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



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Introduction	Variable Specification		Sample Characteristics			Results						
Patients with chronic pain conditions frequently have comorbid		Chronic back/neck problems	Sample characteristi	cs by deproved condition	essive disor diagnosis	rder and c	hronic pain	Logistic Re Como	egression Analy rbid Chronic Pa	ses of Alcoh in and Depr	ol Use D essive D	isorders and isorders.
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.	Past 12 Month Chronic Pain	<ul> <li>Frequent of severe headaches</li> <li>Ever had arthritis/rheumatism (note: no question about past 12 months)</li> </ul>	Variable	-DD, -CP* (n = 305)	-DD, +CP (n = 2807)	+DD, +CP (n=498)	<b>Overall</b> (N= 3610)	Parameter	Estimate Cru	Error ude Model	POR	95% Confidence Limits
	Condition	<ul> <li>Other chronic pain</li> <li>Medically unexplained pain for 6+ months</li> </ul>	Alcohol Use Disorder (Yes)	2.00 (1.36)	0.68 (0.15)	3.82 (1.13)	1.08 (0.15)	Intercept Comorbid	-3.8894	0.69		

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 2001-2003 <sup>1</sup>
- 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

	41.5	56.4	45.9		(+DD, +CP)	0.6632	0.8051	1.941	0.394	9.569	
Age**	(1.28)	(0.52)	(0.95)	54.4 (.50)	Comorbid						
	40.66	41.48	33.68		(-DD, +CP)	-1.1005	0.8021	0.333	0.068	1.63	
Sex (Male)	(4.42)	(1.48)	(2.95)	40.53 (1.21)		Sta	ndard Mode	el			
Race					Intercept	-0.3219	2.3996				
	37.35	76.78	70.70		Comorhid	0.0210	210000				
Non-Hispanic White	(5.04)	(1.89)	(3.71)	74.17 (2.04)	(+DD + CP)	-0 9407	0 8815	0 39	0.066	2 3 1 2	
	2 28	1 81	1 27		Comorhid	0.0107	0.0010	0.00	0.000		
African American	(1.36)	(0.28)	(0.35)	1.78 (0.27)	(-DD + CP)	-1 644	0 9446	0 193	0 029	13	
	16.82	5 48	<u>(0.00)</u> <u>4</u> 19			1 2200		0.100	0.025	0.006	
Asian	(2.37)	(0.62)	(0.76)	5.89 (0.62)	Education	-1.2209	0.3302	0.295	0.090	0.900	
	42.63	13 62	17 76			0 1 1 2 2	0 /177	1 550	0 505	1 070	
Hispanic	(4.46)	(1.29)	(2.61)	15.50 (1.43)		0.4433	0.477	1.330	0.595	4.073	
	0.91	2 32	6.08	10100 (1110)	Marital Status	0.1898	0.3932	1.209	0.547	2.673	
Other	(0.78)	(0.45)	(1 32)	2 65 (0 48)	Region of	0.0260	0 2000	1 0 2 0		1 007	
Work Status	(0.70)	(0.13)	(1.52)	2.03 (0.10)	Country	0.0368	0.2989	1.038	0.568	1.897	
	65 52	30.65	45.00		Race	-0.00281	0.3799	0.997	0.463	2.146	
Employed	(4.82)	(1 71)	(2.96)	50 70 (1 51)	FHDD	0.8803	0.7469	2.412	0.534	10.888	
	5 5 3	7.60	ΔΔΔ	30.70 (1.31)	Age	-0.0776	0.0217	0.925	0.886	0.967	
Unemployed	(2 10)	(0.98)	(1.01)	7 13 (0 83)		Ad	justed Mode	el			
onemployed	28.96	41 75	50.56	/.10 (0.00)	Intercent	-1 6865	0 8952				
Not In The Labor Force	(4 79)	(1 69)	(3,03)	42 17 (1 62)	Comorhid	1.0003	0.0332				
Region of Country	(, 3 )	(1.00)	(0.00)		(+DD, +CP)	0.902	0.7763	2.464	0.529	11.477	
	17 75	19 48	26.04		Comorbid	0.302		21101	0.020		
Northeast	(3.63)	(4.20)	(6.50)	20.09 (4.18)	(-DD, +CP)	-0.3919	0.7627	0.676	0.149	3.064	
	10.85	25 46	19 81	20103 (1110)	Δσο	-0.0607	0.0127	0.9/1	0.918	0.965	
Midwest	(3.04)	(2.52)	(2.84)	24.12 (2.28)		-0.0007	0.0127	0.341	0.910	0.303	
	26 47	28 92	30.25	2	CP=Chronic pair	CP=Chronic pain condition, DD=Depressive disorder					
South	(5.19)	(3.31)	(4.33)	29.02 (3.14)	Reference= -DD	Reference= -DD, -CP, FHDD=Family history of depressive disorder					
	<u>(3.13)</u> <u>44</u> 93	26 14	23.89			Die	cussio	n			
West	(4.58)	(2,50)	(2.91)	26,79 (2,36)							
Years of Education	(1130)	(2.30)	(2:3 1)	20173 (2130)	<b>Results:</b>						
	21 72	19 9	27.96		No statistic	cally significat	nt associatio	n betwee	n alcoho	luse	
0-11	(2.52)	(8 4 2)	(2.81)	25 10 (1 35)	disorder ar	nd patients w	ith comorbi	d chronic	pain and		
	23 54	32.89	26.66	20110 (1100)	depression	depression. This holds for all three models.					
12	(3.78)	(1.18)	(3.13)	31.70 (1.03)	• Although r	not statistical	v significant	the crud	e model	and	
