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ALCOHOL AND DRUG USE, ASSOCIATED DISORDERS AND THEIR PSYCHIATRIC COMORBIDITIES IN U.S. ADULTS

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OBJECTIVES

- Describe clinical and public health significance of risk drinking and drug use (illicit, nonmedical prescription)
- Present general population prevalence data on alcohol and drug use disorders (AUDs and DUDs)
- Present general population data on prevalences and co-occurrences of substance use disorders (SUDs) with other psychiatric disorders in U.S. adults

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DISCLOSURES

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"RISK" DRINKING (I)

- Screening recommended by USPTF for adults in 1° care settings, including pregnant women
- Definitions vary within and across countries, encompassing one or more of:
  - Number of standard drinks* per occasion or drinking day (or during a "short" period of time—e.g., 2 hours)
  - Number of drinks per week
  - Average daily volume of ethanol intake
  - Pattern of consumption (e.g., frequency of "heavy" or high-volume drinking)

* A standard drink in the U.S. contains 0.6 oz. (14 grams) of alcohol.

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"RISK" DRINKING (II)

- Most commonly in the U.S.:
  - 5+ standard drinks on a single occasion or day (both sexes), OR
  - 5+ standard drinks for men/4+ for women on a single occasion or day
- Associated with a broad range of harms, e.g.:
  - Alcohol-related problems and alcohol use disorders
  - Other substance use and associated disorders
  - Liver disease
  - Intentional and unintentional injuries
  - Sexual risk behavior and victimization

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RISK DRINKING vs. ILLICIT OR NONMEDICAL PRESCRIPTION DRUG USE

- Unlike risk drinking, no widely used definition of "risky drug use" (vs. any use).
- Unlike risk drinking, drug use not recommended as screening target (yet) by USPTF.
  - Increasing evidence suggests potential utility of screening.
- Drug use less prevalent than risk drinking but also associated with numerous harms.
  - Includes those related to illegality of drug use.

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NATIONAL EPIDEMIOLOGIC SURVEY ON ALCOHOL AND RELATED CONDITIONS (NESARC)

- N= 43,093 (Wave 1, 2001-2002)
- N= 34,653 (Wave 2, 2004-2005)
- 3-year prospective study
- Household, group quarters residents ≥ 18 years old at Wave 1
- Response rates:
  - 81.0% (Wave 1)
  - 87.6% (Wave 2)
  - 70.2% (Cumulative Wave 1 + Wave 2)
- Oversampling: Blacks, Hispanics/ Latinos, 18- to 24-year-olds
- DSM-IV substance use, mood, anxiety and personality disorder diagnoses (AUDADIS-IV)

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ASSESSMENT OF PAST-YEAR ALCOHOL CONSUMPTION (I)

- Total and beverage-specific: coolers, wine, beer, hard liquor/spirits
  - Beverage subtype usually consumed (e.g., regular beer, malt liquor, light/reduced-calorie/low-carb beer, ice beer)
- Usual beverage size
  - Life-sized beverage containers shown on flashcards
- Usual, largest quantities of drinks
- Frequencies of largest quantities

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ASSESSMENT OF PAST-YEAR ALCOHOL CONSUMPTION (II)

- Frequencies of 5+ of each specific beverage type
- Frequencies of 5+/4+ (overall and within <=2 hrs.)
  - All beverages together, not specific types
- Usual brand of each beverage type
- Recency of last drink (any beverage type)

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PAST-YEAR ASSESSMENT OF DRUG USE

- Any past-year use of: heroin, cocaine, cannabis, hallucinogens, solvents or inhalants, or other drugs
- Any past-year *nonmedical* use of: sedatives, tranquilizers, nonheroin opioids, stimulants
- Frequency of use of each drug
- Recency of last use of each drug
- Number of marijuana joints/equivalents
- Number of grams or lines of cocaine, rocks of crack
- Route(s) of administration of cocaine

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RELIABILITY AND VALIDITY OF ASSESSMENTS

