

# Adolescent Substance Use: Patterns and Trends

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# 1. The Nature of Adolescent Substance Use: A Range of Behaviors/Problems (and Some Differences from Adults)

## **Substance use varies in:**

Frequency, Quantity, Number of Substances, and Associated Problems

## **Different “stages” of use**

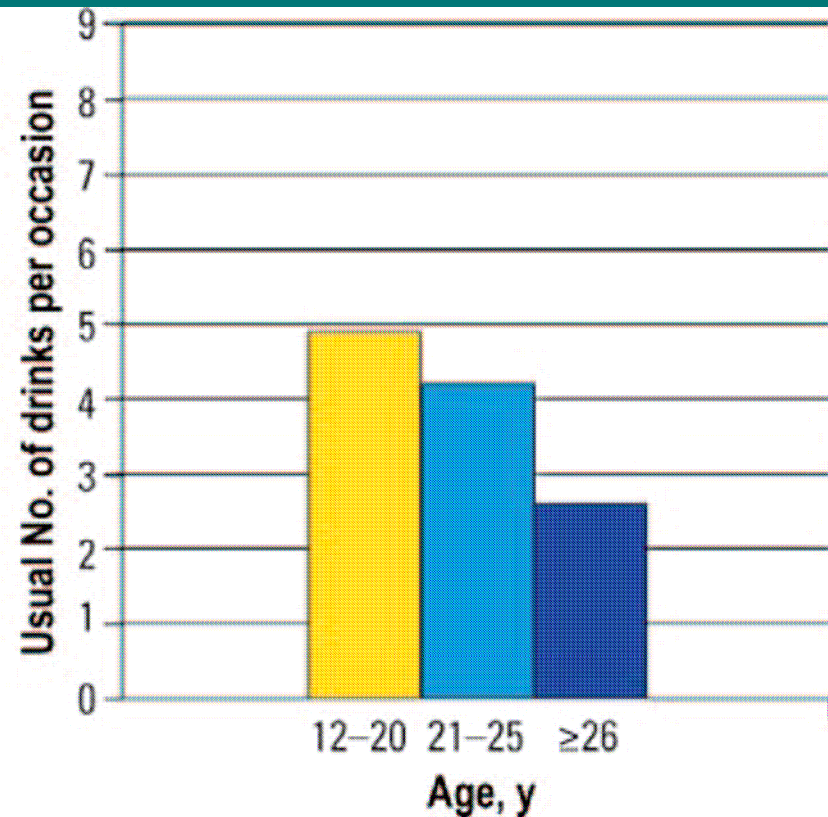
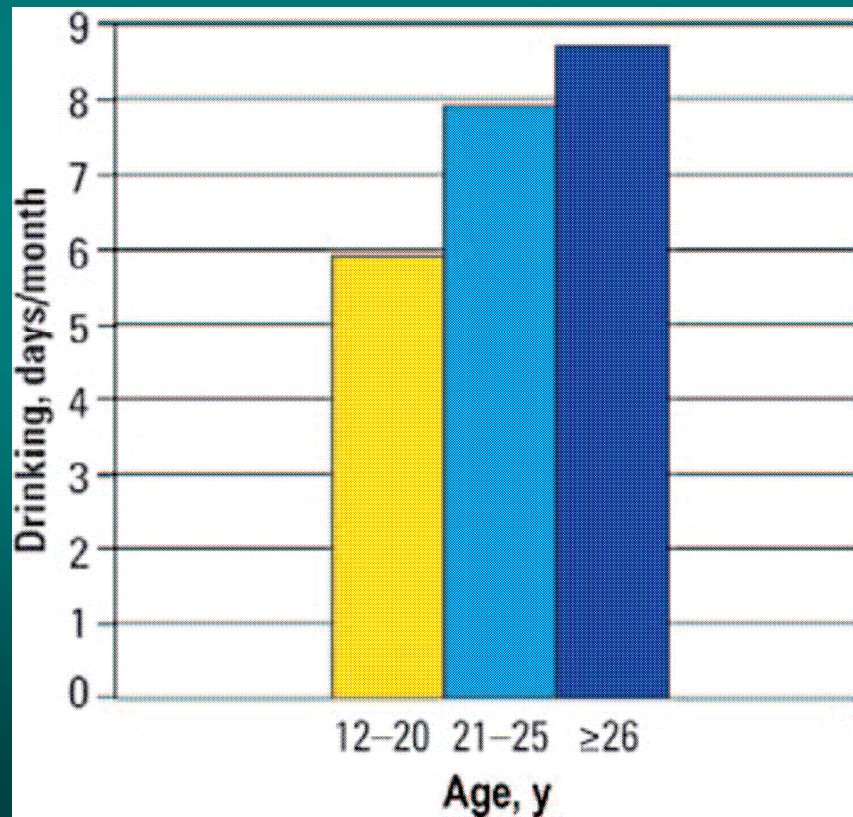
- Initiation/Experimentation
- Escalation—Regular Use
- Heavy or Problem Use
- Cessation/Relapse

