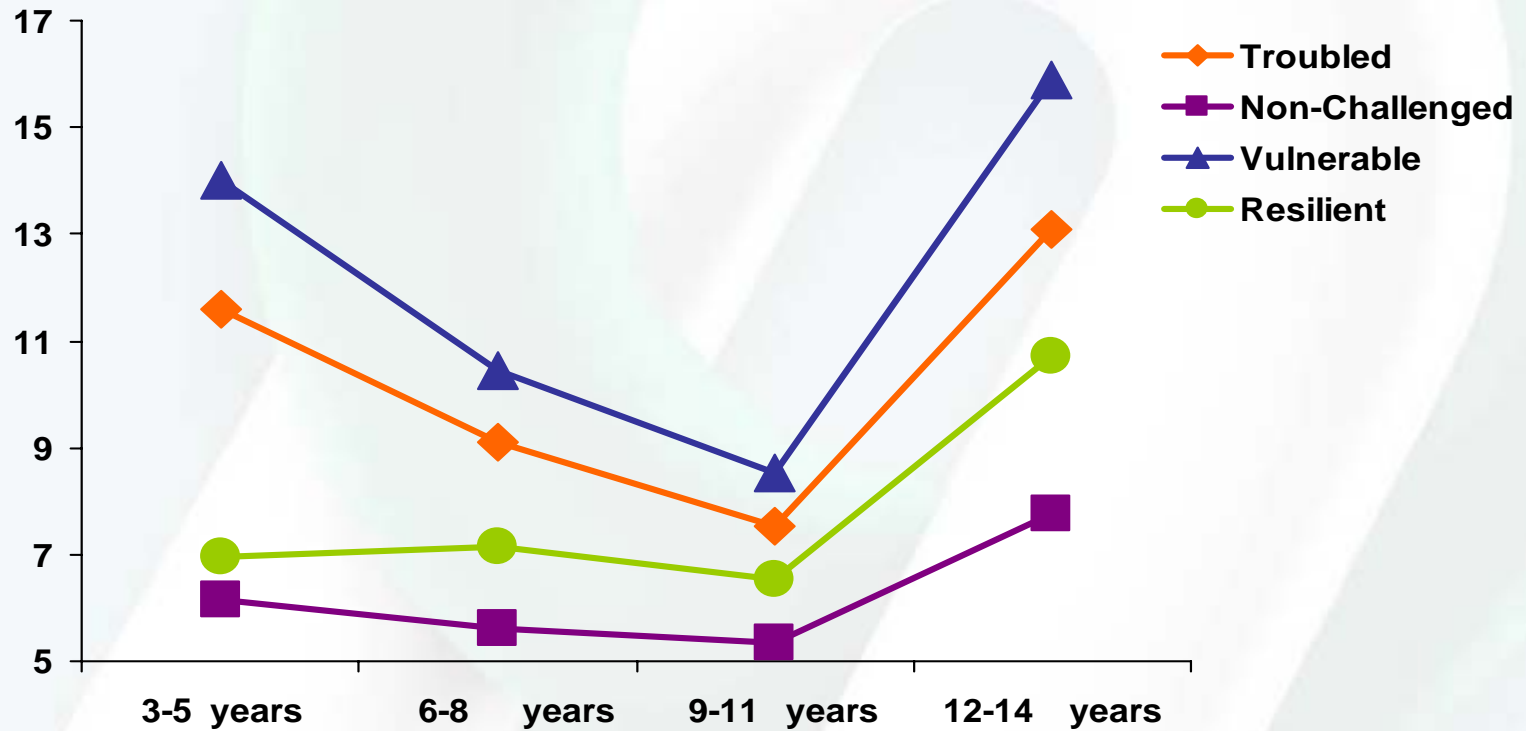
**The combination of both early child risk (individual risk) and family environment (social risk) determine differences in course from early childhood to adolescence. . .**

# The Different Adaptation Groups During the Preschool Years

		Child Psychopathology	
		<i>In Normal Range</i>	<i>High</i>
Family Adversity	<i>Low</i>	<b>Non-challenged</b>	<b>Troubled</b>
	<i>High</i>	<b>Resilient</b>	<b>Vulnerable</b>

