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LIFETIME COMORBIDITY OF ALCOHOL DEPENDENCE AND BULIMIA NERVOSA IN WOMEN

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BACKGROUND

- Women with bulimia nervosa (BN) are more likely to have alcohol dependence (AD).

- Women with both BN and AD are more likely to have additional psychopathology than women with BN only.

- Most previous studies used clinical samples, which could limit generalizability.

- Most previous studies did not include a comparison group with AD and no BN. It is possible that the excess psychopathology seen in women with AD+BN is associated with their AD diagnosis.

OBJECTIVE

- To identify differences and similarities between women with bulimia nervosa and alcohol dependence (BN+AD+), bulimia and no alcohol dependence (BN+AD-) and alcohol dependence and no bulimia (BN-AD+) in psychiatric comorbidity and variables related to psychological functioning

METHODS – SAMPLE

- Alcoholic probands, their relatives, and control families were recruited from six sites around the country for the Collaborative Study of the Genetics of Alcoholism (COGA).

- Analyses focused on data from female relatives of alcoholic probands and female controls with a diagnosis of DSM-III-R BN and/or DSM-IV AD from the second wave of data collection.

- Women were divided into three groups based on their BN and AD diagnoses: BN+AD+, BN+AD- and BN-AD+

METHODS – DATA ANALYSIS

- The BN+AD+, BN+AD- and BN-AD+ were compared on additional substance use disorders, comorbid psychopathology, suicidality, additional substance use and eating disorder variables, and demographic variables using chi-square and ANOVA.

- All variables for which there were significant between group differences were included in a multinomial logistic regression.

- All analyses were adjusted for familial clustering using Stata.

RESULTS

- Of the 3044 female relatives of alcoholic probands and controls ages 18-59, 85 (2.8%) met the DSM-III-R definition of BN. Thirty women with BN (35.3%) had an additional lifetime diagnosis of AD (BN+AD+). The remaining 55 women with BN had no AD diagnosis (BN+AD-), although twenty-six (47.3%) did qualify for a diagnosis of alcohol abuse. Three hundred twenty-two women (10.6%) had lifetime diagnoses of AD and no ED diagnosis (BN-AD+).

- There were no significant differences between groups for race, marital status, employment status, income ≤$40,000, or age. Women in the BN+AD- group were significantly more likely to come from control families and to have a high school education than those in the AD+BN- group.

TABLE 1: Demographics

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Mean Age (sd)	37.6 (9.1)	34.5 (10.8)	36.8 (9.4)	.25
High School Education	63.3	67.3[a]	41.6[a]	<.01
Race				
Caucasian	33.3	34.6	28.9	.47
African American	30.0	34.6	39.6	
Other	36.7	30.9	31.4	
Family income $\geq$ $40,000	73.3	58.2	63.5	.41

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 1: Demographics - continued

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Employment Status (%)				
Full-time	19.2	12.2	17.9	.66
Part-time	15.4	26.5	18.6	
Unemployed	65.4	61.2	63.5	
Marital Status (%)				
Never Married	33.3	34.6	28.9	.78
Currently Married	30.0	34.6	39.8	
Formerly Married	36.7	30.9	31.4	
Control Family Member (%)	3.3	21.8[a]	4.0[a]	<.01

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 2: Lifetime prevalence of substance use disorders

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Marijuana				
Abuse	13.3	10.9	13.0	.90
Dependence	33.3[b]	9.1[ab]	28.3[a]	.01
Cocaine				
Abuse	3.3	0.0	6.2	.14
Dependence	33.3[b]	5.5[ab]	24.1[a]	<.01
Opioids				
Abuse	3.3	0.0	1.9	.45
Dependence	10.0	0.0	7.2	.08

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 2: Lifetime prevalence of substance use disorders - continued

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Stimulants				
Abuse	10.0	0.0	5.9	.10
Dependence	16.7	7.3	9.9	.37
Seditives				
Abuse	3.3	1.8	3.7	.72
Dependence	6.7	1.8	5.9	.42
Any Illicit Drug				
Abuse	26.7	10.9	23.6	.09
Dependence	56.7[b]	16.4[ab]	44.7[a]	<.01
Tobacco Dependence	70.0[b]	38.9[ab]	60.2[a]	.01

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 3: Lifetime prevalence of psychiatric disorders

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Anxiety Disorder				
Agoraphobia	10.3	7.3	6.2	.71
OCD	10.7[a]	3.6	1.0[a]	<.01
Panic	3.3	5.5	2.5	.49
PTSD	20.7	16.4	12.7	.40
Social Phobia	10.3	5.5	6.0	.62
Any	34.5	30.2	27.7	.09
Major Depressive Episode	73.3[ab]	32.7[b]	27.4[a]	<.01
Dysthymia	3.3	1.8	1.6	.77
Conduct Disorder	26.7[b]	5.5[ab]	21.5[a]	.01