## **Adolescents (Compared to Adults) have**

- More Poly-Drug Use—General versus Specific
- More Binge Use --- increases risk for consequences

# Compared to Adults, Adolescents drink...

less frequently , but in higher quantity



# But-- Substance Use is NOT Substance Use Disorder (SUD)

- SUDs involve:
- Maladaptive pattern of use, which causes impairment or distress
- Abuse (Use despite recurrent problems-work, family, legal)
- Dependence (Compulsive Use, Loss of control, tolerance, withdrawal)
- Separate disorders or a continuum?

# Research Questions: Developmental Issues in Diagnosing SUDs

- Developmental appropriateness of criteria? (Martin et al.)
  - Tolerance versus learning
  - Inability to limit
  - Diagnostic “orphans”
- Do adolescents meet criteria at lower levels of intake than do adults? (Kandel; marijuana and tobacco)
  - Methodological Artifact?
  - Greater sensitivity?

# Intervention Questions

- *Appropriate Target(s) of Intervention*
  - Any Use
  - Early Onset Use (later)
  - Heavy Use or Use-Related Problems/SUDs (Harm-Reduction)
  - Substance-Specific versus General
    - “Take a pouch instead of a puff”

## 2. Prevalence: Some Substance Use During Adolescence is Common

Lifetime Use (%)

Grade Level:	8th	10th	12th
Cigarettes	22.1	34.6	46.2
Alcohol	38.9	61.7	72.2
Marijuana	14.2	31.0	41.8
Any Illegal not Marijuana	11.1	18.2	25.5

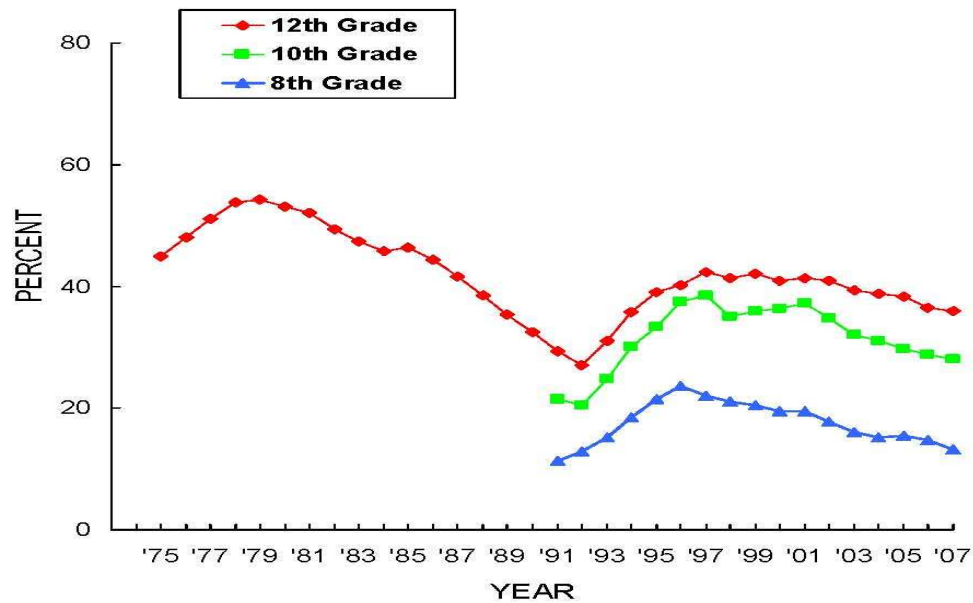
# Substance Use Disorders (SUD): Less Frequent but Sufficient Prevalence for Concern

Past Year Diagnosis of Dependence (%)

Age:	12-17 y	18-25 y	26 y or older
Alcohol	2.2	7.3	2.9
Either Alcohol or Illicit Drug	3.8	11.2	3.8

# 3. “Historical” Trends

**FIGURE 1**  
**Trends in Annual Prevalence of an Illicit Drug Use Index**  
Grades 8, 10, and 12



Source: The Monitoring the Future study, the University of Michigan.