	27 30	25 76	25.89	011/0 (1100)	the adjuste	the adjusted model show elevated odds of alcohol use disorders for participants with comorbid depression and					
13-15	(4,44)	(1.42)	(2.83)	25.86 (1.34)	disorders f						
Greater than or equal	27.45	16 39	19 48		chronic pa	in compared	to those wit	hout eithe	er condit	ion.	
to 16	(3 76)	(1 12)	(2 34)	17 33 (1 08)	Although n	• Although many variables met the <i>a priori</i> criteria for					
Smoking Status	(0.70)	(1.1.2)	(2:3 1)	17:00 (1:00)	confoundir	confounding only age was a significant prodictor of alcohol					
	24 28	22 52	40 48		use disord	use disorder (adjusted model)					
Current Smoker	(5.31)	(1.12)	(3.32)	24.58 (1.04)		<ul> <li>The odde ratio for participante with only obvious nain is less</li> </ul>					
	16 41	37 19	7 <u>4</u> 51		+han 1 in a	<ul> <li>The odds ratio for participants with only chronic pain is less</li> <li>than 1 in all models, suggesting that this population has</li> </ul>					
Former Smoker	(3.03)	(1.77)	(3,03)	30.52 (1 69)		lower adds of alcohol use disorders than the nonulation					
	<u>, , , , , , , , , , , , , , , , , , , </u>	45 29	35 01			without either condition. Although not statistically					
					without en				lically		
Never Smoker	(5.44)	(1.72)	(2.93)	44.91 (1.65)	significant	this is unevr	ected				
	Age**Sex (Male)RaceNon-Hispanic WhiteAfrican AmericanAfrican AmericanMispanicOtherWork StatusCunemployedNot In The Labor ForceRegion of CountryNortheastMidwestSouthYears of Education1213-15Greater than or equal to 16Smoking StatusCurrent SmokerFormer Smoker	41.5         Age**       (1.28)         40.66         Sex (Male)       (4.42)         Race       37.35         Non-Hispanic White       (5.04)         2.28       African American       (1.36)         African American       (1.36)         African American       (1.36)         African American       (2.37)         42.63       (4.46)         0.91       (0.78)         Work Status       65.52         Employed       (4.82)         5.53       Unemployed       (2.10)         28.96       5.53         Not In The Labor Force       (4.79)         Region of Country       28.96         Not In The Labor Force       (4.79)         Region of Country       28.96         Not In The Labor Force       (4.79)         Region of Country       28.96         Northeast       (3.63)         10.85       (4.49)         Midwest       (3.04)         26.47       (3.04)         South       (5.19)         44.93       West         West       (4.58)         Years of Education       21.72	41.5       56.4         Age**       (1.28)       (0.52)         40.66       41.48         Sex (Male)       (4.42)       (1.48)         Race       37.35       76.78         Non-Hispanic White       (5.04)       (1.89)         2.28       1.81         African American       (1.36)       (0.28)         16.82       5.48         Asian       (2.37)       (0.62)         42.63       13.62         Hispanic       (4.46)       (1.29)         0.91       2.32         Other       (0.78)       (0.45)         Work Status       5.53       7.60         Unemployed       (2.10)       (0.98)         28.96       41.75         Not In The Labor Force       (4.79)       (1.69)         Region of Country       10.85       25.46         Midwest       (3.04)       (2.52)         26.47       28.92       50.41         South       (5.19)       (3.31)         44.93       26.14       West         West       (4.58)       (2.50)         Years of Education       21.72       19.9         0-111	41.5         56.4         45.9           Age**         (1.28)         (0.52)         (0.95)           40.66         41.48         33.68           Sex (Male)         (4.42)         (1.48)         (2.95)           Race         37.35         76.78         70.70           Non-Hispanic White         (5.04)         (1.89)         (3.71)           African