- Documented in general population and clinical samples
- Test-retest reliability:
  - Substance use and SUDs: good to excellent (κ=0.53-0.84)
  - Other psychiatric disorders: fair to good
    - Mood and anxiety: κ=0.42-0.65
    - Personality disorder: κ=0.40-0.71
    - Attention-deficit/hyperactivity disorder: κ=0.71
- Validity: good agreement of selected diagnoses with clinical reappraisals

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WAVE 2 PAST-YEAR ALCOHOL CONSUMPTION AND RISK DRINKING

Drinking Behavior Variable, %	Total	Men	Women
Any alcohol consumption	66.2	71.9	60.9
5+ drinks on any day	23.8	34.8	13.8
5+ drinks (men)/4+ drinks (women) on any day	27.1	34.8	20.0

Past-year consumption of 5+/4+ drinks has also shown potential utility as a screener for drug use and associated disorders (Dawson, Compton, and Grant, 2010).

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WAVE 2 PAST-YEAR DRUG USE

Drug Use Variable, %	Total	Men	Women
Any use of any drug[a]	7.0	9.0	5.1
Any cannabis	4.6	6.5	2.8
Any cocaine or crack	0.7	1.0	0.4

[a] Sedatives, tranquilizers, heroin, nonheroin opioids, stimulants, cocaine, cannabis, hallucinogens, solvents or inhalants, or other drugs

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VERY IMPORTANT "CAVEAT"

Prevalences of risk drinking and drug use, and associated disorders, are substantially higher in most clinical (medical, mental health) and correctional settings!

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WAVE 2 LIFETIME PREVALENCES OF DSM-IV AUDs and DUDs

Disorder, %	Total	Men	Women
Alcohol			
Abuse	19.3%	26.7%	12.5%
Dependence	15.3%	21.0%	9.9%
Any drug[a]			
Abuse	8.6%	11.6%	5.9%
Dependence	3.4%	4.4%	2.5%

[a] Sedatives, tranquilizers, heroin, nonheroin opioids, stimulants, cocaine, cannabis, hallucinogens, solvents or inhalants, other drugs

All differences in prevalences of AUDs and DUDs between men and women: $p < 0.0001$

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PSYCHIATRIC COMORBIDITY OF SUDs (I)

- Lifetime vs. past-year
  - Current comorbidity on Axis I may be more immediately relevant to treatment planning.
    - Relevance of past (remitted) comorbid mood, anxiety disorders to treatment needs or prognosis unclear.
  - Lifetime frame may be more likely to capture clinically relevant considerations related to Axis II personality disorders.

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PSYCHIATRIC COMORBIDITY OF SUDs (II)

- Substance-induced versus DSM-IV primary or independent disorders: so what?
  - Clinically important prognostic implications of both substance-induced and independent disorders in patients with SUDs
  - Variation of definitions, prevalences across diagnostic systems and studies
    - Substance-induced disorders seem more common in clinical settings.
  - Resemblance of sx of intoxication, withdrawal to those of other psychiatric disorders

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PSYCHIATRIC COMORBIDITY OF SUDs (III)

- Treatment implications of substance-induced vs. independent disorders, including:
  - Treat now, or treat after a period (e.g., 1 month) of abstinence?
  - Treat acutely (e.g., ≤ 1 month for substance-induced psychosis) or treat chronically?
  - Specific modalities to be preferred?
- NESARC definition of substance-induced disorders:
  - All episodes began after substance intoxication or withdrawal, AND
  - Did not persist > 1 month after cessation of intoxication or withdrawal

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PSYCHIATRIC COMORBIDITY OF SUDs (IV)

- **Prevalences of Wave 1 DSM-IV past-year mood and anxiety disorders in the NESARC in which *all* episodes were substance induced, were very low (Grant et al., 2004):**

Disorder	Including Substance Induced	Excluding Substance Induced
Any mood disorder	9.31%	9.21%
Any anxiety disorder	11.10%	11.08%

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PSYCHIATRIC COMORBIDITY OF SUDs (V)