# Waxing and Waning of Specific Drugs (MTF)

- **Declining in 2007:**
  - Marijuana, amphetamines, ritalin, meth, crystal meth, steroids
- **Holding Steady in 2007:**
  - Cocaine, crack, LSD, other hallucinogens, most prescription drugs (sedatives, oxycontin, vicodin), cough syrup
- **Increasing in 2007:**
  - Ecstasy
- Alcohol and cigarettes—steady or small decline
- “Generational Forgetting”

## 4. Demographic Variation

- No simple story
- Correlations among demographic factors (e.g., race/ethnicity and SES)
- Reporting biases and school drop-outs
- Varies with specific substance
- So—an over-simplified view
- Bottom Line—Substance Use and Problems are not Confined to a particular demographic subgroup

# 4. Demographic Variation

- Gender

- varies with substance- overall males use more (SLT, steroids, heavy drinking) or equal
- But- females may show faster progression

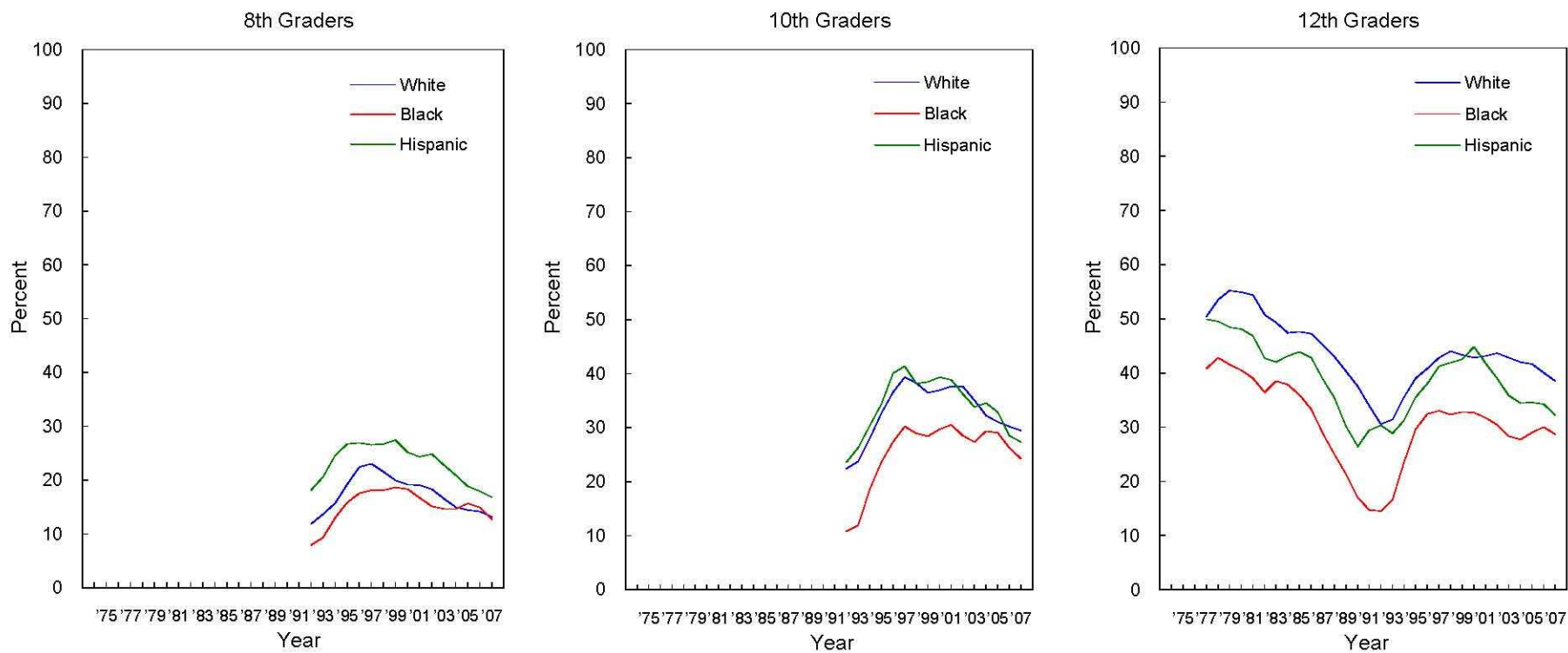
- SES

- Low SES adolescents more likely to smoke cigarettes (especially for low parent education)
- But no relation between SES and adolescent alcohol or marijuana use (Hanson & Chen 2007 review)
- Curvilinear? Poverty and Affluence (Luthar)

