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THE ASSOCIATION BETWEEN GENERALIZED ANXIETY DISORDER AND ALCOHOL ABUSE AND DEPENDENCE

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BACKGROUND

- Generalized Anxiety Disorder (GAD) is a chronic disorder that is often comorbid with other psychiatric disorders (Ballenger et al., 2001; Grant, Hasin, Stinson, et al. 2005)

- The association between GAD and Alcohol Use Disorders (AUD) has received attention due to the possibility that individuals with GAD may resort to alcohol for self-medication (Grant et al., 2005)

- In a population based study, 65% of males and 32.8% of females with a lifetime GAD diagnosis also had a lifetime AUD diagnosis (Vesga-Lopez et al. 2008)

OBJECTIVE

To characterize the association between GAD and alcohol use disorders, and to determine whether depression is a moderator of this association.

METHODS - SAMPLE

- Family study of Missouri residents (MOFAM)
- Over-sampled for African American (AfAm) race (>50% AA)
- Three risk groups based on paternal excessive alcohol use:
  - Recurrent drunk driving (RDD; ascertained from driving records), Maj. n=267, AfAm n=151
  - High risk (mother of children reported father drank excessively), Maj. n=147, AfAm n=210
  - Control (drawn from general population, irrespective of paternal alcohol status), Maj n=190, AfAm n=319

METHODS – Data Analysis

- Dependent Variable: Alcohol Abuse and Dependence
- Independent Variable: GAD
- Covariates: Race, age (<18y), Sex, Income (<$45,000), Regular Marijuana Use, Marijuana Abuse and Dependence, Regular Smoker, Nicotine Dependence, Social Phobia, Panic Attacks (>3), Panic Disorder
- Potential Effect Modifier: Major Depressive Disorder (MDD)

METHODS - Data Analysis

- Bivariable relationships were assessed using the chi-square statistic
- The Breslow-Day test for homogeneity was used to test for effect modification by MDD
- Logistic Regression was employed to construct a multivariable model
- All covariates were assessed as confounders: A variable was considered a confounder if its addition to the model resulted in a >10% change in the OR for GAD

RESULTS: Table 1. Characteristics of MOFAM sample by GAD diagnosis.

	GAD Diagnosis (n=78)	No GAD Diagnosis (n=1199)	P-value
African American	61.54	52.21	0.110
Family type			0.064
Repeat drunk driving	32.05	32.53	
High risk	38.46	27.19	
Control	29.49	40.28	
Age <18y	42.31	57.38	0.009
Female	58.97	50.04	0.126
Income (<$45,000)	60.0	55.34	0.431

Regular Marijuana User	20.51	16.01	0.297
Marijuana Abuse and Dependence	21.79	5.50	<0.001
Regular Smoking	32.05	18.85	0.005
Nicotine Dependence	28.21	13.76	0.001
Major Depressive Disorder	37.18	8.59	<0.001
Social Phobia	57.69	20.85	<0.001
Panic Attack*	38.46	6.92	<0.001
Panic Disorder	10.26	1.08	<0.001

*At least 4 panic attack episodes that peak within 10 minutes

RESULTS – Interaction between GAD and Major Depression

- Using the Breslow-Day test, we identified a significant interaction between GAD and major depression (p=.028)

- Therefore, the interaction was modeled as a set of dummy variables:
  - GAD with MDD (GAD+MDD+) n=29
  - GAD without MDD (GAD+MDD-) n=49
  - MDD without GAD (GAD-MDD+) n=103

RESULTS: Table 2. Logistic Regression Model predicting AUD by GAD and MDD status

	OR (95% CI)	
	Crude	Adjusted*
$GAD^{+}MDD^{+}$	2.075 (.904-4.762)	0.547 (0.194-1.543)
$GAD^{+}MDD^{-}$	**2.403 (1.281-4.508)**	1.774 (0.816-3.854)
$GAD^{-}MDD^{+}$	**2.927 (1.891-4.530)**	**1.966 (1.151-3.357)**

*Adjusted for race, family status, age, sex, marijuana abuse and dependence, nicotine dependence and social phobia

RESULTS: SUMMARY

- In unadjusted analyses, GAD without depression and depression without GAD are significantly positively associated with AUD

- After controlling for relevant confounders (race, family status, age, sex, marijuana abuse and dependence, nicotine dependence, and social phobia) the strength of the association is attenuated for GAD+MDD- and GAD-MDD+, and that for GAD+MDD+ changes direction, although only the OR for GAD-MDD+ is statistically significant

CONCLUSIONS

- The relationship between GAD and AUD may be moderated by MDD such that having GAD+MDD+ is negatively associated with AUD and having GAD+MDD- is positively associated with AUD

- Due to a relatively small number of individuals with GAD in our sample, we lacked statistical power to detect significant effects of this magnitude

- Attempts should be made to replicate these results in larger samples

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