- **Two important aspects of comorbidity of primary or independent disorders:**
  - **Prevalences – inform case finding and tailoring of treatment approaches to client needs.**
  - **Comorbid associations (odds ratios) – suggest clues to etiology of "index" SUD, comorbid psychiatric disorder, or both.**
- **Both prevalences and comorbid associations may have implications for understanding:**
  - **Clinical presentation or course of SUDs**
  - **Relationship to treatment utilization and outcomes**

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PSYCHIATRIC COMORBIDITY OF SUDs (VI)

- **Valid estimates of *unique comorbid associations* between pairs of disorders (e.g., EtOH dependence and panic disorder) require statistical adjustment for both sociodemographic characteristics *and additional diagnoses other than the "target" comorbid disorder.***
  - **Test hypothesis that "index" SUD is associated with the pure (noncomorbid) form of "target" comorbid disorder.**
- **NESARC's large sample size and comprehensive assessment allow adjustment for large numbers of variables.**

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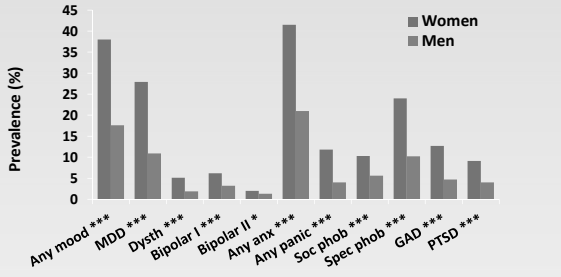
LIFETIME PREVALENCES OF MOOD AND ANXIETY DISORDERS AMONG RESPONDENTS WITH LIFETIME ALCOHOL ABUSE BY SEX



* $p < 0.05$ *** $p < 0.001$

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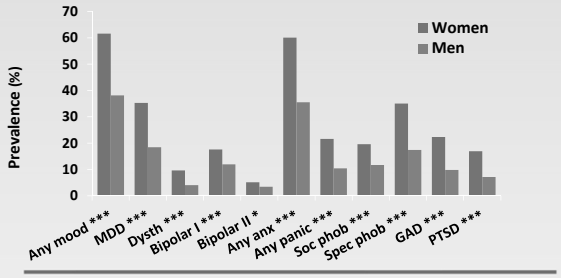
LIFETIME PREVALENCES OF MOOD AND ANXIETY DISORDERS AMONG RESPONDENTS WITH LIFETIME ALCOHOL DEPENDENCE BY SEX



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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF AUDs WITH MOOD AND ANXIETY DISORDERS

Disorder	Abuse	Dependence
Mood		
Major depressive disorder	1.2 (1.04-1.30)	1.5 (1.28-1.65)
Bipolar I	0.9 (0.76-1.14)	1.6 (1.31-1.88)
Bipolar II	1.1 (0.85-1.41)	1.5 (1.14-1.95)
Dysthymia	0.9 (0.70-1.07)	1.0 (0.82-1.26)
Anxiety		
Panic disorder ± agoraphobia	1.0 (0.82-1.10)	1.2 (0.99-1.35)
Social phobia	1.2 (1.05-1.42)	1.5 (1.24-1.69)
Specific phobia	1.1 (1.02-1.27)	1.2 (1.08-1.42)
Generalized anxiety disorder	1.1 (0.93-1.28)	1.1 (0.97-1.35)
Posttraumatic stress disorder	0.9 (0.78-1.10)	1.0 (0.84-1.16)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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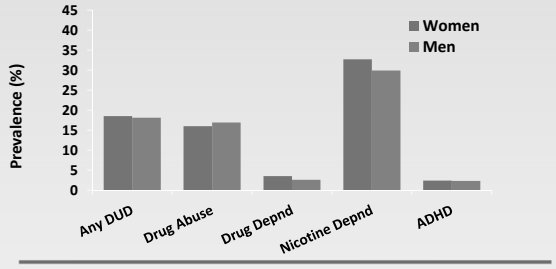