# 4. Demographic Variation

- Race/Ethnicity
  - Measurement issues-
    - self-reports, school drop out
  - African American adolescents lowest use rates
  - Hispanics highest in lower grades (drop-out effect)
  - Native Americans high rates

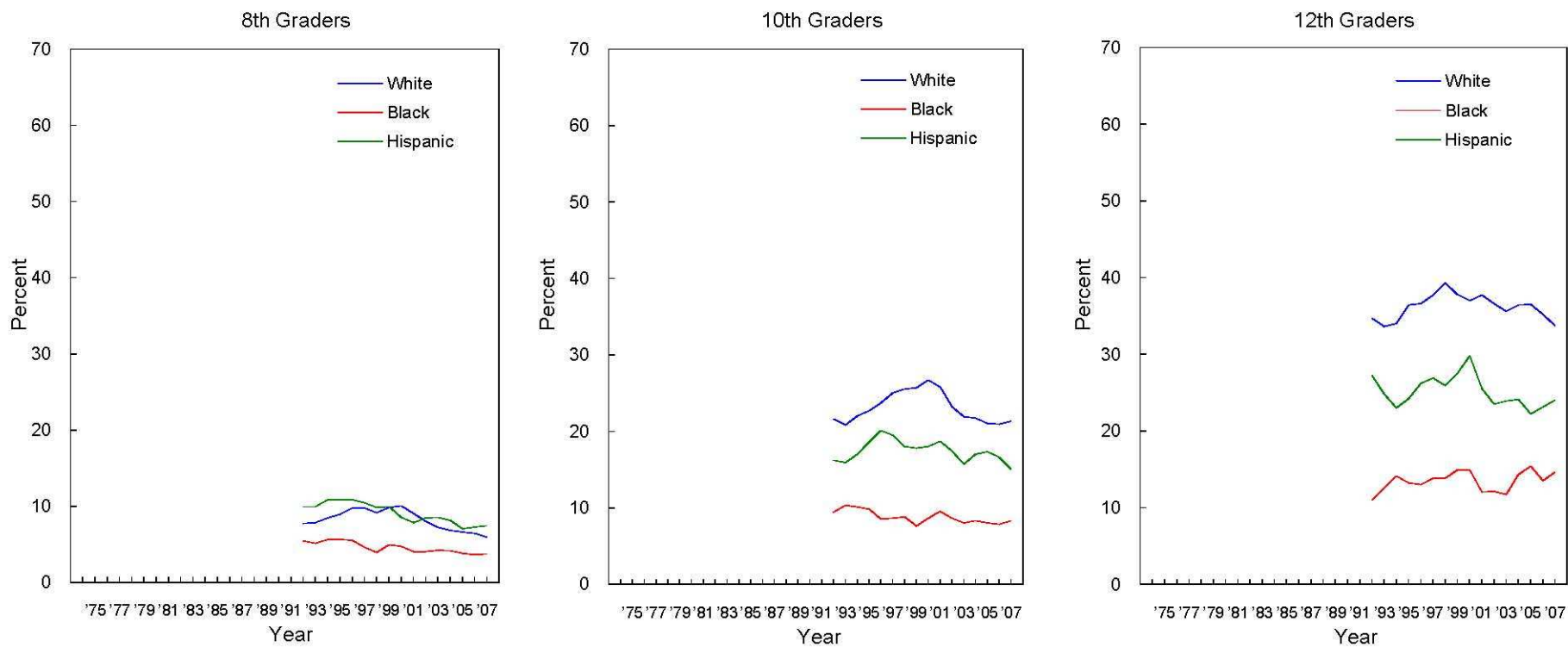
**FIGURE 6**  
**Any Illicit Drug: Trends in Annual Prevalence by Race/Ethnicity\***



Source. The Monitoring the Future study, the University of Michigan.