American         (1.36)         (0.28)         (0.35)           16.82         5.48         4.19           Asian         (2.37)         (0.62)         (0.76)           42.63         13.62         17.76           Hispanic         (4.46)         (1.29)         (2.61)           0.91         2.32         6.08         (0.45)         (1.32)           Work Status         65.52         30.65         45.00           Employed         (2.10)         (0.98)         (1.01)           28.96         41.75         50.56         Not In The Labor Force         (4.79)         (1.69)         (3.03)           Region of Country         17.75         19.48         26.04         (3.63)         (4.20)         (6.50)           Midwest         (3.04)         (2.52)         (2.84)	41.5         56.4         45.9           Age**         (1.28)         (0.52)         (0.95)         54.4 (.50)           Age**         (1.42)         (1.48)         33.68           Sex (Male)         (4.42)         (1.48)         (2.95)         40.53 (1.21)           Race         37.35         76.78         70.70           Non-Hispanic White         (5.04)         (1.89)         (3.71)         74.17 (2.04)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)           African American         (1.36)         (0.21)         (0.50)         5.89 (0.62)           42.63         13.62         17.76         42.63         13.62         17.76           Hispanic         (4.46)         (1.29)         (2.61)         15.50 (1.43)           0.91         2.32         6.68         0         0           Other         (0.78)         (0.45)         (1.32)         2.65 (0.48)           Work Status         5.53         7.60         4.44           Unemployed         (2.10)         (0.98)         (1.01)         7.13 (0.83)	41.5         56.4         45.9         (+DD, +CP)           Age**         (1.28)         (0.52)         (0.95)         54.4 (.50)         Comorbid           40.66         41.48         33.68         (-DD, +CP)         Comorbid           Race         Intercept         Comorbid         (-DD, +CP)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)         (-DD, +CP)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)         (-DD, +CP)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)         (-DD, +CP)           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)         (-DD, +CP)           African American         (1.36)         (0.28)         (0.76)         5.89 (0.62)         Education           Bispanic         (4.46)         (1.29)         (2.61)         15.50 (1.43)         Marital Status           Work Status         65.52         30.65         45.00         Hegion of         Comorbid           Morbed (4.82)         (1.71)         (2.96)         50.70 (1.51)         Age         HDD           Age         (1.77, 5         19	41.556.445.9 $(+DD, +CP)$ $0.6632$ Age** $(1.28)$ $(0.52)$ $(0.95)$ $54.4$ $(5.0)$ $(-DD, +CP)$ $-1.1005$ Sex (Male) $(4.42)$ $(1.48)$ $(2.95)$ $40.53$ $(1.21)$ $(DD, +CP)$ $-1.1005$ Race $37.35$ $76.78$ $70.70$ $70.70$ $(DD, +CP)$ $-0.3219$ Non-Hispanic White $(5.04)$ $(1.89)$ $(3.71)$ $74.17$ $(2.04)$ $(-DD, +CP)$ $-0.3219$ African American $(1.36)$ $(0.28)$ $(0.35)$ $1.78$ $(0.27)$ $(DD, +CP)$ $-0.9407$ African American $(1.36)$ $(0.28)$ $(0.35)$ $1.78$ $(0.27)$ $(DD, +CP)$ $-0.9407$ Asian $(2.37)$ $(0.62)$ $(0.76)$ $5.89$ $(0.62)$ $(DD, +CP)$ $-0.9407$ Asian $(2.37)$ $(0.62)$ $(0.76)$ $5.89$ $(0.62)$ $(DD, +CP)$ $-0.9407$ Adian $(2.37)$ $(0.76)$ $5.89$ $(0.62)$ $(D-11)$ $(D-20)$ $(D-20)$ $(D-20)$ $(D-20)$ $(D-1)$ $(2.46)$ $(1.21)$ $(2.56)$ $(2.51)$ $(1.53)$ $(2.55)$ $(2.51)$ $(1.53)$ $(2.55)$ $(D-11)$ $(D-20)$	41.5         56.4         45.9         (+0), +CP         0.6632         0.8051           Age**         (1.28)         (0.52)         (0.95)         54.4 (50)         (-D), +CP         0.6632         0.8051           