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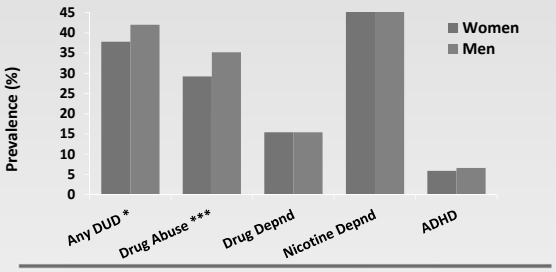

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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF AUDs WITH ADDITIONAL EXTERNALIZING DISORDERS

Disorder	Abuse	Dependence
Any drug use disorder	4.4 (3.87-5.03)	8.2 (7.22-9.27)
Abuse	4.7 (4.04-5.36)	7.3 (6.28-8.38)
Dependence	3.4 (2.54-4.51)	11.5 (9.04-14.50)
Nicotine dependence	2.2 (1.99-2.38)	3.8 (3.38-4.19)
Attention-deficit/hyperactivity disorder	0.9 (0.70-1.25)	1.2 (0.97-1.59)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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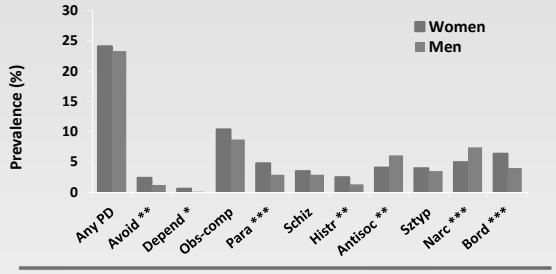

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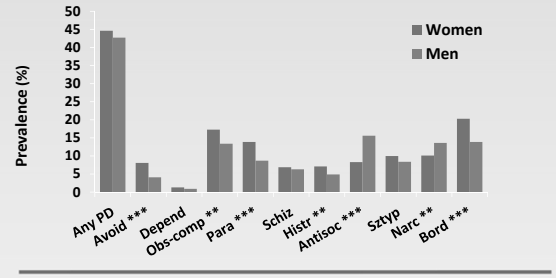

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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF AUDs WITH PERSONALITY DISORDERS

Disorder	Abuse	Dependence
Any PD	1.3 (1.21-1.46)	1.8 (1.62-1.97)
Avoidant	0.7 (0.50-0.93)	1.0 (0.77-1.30)
Dependent	0.6 (0.30-1.37)	0.7 (0.38-1.25)
Obsessive-compulsive	1.2 (1.07-1.44)	1.2 (1.07-1.43)
Paranoid	1.0 (0.83-1.22)	1.4 (1.19-1.73)
Schizoid	1.1 (0.83-1.34)	1.1 (0.82-1.36)
Histrionic	1.5 (1.08-1.99)	2.1 (1.57-2.86)
Antisocial	2.6 (2.05-3.30)	2.9 (2.30-3.65)
Schizotypal	0.9 (0.77-1.13)	1.0 (0.81-1.18)
Narcissistic	1.1 (0.94-1.29)	1.1 (0.96-1.35)
Borderline	0.9 (0.79-1.13)	1.5 (1.29-1.83)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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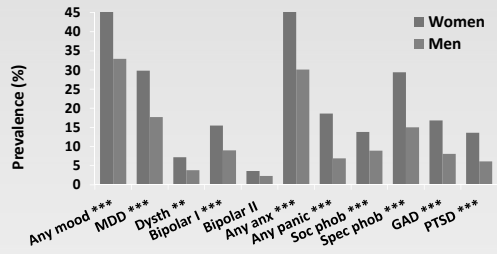

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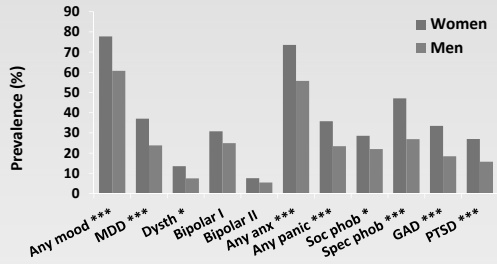