\*To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

**FIGURE 156**  
**Alcohol: Trends in 30-Day Prevalence of Having Been Drunk by Race/Ethnicity\***

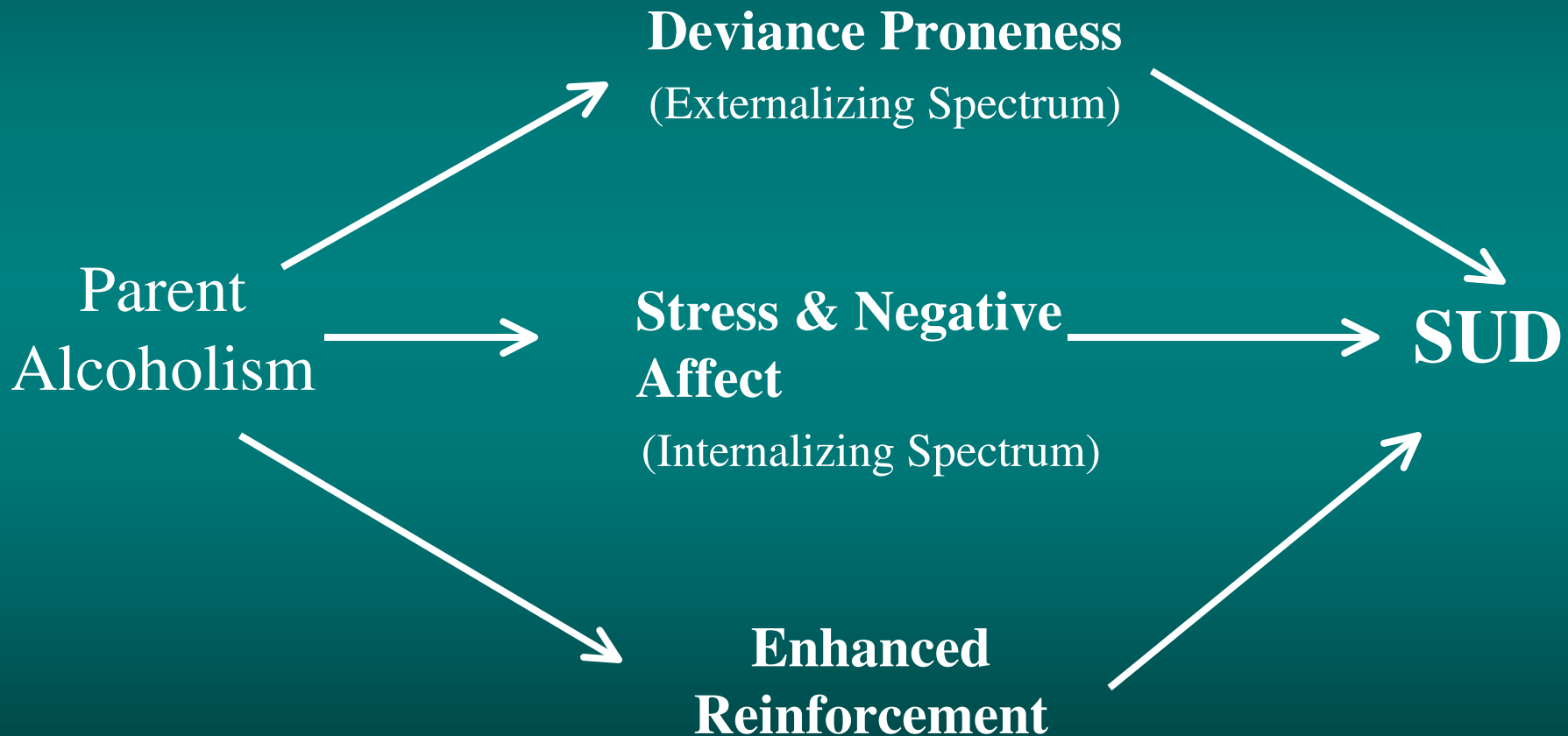


Source. The Monitoring the Future study, the University of Michigan.

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# Biopsychosocial risk pathways: Children in Families, Schools, & Peer Groups

(from Sher, 1991)

