

Lack of Racial Diversity in Bipolar Disorder Biobanking: Implications for Addressing Health Disparities

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AIM

Genetic studies of bipolar disorder (BD) have almost exclusively been conducted in persons of European ancestry. While reducing genetic heterogeneity, the lack of under-represented minority populations in genomic bipolar disorder research represents a missed opportunity to assess generalizability of research findings. This study quantified and compared demographic and clinical features of BD in persons of African Ancestry (AA) and European Ancestry (EUR).

METHODS

Participants enrolled in the Mayo Clinic Bipolar Biobank from 2009-2015. The Structured Clinical Interview for DSM-IV was used to confirm the diagnosis of BD and a questionnaire was developed to collect data on clinical course of illness. Descriptive statistics and bivariate analyses were completed to compare AA vs EUR participants.

TABLE 2: CLINICAL DEMOGRAPHICS OF PARTICIPANTS IN THE BIPOLAR BIOBANK

Characteristic	Non-AA N=1830	AA N=65	age, sex, site adjusted results
Bipolar I	1212 (66.2%)	43 (66.2%)	OR 2.5, p=0.14
Schizoaffective, Bipolar Type	43 (2.3%)	3 (4.6%)	
History of Psychosis	705 (39.2%)	22 (35.5%)	OR=0.81, p=0.45
Suicide Attempt	602 (33.5%)	26 (41.3%)	OR=1.2, p=0.48
Current Medication			
Lithium	518 (28.3%)	6 (9.2%)	OR=0.30, p=0.06
Any mood stabilizing anticonvulsant	1262 (69%)	27 (41.5%)	OR =0.40, p<0.001
Antipsychotic Any	876 (47.9%)	32 (49.2%)	OR=1.02, p=0.933
1st generation antipsychotic	47 (5.4%)	2 (6.2%)	OR=1.01, p=0.99
Anxiety Disorder(s), Lifetime	N=1790	N=63	
PTSD	462 (26.2%)	25 (39.7%)	OR=1.65, p=0.065
Gen Anxiety Disorder	901 (50.9%)	36 (57.1%)	OR=1.19, p=0.52
Social Anxiety Disorder	407 (23.1%)	14 (22.6%)	OR=0.86, p=0.62
OCD	249 (14.1%)	8 (12.9%)	OR=0.78, p=0.53
Panic Disorder	566 (49.2%)	31 (32.0%)	OR=1.53, p=0.11
Addiction, Lifetime			
Nicotine	717 (40.6%)	31 (49.2%)	OR=1.36, p=0.24
Alcohol	681 (38.5%)	20 (31.7%)	OR=0.71, p=0.22
Cocaine	209 (11.9%)	15 (24.2%)	OR=2.25, p=0.009
Methamphetamine	117 (6.6%)	2 (3.2%)	OR=0.55, p=0.41
Heroin Abuse	75 (4.3%)	1 (1.6%)	OR=0.31, p=0.26
	N=1717	N=59	
Mean BMI (SD) (n=1776)	30.2 (7.3)	31.3 (8.9)	Estimate=0.63, p=0.52
Tardive Dyskinesia	49 (3.0%)	4 (7.1%)	OR=2.69, p=0.08

Missing data for statistical analysis: SCID diagnosis (n=9), psychosis (n=42), suicide (n=35), PTSD (n=69), general anxiety disorder (n=64), social anxiety disorder (n=75), OCD (n=66), panic disorder (n=65), nicotine (n=66), cocaine (n=82), methamphetamine (n=73), heroin (n=76), narcotics (n=75), BMI (n=126), tardive dyskinesia (n=194), Lithium Mood Stabilizing Anticonvulsant (all n=7), 1st generation antipsychotic (n=987)

RESULTS

Of 1865 participants enrolled in the bipolar biobank, 65 (3.5%) self-identified as AA. The clinical phenotype for AA participants, in comparison to EUR participants was more likely to include a history of PTSD (39.7% vs 26.2%), cocaine use disorder (24.2% vs 11.9%), and tardive dyskinesia (7.1% vs 3%).

CONCLUSIONS

The low rate of AA enrollment is consistent with other genetic studies. While clinical features of bipolar disorder are largely similar, this study identified differences in rates of trauma, substance use, and tardive dyskinesia that may represent health disparities in bipolar patients of African Ancestry. Future bipolar biomarker studies with larger sample sizes focused on underrepresented populations will provide greater ancestry diversity in genomic medicine with greater applicability to diverse patient populations, serving to inform health care policies to address disparities in bipolar disorder.

TABLE 1: SELECTED SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS IN A BIPOLAR

Variable	Non-African Ancestry (N=1830)	African Ancestry (N=65)	Statistic p-value
Age			0.360 ^a
Mean (SD)	42.9 (14.8)	41.3 (11.9)	
Gender			0.6192
Men	703 (38.4%)	23 (35.4%)	
Women	1126 (61.6%)	42 (64.6%)	
Education Level	N=1748	N=61	<.001 ^b
High school graduate, GED or less	288 (16.2%)	18 (29.6%)	
Vocational, technical, or business school	120 (6.9) %	6 (9.8%)	
Associates degree or less	632 (36.2%)	27 (44.3%)	
Bachelor's degree	420 (24 %)	7 (11. %))	
Graduate or professional school	301 (17.2%)	3 (4.9%)	
Employed Full Time	N=1722		.009 ^b
Yes	454 (26.4 %)	7 (11.5%)	
No	1268 (73.6%)	54 (88.5%)	
Marital/Romantic Partnership Status	N=1749	N=61	<.001 ^b
Married/Living with someone in a relationship	850 (48.6%)	15 (24.6%)	
Separated/Divorced/Widowed/Never married	899 (51.4%)	46 (75.4%)	

^aLinear Model ANOVA

^bPearson's Chi Squared Test