Sex (Male)         (4.42)         (1.48)         (2.95)         40.53 (1.21)         Comorbid           Race         37.35         76.78         70.70         Comorbid         (-D), +CP         -1.1005         0.8021           African American         (1.36)         (0.28)         (0.35)         1.78 (0.27)         (-D), +CP         -1.644         0.9446           Asian         (2.37)         (0.62)         (0.35)         1.78 (0.27)         (-D), +CP         -1.644         0.9446           Asian         (2.37)         (0.62)         (0.76)         5.89 (0.62)         Education         Evel         0.4433         0.477           Mispanic         (4.46)         (1.29)         (2.61)         15.50 (1.43)         Region of         Country         0.0368         0.2988           Work Status         65.52         30.65         45.00         HDD         0.8803         0.7469           Midwest         (3.63)         (4.20)         (6.50)         20.03         0.776 <t< th=""><th>41.5         56.4         45.9         (HD), F(P)         0.663         0.8051         1.941           Age**         (1.28)         (0.52)         (0.95)         54.4         (50)         (FD), F(P)         0.6632         0.8051         1.941           Sex (Male)         (4.42)         (1.48)         (2.95)         40.53         (1.21)         Comorbid         Comorbid         Comorbid         Comorbid         Intercept         -0.3219         2.399         Comorbid         Comorbid&lt;</th><th>41.5         56.4         45.9         (+0, +CP)         0.6632         0.8801         1.941         0.334           Age**         (128)         (052)         (095)         54.4 (50)         Comorbid         Comorbid</th></t<>	41.5         56.4         45.9         (HD), F(P)         0.663         0.8051         1.941           Age**         (1.28)         (0.52)         (0.95)         54.4         (50)         (FD), F(P)         0.6632         0.8051         1.941           Sex (Male)         (4.42)         (1.48)         (2.95)         40.53         (1.21)         Comorbid         Comorbid         Comorbid         Comorbid         Intercept         -0.3219         2.399         Comorbid         Comorbid<	41.5         56.4         45.9         (+0, +CP)         0.6632         0.8801         1.941         0.334           Age**         (128)         (052)         (095)         54.4 (50)         Comorbid         Comorbid	

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- 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.

a Degraccion	Ne
ic Regression	
Itivariable logistic regression models	Married/C
explanations	Separated
e model: unadjusted for confounding variables	
dard model: adjusted for important potential	Family Histo
ounding variables, irrespective of a priori criteria for	Depression
ounding.	*Reference
sted model: includes only confounding variables	chronic pair
eving statistical significance in the standard model	Values repo
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		20.38	7.63	18.83						
	Never Married	(3.55)	(0.83)	(2.59)	9.64 (0.84)					
		64.96	62.65	45.49						
	Married/Cohabitating	(4.16)	(1.53)	(3.02)	60.62 (1.36)					
	Separated/Divorced/	14.66	29.72	35.67						
	Widowed	(2.90)	(1.57)	(3.50)	29.74 (1.29)					
	Family History of	14.11	10.57	24.21						
or	Depression (Yes)	(6.17)	(1.50)	(2.96)	12.13 (1.41)					
	*Reference Group=No p	ast 12 m	onth depres	sive disor	rder and no					
	chronic pain condition									
	Values reported are % (S.E.) unless otherwise noted									
	**mean (S.E.)									
	CP=Chronic pain condition, DD=Depressive disorder									

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### 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).<sup>2</sup>
- 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**

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