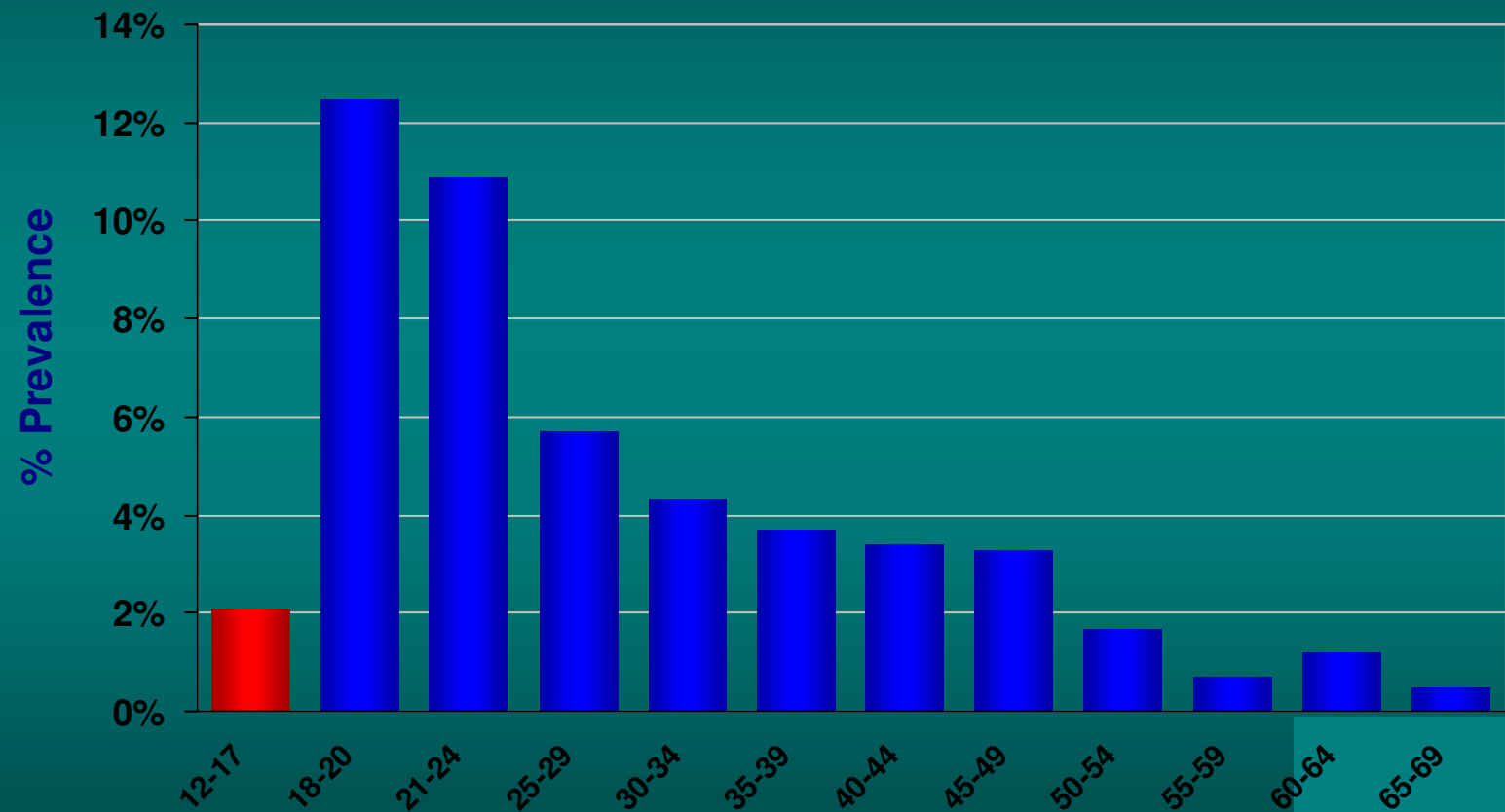


Macro-context: Social Norms and Opportunities:  
neighborhood, college, social policy, historical context

# 5. Developmental Course

- For both Use and SUDs:
  - Adolescent Onset
  - Peak in Emerging Adulthood (18-early 20s)
  - Declines in Adulthood
    - Role Occupancies?
    - Neurobiological Development?

# Prevalence of Past-year DSM-IV Alcohol Dependence by Age



18 + yrs. - NIAAA NESARC ( Grant, et al., (2004) Drug and Alcohol Dependence, 74:223-234)  
12-17 yrs - U.S. Substance Abuse and Mental Health Services Administration 2003 National Survey on Drug Use and Health (NSDUH)