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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF DUDs WITH MOOD AND ANXIETY DISORDERS

Disorder	Abuse	Dependence
Mood		
Major depressive disorder	1.2 (1.01-1.34)	1.2 (0.94-1.41)
Bipolar I	1.6 (1.34-1.93)	2.2 (1.74-2.78)
Bipolar II	0.9 (0.65-1.26)	1.0 (0.72-1.47)
Dysthymia	1.2 (0.90-1.50)	1.4 (0.98-1.86)
Anxiety		
Panic disorder ± agoraphobia	1.1 (0.91-1.33)	1.9 (1.52-2.36)
Social phobia	1.0 (0.80-1.14)	1.3 (1.04-1.59)
Specific phobia	1.0 (0.89-1.15)	1.2 (0.97-1.44)
Generalized anxiety disorder	1.0 (0.82-1.20)	1.2 (0.98-1.48)
Posttraumatic stress disorder	1.1 (0.89-1.34)	1.6 (1.26-2.01)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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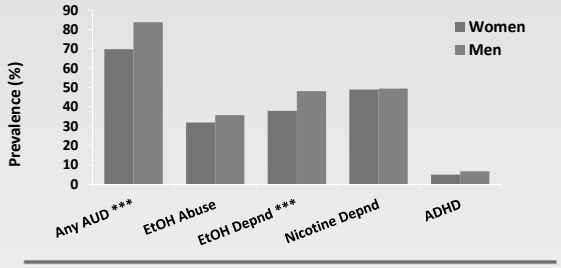

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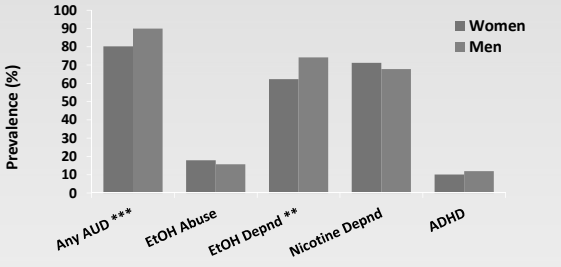

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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF DUDs WITH ADDITIONAL EXTERNALIZING DISORDERS

Disorder	Abuse	Dependence
Any alcohol use disorder	5.6 (4.94-6.41)	7.0 (5.50-8.87)
Abuse	4.5 (3.92-5.22)	3.1 (2.28-4.12)
Dependence	7.2 (6.24-8.36)	10.6 (8.26-13.52)
Nicotine dependence	2.1 (1.88-2.36)	3.5 (2.89-4.28)
Attention-deficit/hyperactivity disorder	1.5 (1.16-1.89)	1.5 (1.14-2.03)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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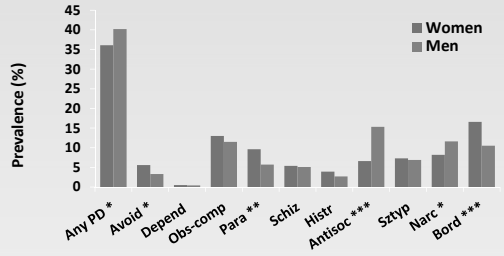

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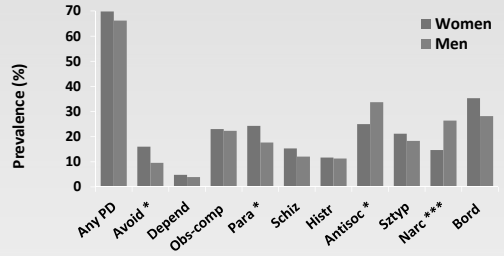

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LIFETIME ASSOCIATIONS (ODDS RATIOS, 95% CI) OF DUDs WITH PERSONALITY DISORDERS