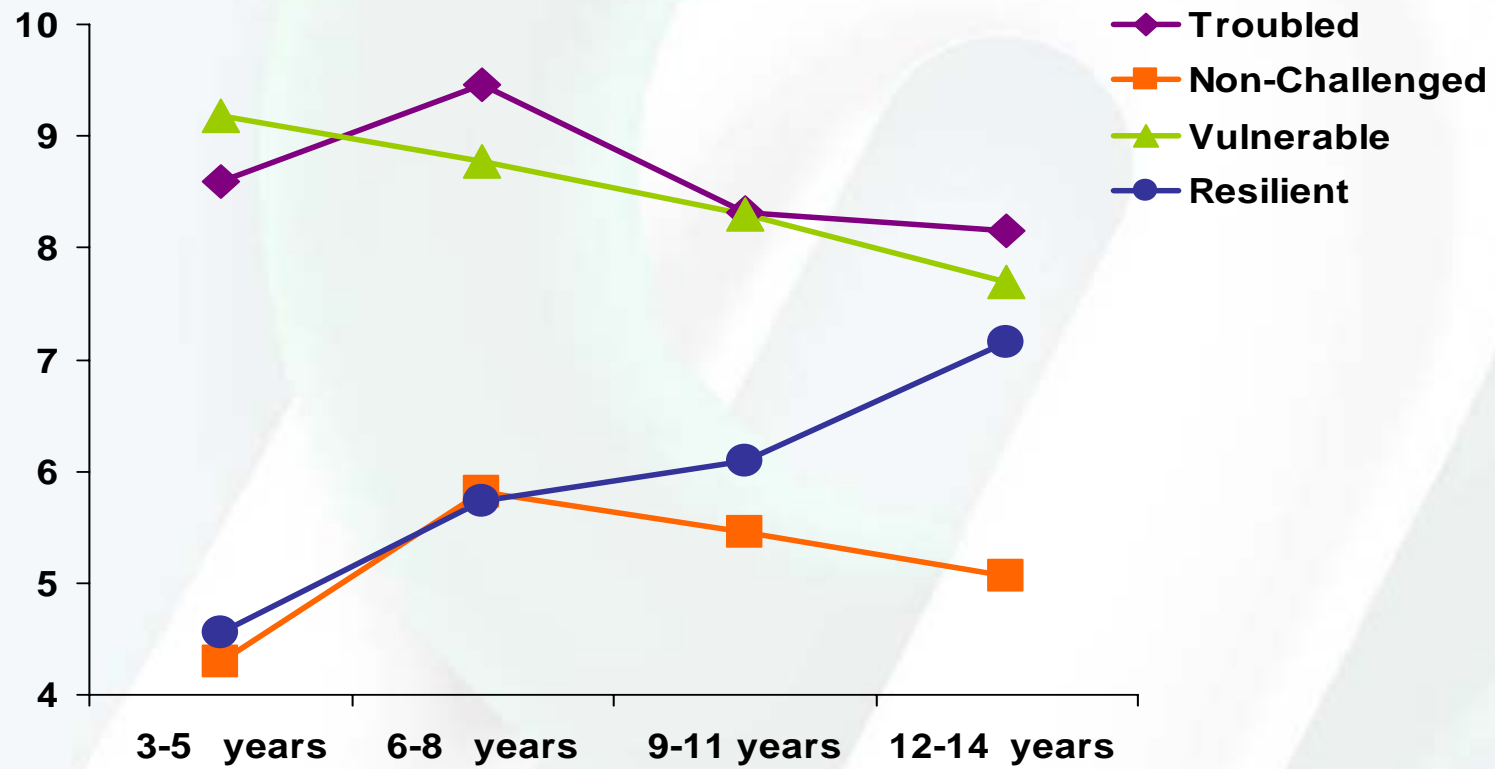
Zucker, Wong, Puttler & Fitzgerald,  
2003

# Stability and Change in Externalizing Symptoms During the Transition into High School



Zucker, Wong, Puttler & Fitzgerald,  
2003

# Internalizing Symptoms



Zucker, Wong, Puttler & Fitzgerald, 2003

- The most damaged children (and those at highest risk) are those who temperamentally have the following vulnerability characteristics

(behavioral indicators of undercontrol, roughness, irritability, early mood dysregulation, sadness, depression, sleep problems, and antisocial behavior).

- They also are growing up in high adversity, very difficult environments.



# **Three Development Pathways into Substance Use Disorder**

Zucker et al. 2004

# Risk Over Time: The Continuity Pathway

<b>Preschool</b>	Externalizing behavior problems, social withdrawal, poor school readiness.
<b>Childhood</b>	Behavior problems, oppositional behavior, impulsivity, social withdrawal, poor school performance.
<b>Late middle childhood</b>	Family disorganization (divorce/separation, loss of job, health or social problems of other family member); poorer parent monitoring.
<b>Adolescence</b>	Earlier onset of alcohol and other drug involvement, heavier alcohol and other drug problems, delinquency, depression.
<b>Adulthood</b>	Antisocial personality disorder, mood disorder, substance abuse disorder.