# But-Also Heterogeneity in Course

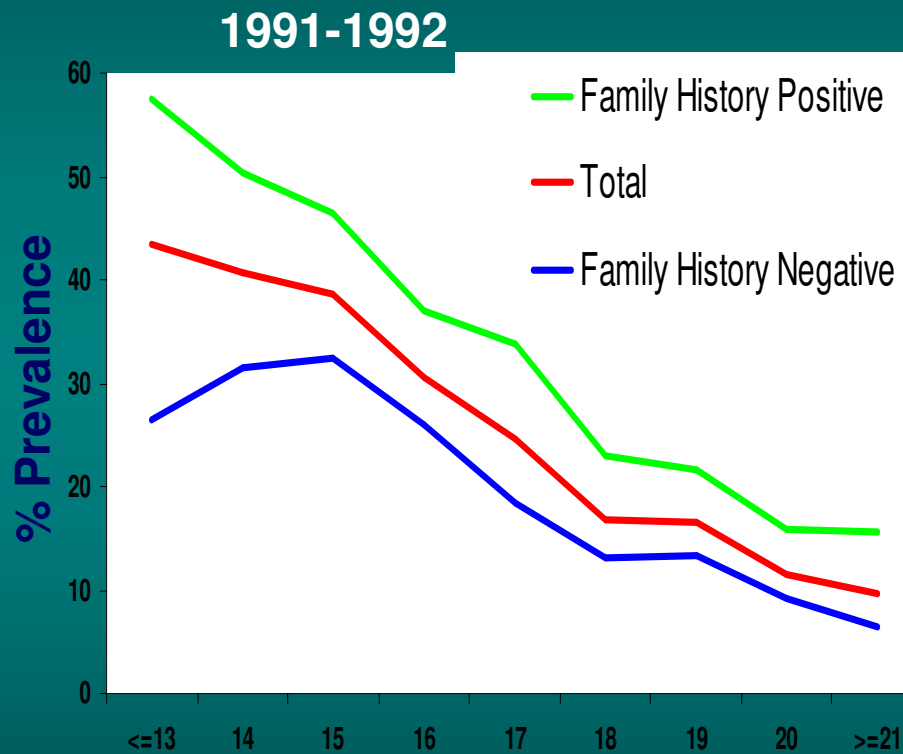
- Heterogeneity in:
  - age of onset, speed of progression, persistence over time
- Relevant both to theories of etiology and to intervention

# Some (Correlated) Predictors of Course

Factor:	Predicts:
<b>Family History</b>	Early Onset, Time to dx, Persistence, Risk for dx
<b>Early Onset of Use</b>	Risk for dx
<b>Initial Experience</b>	Time to dx, Risk for dx
<b>Externalizing and Internalizing Symptoms</b>	Early Onset; Time to dx
<b>Adult Roles and Timing of Adult Roles</b>	Persistence

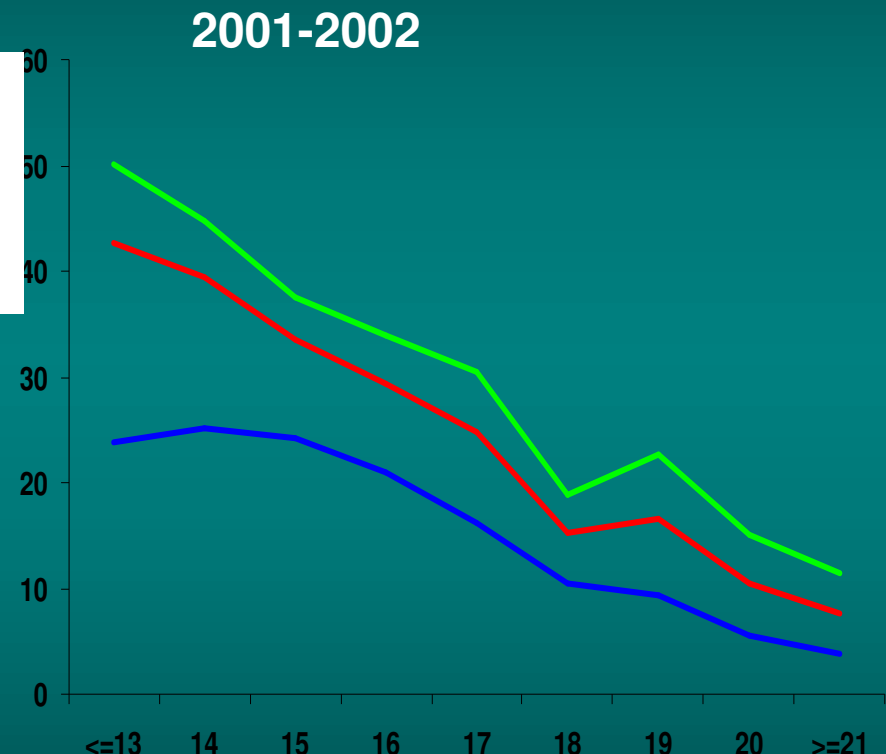
(Bachman & Schulenberg, Chassin et al., Hussong et al., Kandel et al., Sartor et al., Sher et al.)

# EARLY ONSET RAISES RISK FOR SUD (Lifetime alcohol dependence)



**Age at First Alcohol Use**

Source: Grant and Dawson. *J Subst Abuse*. 1998. 10(2):163-73.