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 4: Alcohol milestones

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Age onset regular drinking	17.7 (4.1)	17.9 (3.3)	18.0 (4.9)	.93
Age onset 1st intoxication	15.9 (5.1)	16.7 (3.0)	16.3 (4.3)	.72
1st intoxication before 15	43.3	29.4	33.0	.44
Max. drinks in 24 hrs	21.7 (16.4)[a]	11.6 (8.4)[ab]	21.8 (14.0)[b]	<.01
Mean no. AD symptoms	5.0 (1.5)	--	4.7 (1.5)	.24
Age onset first AD symptom	17.9 (5.3)	--	19.3 (5.7)	.18
Age onset AD	23.4 (7.6)	--	25.1 (7.7)	.25
Current AD	23.3	--	32.0	.34
Alcoholism treatment	53.3[a]	5. 5[ab]	48.1[b]	<.01

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 5: Eating disorder variables

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
ED treatment	31.8	32.7	--	.79
Purging type BN	66. 7	70.9	--	.68
Age of binging onset	21.5 (8.2)	18.2 (4.8)	--	.02
Current BMI*	29.2 (7.9)	27.9 (7.7)	26.9 (6.6)	.28
Maximum BMI	34.4 (9.6)[a]	31.8 (8.7)	29.3 (7.8)[a]	<.01
ED treatment	31.8	32.7	--	.79
Purging type BN	66. 7	70.9	--	.68

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 6: Suicidality and psychiatric functioning variables

	BN+AD+ n=30	BN+AD- n=55	BN-AD+ n=322	p-value
Suicidal ideation	79.3	58.2	60.1	.11
Persistent suicidal ideation	41.4	21.8	23.1	.09
Suicide attempt	44.8[a]	16.4[a]	27.5	.02
Self mutilation	24.1[a]	5. 5[a]	10.8	.03
GAF score (sd)	64.2 (12.7)[a]	71.5 (10.8)[a]	69.3 (12.8)	.04

Values with the same superscript differ significantly from one another (p≤.01)

TABLE 7: Multinomial logistic regression with BN+AD- as reference group

	BN+AD- RRR (95% CI)	BN-AD+ RRR (95% CI)
Major Depression	0.22 (0.08, 0.63)	0.17 (0.07, 0.42)
Obsessive Compulsive Disorder	0.37 (0.05, 2.70)	0.09 (0.01, 0.96)
Conduct Disorder	0.30 (0.07, 1.35)	0.92 (0.34, 2.43)
Marijuana Dependence	0.70 (0.20, 2.93)	1.77 (0.64, 4.91)
Cocaine Dependence	0.12 (0.02, 0.62)	0.38 (0.12, 1.26)
Tobacco Dependence	0.35 (0.12, 1.06)	0.53 (0.20, 1.40)
High School Education*	0.64 (0.21, 1.98)	0.33 (0.13, 0.85)
Control Family Member**	4.42 (0.55, 35.62)	1.06 (0.11, 10.20)

*RRRs differ p=.04 for BN+AD- vs. BN-AD+
**RRRs differ p=.01 for BN+AD- vs. BN-AD+

RESULTS SUMMARY

- Alcoholic women -- with and without BN -- were more likely to be dependent on illicit drugs and tobacco, have conduct disorder, have attempted suicide and to have engaged in self-harming behavior and had lower GAF scores than non-alcoholic women with BN.

- Women with BN and AD were more likely to have OCD than women with AD and no ED and were *more likely to have major depression than women in either non-bulimic alcoholic or bulimic non-alcoholic women*.

- These associations remained significant even after adjusting for possible confounders.

CONCLUSIONS

- In most respects, women with both BN and AD more closely resembled women with AD and no ED than they did women with BN and no AD. Thus it appears that some excess psychopathology seen in women with comorbid BN and AD could be associated with the AD diagnosis.

- However, women with AD and BN were more likely than women with AD and no BN to have OCD and depression

- These findings suggest that women with BN and AD may represent a unique group with a high burden of psychiatric comorbidity.

COLLABORATIVE STUDY ON THE GENETICS OF ALCOHOLISM

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This collaborative study includes 9 different centers where data collection, analysis, and/or storage takes place. The 9 sites and PI's and Co-I's are:

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Indiana University: *J Nurnberger, Jr., P.M. Conneally, H. Edenberg, T. Foroud*

University of Iowa: *R. Crowe, S. Kuperman*

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NIAAA Staff Collaborator: *L. Neuhold*

In memory of Theodore Reich, M.D., Co-Principal Investigator of COGA since its inception and one of the founders of modern psychiatric genetics, we acknowledge his immeasurable and fundamental scientific contributions to COGA and to the field.