Disorder	Abuse	Dependence
Any PD	1.5 (1.35-1.71)	2.9 (2.39-3.41)
Avoidant	1.2 (0.91-1.55)	1.6 (1.16-2.14)
Dependent	0.8 (0.41-1.64)	3.2 (1.66-6.11)
Obsessive-compulsive	0.9 (0.77-1.09)	1.0 (0.84-1.30)
Paranoid	0.9 (0.73-1.13)	1.3 (0.97-1.63)
Schizoid	1.1 (0.79-1.41)	1.4 (1.04-1.80)
Histrionic	0.8 (0.60-1.09)	1.4 (1.01-1.96)
Antisocial	2.4 (1.90-2.92)	4.3 (3.32-5.43)
Schizotypal	1.1 (0.86-1.37)	1.5 (1.16-2.02)
Narcissistic	1.1 (0.88-1.25)	1.4 (1.08-1.72)
Borderline	1.4 (1.18-1.73)	1.8 (1.34-2.31)

Odds ratios adjusted for age, sex, marital status, race/ethnicity, past-year family income, educational attainment, region and urbanicity of residence, and all additional lifetime Axis I and II diagnoses.

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GENERAL COMMENTS

- Most comorbid associations of AUDs and DUDs with other psychiatric disorders were modest to moderate after sociodemographic characteristics and additional comorbidity were accounted for.
  - Exceptions: other SUDs; ASPD to a lesser extent
- Comorbid associations (ORs) of AUDs and other psychiatric disorders were of broadly similar magnitude to those of DUDs with other psychiatric disorders.
  - Exceptions: other externalizing d/o, ASPD

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SEX DIFFERENCES IN COMORBID ASSOCIATIONS

- Few significant sex differences in ORs for disorders comorbid with AUDs or DUDs:
  - Alcohol abuse and MDD: women, 1.3 (1.15-1.52); men, 1.0 (0.84-1.16)
  - Any drug abuse and bipolar I: women, 2.0 (1.56-2.63); men, 1.3 (1.02-1.70)
  - Any drug dependence and narcissistic PD: women, 1.0 (0.68-1.42); men, 1.7 (1.26-2.20)
  - Any drug dependence and dependent PD: women, 2.2 (1.15-4.15); men, 5.6 (1.79-17.29)

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CONCLUSIONS AND IMPLICATIONS (I)

- Among both sexes, burdens of risky alcohol use and drug use, AUDs, DUDs, and their psychiatric comorbidity are strikingly high.
  - Specific comorbid disorders with DUDs > AUDs
- Patterns of sex differences in *prevalences* of comorbid disorders similar to those in the total population.
  - "Gender gaps" somewhat smaller in DUDs than in AUDs.

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CONCLUSIONS AND IMPLICATIONS (II)

- Patterns of *comorbid associations* of AUDs and DUDs with specific disorders generally do not differ by sex.
  - Similar underlying mechanisms, vs. different underlying mechanisms with same result?
  - Why and how does it matter?
- Comprehensive assessments for EtOH use and AUDs, drug use and DUDs, and psychiatric comorbidity are needed.
  - Regardless of presenting complaints
  - Regardless of setting (1° care, mental health, SUD tx), particularly for women

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CONCLUSIONS AND IMPLICATIONS (III)

- Appropriate treatment should be offered for all identified disorders.
- Barriers to care must be effectively addressed, e.g.:
  - Child care, victimization issues (*particularly for women*)
  - Pessimism about treatment effectiveness
  - Linguistic and cultural competency
  - Stigma
  - Client-friendly appointment hours
  - Financial resources

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CONCLUSIONS AND IMPLICATIONS (IV)

- Future research is warranted to examine:
  - Screening for risk drinking and drug use in the presence of psychiatric comorbidity
  - Mechanisms underlying psychiatric comorbidity with AUDs and DUDs
  - Outcomes of new and existing treatments for pure versus comorbid AUDs and DUDs
  - Optimal configuration, sequencing of treatment for SUDs and comorbid psychiatric disorders
  - Impacts of specific comorbid disorders on treatment outcomes
    - Overall and for specific subgroups of the population