

A TRIPLE THREAT: ALCOHOL USE DISORDERS IN THE PRESENCE OF COMORBID CHRONIC PAIN CONDITIONS AND DEPRESSIVE DISORDERS



Public Health

Chelsea Boyd, MS Candidate; Sean D. Cleary, PhD, MPH, Department of Epidemiology & Biostatistics

Introduction

Patients with chronic pain conditions frequently have comorbid depressive disorders. The relationship between the diagnoses is often bidirectional, with the effects of one condition exacerbating the effects of the other. Alcohol use disorders (AUD) are also independently associated with both conditions.

This study aims to determine the prevalence of alcohol use disorders among patients with comorbid chronic pain conditions and depressive disorders in a nationally representative sample of US adults and ascertain the characteristics of patients with and without comorbid chronic pain conditions and depressive disorder diagnoses.

Understanding the prevalence of alcohol use disorders among patients with comorbid chronic pain and depression is of clinical importance during diagnostic evaluation and treatment planning.

Data Source

- Collaborative Psychiatric Epidemiology Surveys (CPES) from 2001-2003¹
- Nationally representative survey available for public download
- Most recent nationally representative survey that focuses on psychiatric conditions among people over 18 years of age in the United States

Specific Aims

1. Determine the prevalence of alcohol use disorders during the past 12 months among adults, 18 and over, in the United States who have experienced chronic pain at any time during their life and report comorbid depressive disorder(s) and chronic pain condition(s) during the past 12 months.
2. Ascertain the characteristics of adults, 18 and over, in the United States who have experienced chronic pain at any time during their life and report comorbid chronic pain conditions, depressive disorders, and alcohol use disorders during the past 12 months, among people with chronic pain at any time during their life.

Notes

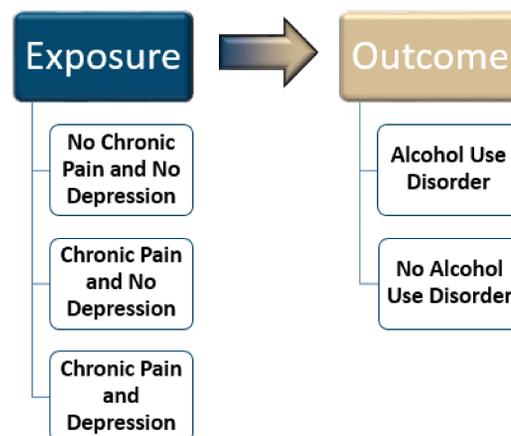
- Initially the exposure included four categories.
 - No past 12 month chronic pain condition but past 12 month depressive disorder category
 - No observed cases of alcohol use disorder
 - Only 45 observations
- The reference group is participants reporting a chronic pain condition during their lifetime but not during the past 12 months, due to survey methodology.
- All analyses used procedures for complex survey data

References

1. Collaborative Psychiatric Epidemiology Surveys (CPES), 2001-2003 United States] 2016. Alegria M, Jackson, James S. (James Sidney), Kessler RC, Takeuchi D. (Accessed 12/19/, 2018).
2. Grant BF, Dawson DA, Stinson FS, Chou SP, Dufour MC, Pickering RP. The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. Alcohol Research & Health 2006;29:79-91.
3. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric Assoc, 2000.

Variable Specification

Past 12 Month Chronic Pain Condition	<ul style="list-style-type: none"> • Chronic back/neck problems • Frequent of severe headaches • Ever had arthritis/rheumatism (note: no question about past 12 months) • Other chronic pain • Medically unexplained pain for 6+ months
Past 12 Month Depressive Disorder	<ul style="list-style-type: none"> • DSM-IV Dysthymia • DSM-IV Major Depressive Disorder • DSM-IV Major Depressive Episode
Past 12 Month Alcohol Use Disorder	<ul style="list-style-type: none"> • DSM-IV Alcohol Abuse • DSM-IV Alcohol Dependence



Data Analysis

Descriptive Analysis

- Frequency distributions by exposure category
- Assess normality of continuous variables and quantify missing data

Identify Confounders

- Check the three *a priori* criteria for each potential confounding variable using a series of bivariate models
- Potential confounding variables: age, sex, race/ethnicity, education level, smoking status, male/female childhood caregiver experiencing periods of sadness for 2+ weeks, marital status, and region of residence.

Logistic Regression

- Fit multivariable logistic regression models
- Model explanations
 - Crude model: unadjusted for confounding variables
 - Standard model: adjusted for important potential confounding variables, irrespective of *a priori* criteria for confounding.
 - Adjusted model: includes only confounding variables achieving statistical significance in the standard model