Adapted from Fitzgerald, Zucher, Puttler, Caplan & Mun (2000)

## **Social Costs of the High Continuity Trajectory**

- Academic difficulty and failure
- Date rape/sexual assault
- Other kinds of physical injury to self and others (e.g. automobile accidents)
- Impaired social relationships
- Loss of social capital; foreclosure of future opportunities, higher poverty risk

# Risk Over Time: The Discontinuity Pathway I

## Preschool

School readiness, behavior within normal limits, adaptive temperament.

## Childhood

Good school adaptation and performance; good friendship network.

## Late middle childhood

Family disorganization (divorce/separation, loss of job, health or social problems of other family member); poorer parent monitoring; shift in more deviant peer network; increasing emergence of externalizing behavior, **developing pattern of internalizing problems.**

## Adolescence

Alcohol and other drug involvement, minor delinquency. Poor or adverse outsider response or parent response; undependability of both parents, less available prosocial network. **Difficulties self correcting.**

## Risk Over Time: The Discontinuity Pathway II

<b>Preschool</b>	School readiness, behavior within normal limits, adaptive temperament.
<b>Childhood</b>	Good school adaptation and performance; good friendship network.
<b>Late middle childhood</b>	Family disorganization (divorce/separation, loss of job, health or social problems of other family member); poorer parent monitoring; shift in peer network; increasing emergence of externalizing behavior.
<b>Adolescence</b>	Alcohol and other drug involvement, minor delinquency. <b>Parent or outsider response and/or personal concern moving back on track; shorter clinical course.</b>



**Treatment**

## The Problem of Heterogeneity in Symptom Trajectories

- In clinical practice, trajectory (or symptom) variation tends to get ignored, sometimes is not even detected, because of the relatively short time frame of the clinical contact.
- Yet the data from prospective studies show that this is essential information in evaluating course and prognosis.
- Developmental assessment as a way of evaluating risk.

## Must Take into Account

- Multiple pathways to substance abuse (trajectories, life course)
  - Equifinality
  - Multifinality
- Multiple pathways away from substance abuse
- Patterns of protective factors (70% of COA's do not develop substance abuse problems)
- Awareness that there are nodal points for change in symptom pathways



# Prevention

Institute of Medicine (1989)

# Public Health Model



Kaskutas, 2003

## Types of Prevention Based on Risk

- Universal prevention
  - Directed to entire population (labeling of risk targeting pregnant women; designated drivers)
- Selected interventions
  - Directed to at-risk population (school based programs: ALERT, STAR)
- Indicated interventions
  - Directed to symptomatic population (hospital based programs, bars etc. with warning; brief interventions)

## Places to Intervene

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<b>Individual</b>	<b>Environment</b>	<b>Agent</b>
<b>School</b>	<b>Liquor stores</b>	<b>Alcohol content</b>
<b>Family</b>	<b>Bars and restaurants</b>	
<b>Workplace</b>	<b>Highways</b>	
<b>Health clinic</b>	<b>Community</b>	
	<b>Media</b>	
	<b>Economy</b>	
	<b>Hospitals/Health Care</b>	

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## Health Belief Model



- Perceived susceptibility
- Perceived severity
- Perceived benefits
- Perceived barriers

# Predictors of Limiting Drinking for Health Reasons

## Women of Childbearing Age (n = 844)

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	Odds Ratio
Saw 3 messages on birth defects (vs. none)	2.83**
Believes any alcohol very dangerous (vs. somewhat and not dangerous)	1.57*
Pregnant within last 12 months (vs. not)	1.76*

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\*  $p \leq .05$ ; \*\*  $p \leq .01$

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## **Family Adversity Indicators**

- High drug involvement in the parent(s)
- Familial assortment of the substance use disorder (family history)
- Currency and persistence of parent(s)' disorder (the need for family patterns of use)
- Presence of antisocial personality disorder in the parent(s)
- Parental noncompliance in child treatment
- Poor parent monitoring

## Children's Risky Rearing Environments

- Parental history of regulatory system dysfunction
- Parental history of psychopathology
  - Antisocial behavior disorder and aggression
  - Depression
  - Alcoholism and other drug use
- Parental history of relationship disturbances
- Parental poor value structures
- Parental cognitive deficiencies
- Family low socioeconomic status
- Family residence in risk aggregated neighborhoods

## **Children's Risky Behavior**

- Self regulatory dysfunction
- Difficult temperament
- Attachment (relationship) disorders
- Internalizing/externalizing behavior problems
- Parent-child relationship disturbances
- Schemas for alcohol use and alcohol-linked behavior
- Poor value structure
- Cognitive deficiencies
- High risk peer network

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