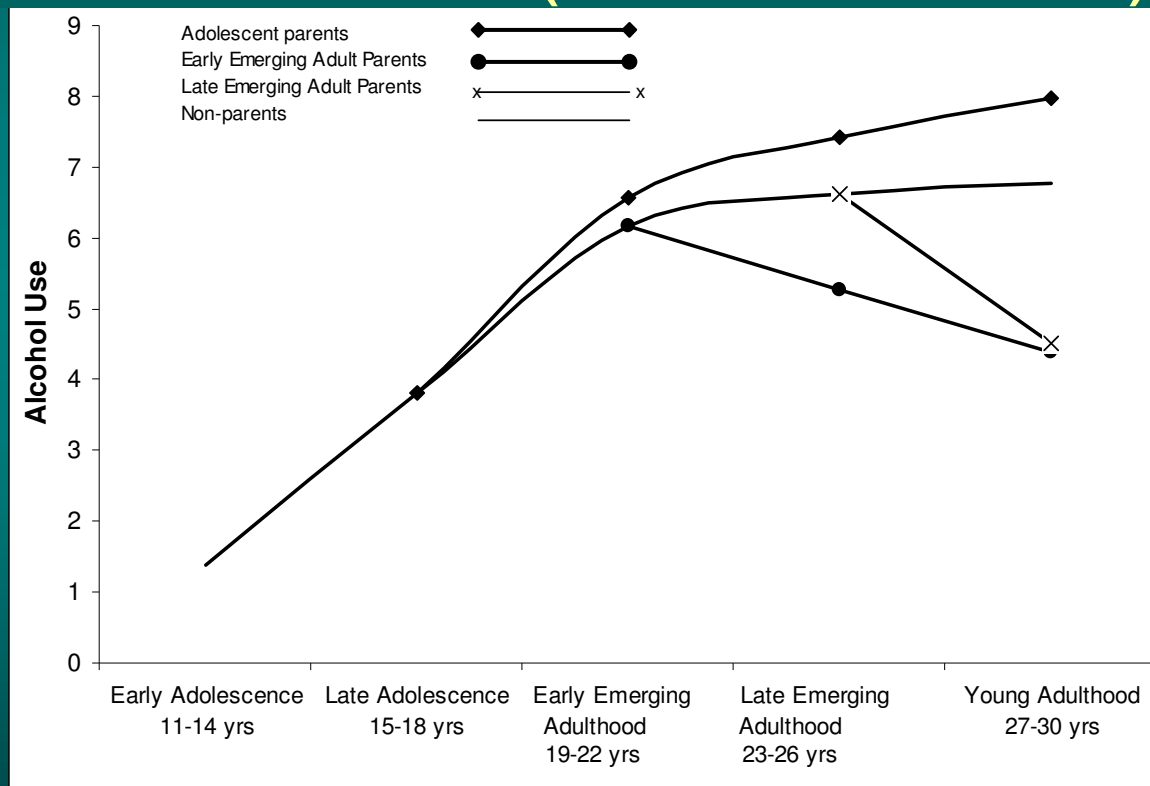
**Age at First Alcohol Use**

Source: 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions

# Why is Early Onset associated with SUD?

- Just a marker?
  - But—Animal Data
  - Propensity Scoring approaches
    - Odgers et al., 2008
- Are adolescents more vulnerable to substance use effects than are other age groups?
- If so, then importance of prevention of early onset
  - What age groups are best to target?

# Predicting Persistence: Early Role Occupancy Is Not Protective (Parent Role)



## More Research Questions: Risk Factors, SUD Course, and Adolescent Development

- How do pre-existing SUD risk factors (genetic and early environmental adversity) affect the adolescent development of systems underlying reward and regulation?
- How does early exposure to substances influence these developing systems?
- Are adolescents more vulnerable than adults to substance use effects?

# Summary

- Adolescence is a common time for initiation
- Substance Use is very prevalent; SUDs are less common, but a significant public health impact
- Demographic differences exist, but substance use affects kids across wide range of demographics

## (more) Summary

- Variability in developmental course is relevant for etiology, prevention, and intervention
- Multiple factors affect developmental course (including both pre-existing factors and early exposure to substances)
- Risk Factors are both general (for “problem behavior”) and specific to substance use
- Early Onset is associated with risk for SUD
  - Are adolescents differentially vulnerable to effects?
  - Importance of preventing early onset?