Sample Characteristics

Sample characteristics by depressive disorder and chronic pain condition diagnosis				
Variable	-DD, -CP* (n = 305)	-DD, +CP (n = 2807)	+DD, +CP (n=498)	Overall (N= 3610)
Alcohol Use Disorder (Yes)	2.00 (1.36)	0.68 (0.15)	3.82 (1.13)	1.08 (0.15)
Age**	41.5 (1.28)	56.4 (0.52)	45.9 (0.95)	54.4 (.50)
Sex (Male)	40.66 (4.42)	41.48 (1.48)	33.68 (2.95)	40.53 (1.21)
Race				
Non-Hispanic White	37.35 (5.04)	76.78 (1.89)	70.70 (3.71)	74.17 (2.04)
African American	2.28 (1.36)	1.81 (0.28)	1.27 (0.35)	1.78 (0.27)
Asian	16.82 (2.37)	5.48 (0.62)	4.19 (0.76)	5.89 (0.62)
Hispanic	42.63 (4.46)	13.62 (1.29)	17.76 (2.61)	15.50 (1.43)
Other	0.91 (0.78)	2.32 (0.45)	6.08 (1.32)	2.65 (0.48)
Work Status				
Employed	65.52 (4.82)	30.65 (1.71)	45.00 (2.96)	50.70 (1.51)
Unemployed	5.53 (2.10)	7.60 (0.98)	4.44 (1.01)	7.13 (0.83)
Not In The Labor Force	28.96 (4.79)	41.75 (1.69)	50.56 (3.03)	42.17 (1.62)
Region of Country				
Northeast	17.75 (3.63)	19.48 (4.20)	26.04 (6.50)	20.09 (4.18)
Midwest	10.85 (3.04)	25.46 (2.52)	19.81 (2.84)	24.12 (2.28)
South	26.47 (5.19)	28.92 (3.31)	30.25 (4.33)	29.02 (3.14)
West	44.93 (4.58)	26.14 (2.50)	23.89 (2.91)	26.79 (2.36)
Years of Education				
0-11	21.72 (2.52)	19.9 (8.42)	27.96 (2.81)	25.10 (1.35)
12	23.54 (3.78)	32.89 (1.18)	26.66 (3.13)	31.70 (1.03)
13-15	27.30 (4.44)	25.76 (1.42)	25.89 (2.83)	25.86 (1.34)
Greater than or equal to 16	27.45 (3.76)	16.39 (1.12)	19.48 (2.34)	17.33 (1.08)
Smoking Status				
Current Smoker	24.28 (5.31)	22.52 (1.12)	40.48 (3.32)	24.58 (1.04)
Former Smoker	16.41 (3.03)	32.19 (1.77)	24.51 (3.03)	30.52 (1.69)
Never Smoker	59.31 (5.44)	45.29 (1.72)	35.01 (2.93)	44.91 (1.65)
Marital Status				
Never Married	20.38 (3.55)	7.63 (0.83)	18.83 (2.59)	9.64 (0.84)
Married/Cohabiting	64.96 (4.16)	62.65 (1.53)	45.49 (3.02)	60.62 (1.36)
Separated/Divorced/Widowed	14.66 (2.90)	29.72 (1.57)	35.67 (3.50)	29.74 (1.29)
Family History of Depression (Yes)	14.11 (6.17)	10.57 (1.50)	24.21 (2.96)	12.13 (1.41)

*Reference Group=No past 12 month depressive disorder and no chronic pain condition
 Values reported are % (S.E.) unless otherwise noted
 **mean (S.E.)
 CP=Chronic pain condition, DD=Depressive disorder

Results

Logistic Regression Analyses of Alcohol Use Disorders and Comorbid Chronic Pain and Depressive Disorders.					
Parameter	Estimate	Standard Error	POR	95% Confidence Limits	
				Crude Model	
Intercept	-3.8894	0.69			
Comorbid (+DD, +CP)	0.6632	0.8051	1.941	0.394	9.569
Comorbid (-DD, +CP)	-1.1005	0.8021	0.333	0.068	1.63
Standard Model					
Intercept	-0.3219	2.3996			
Comorbid (+DD, +CP)	-0.9407	0.8815	0.39	0.066	2.312
Comorbid (-DD, +CP)	-1.644	0.9446	0.193	0.029	1.3
Sex	-1.2209	0.5562	0.295	0.096	0.906
Education level	0.4433	0.477	1.558	0.595	4.079
Marital Status	0.1898	0.3932	1.209	0.547	2.673
Region of Country	0.0368	0.2989	1.038	0.568	1.897
Race	-0.00281	0.3799	0.997	0.463	2.146
FHDD	0.8803	0.7469	2.412	0.534	10.888
Age	-0.0776	0.0217	0.925	0.886	0.967
Adjusted Model					
Intercept	-1.6865	0.8952			
Comorbid (+DD, +CP)	0.902	0.7763	2.464	0.529	11.477
Comorbid (-DD, +CP)	-0.3919	0.7627	0.676	0.149	3.064
Age	-0.0607	0.0127	0.941	0.918	0.965

CP=Chronic pain condition, DD=Depressive disorder
 Reference= -DD, -CP, FHDD=Family history of depressive disorder

Discussion

Results:

- No statistically significant association between alcohol use disorder and patients with comorbid chronic pain and depression. This holds for all three models.
- Although not statistically significant, the crude model and the adjusted model show elevated odds of alcohol use disorders for participants with comorbid depression and chronic pain compared to those without either condition.
- Although many variables met the *a priori* criteria for confounding, only age was a significant predictor of alcohol use disorder (adjusted model).
- The odds ratio for participants with only chronic pain is less than 1 in all models, suggesting that this population has lower odds of alcohol use disorders than the population without either condition. Although not statistically significant, this is unexpected.

Limitations:

- Small cell sizes after grouping by exposure.
- Prevalence of alcohol use disorders in study population is 1.08%, but was 8.46% in the full population (2001-2002).²
- Cross-sectional data, so temporality and true comorbidity cannot be established definitively.
- Self-report data via trained interviewer.

Directions for future research:

- Effect of chronic pain severity on outcome
- Effect of order of diagnosis of exposure conditions

Contact Information

Chelsea Boyd: chelseaboyd@gwmil.gwu.edu
 Dr. Sean Cleary, PhD, MPH: sdccleary@gwu.edu

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC