Supplemental Table 1. Phenotypic-only Regression Results for Biological Sex, IPT, and Interactions Between them for Alcohol Use Behaviors.

Variable	β	Standard Error	Odds Ratio [95% CI]	*p*-value
Alcohol Consumption				
Sex				
Male	Reference			
Female	**-0.377**	**0.063**	**0.686** [0.61, 0.78]	**1.93×10⁻⁹**
IPT Exposure				
No exposure	Reference			
IPT Exposure	**0.385**	**0.087**	**1.470** [1.24, 1.74]	**9.42×10⁻⁶**
Sex by IPT Exposure	0.137	0.107	1.147 [0.93, 1.41]	0.199
Alcohol Use Disorder				
Sex				
Male	Reference			
Female	-0.059	0.062	0.943 [0.84, 1.06]	0.340
IPT Exposure				
No exposure	Reference			
IPT Exposure	**0.544**	**0.080**	**1.722** [1.47, 2.01]	**1.04×10⁻¹¹**
Sex by IPT Exposure	-0.005	0.099	0.995 [0.82, 1.21]	0.959

Note: IPT = interpersonal trauma, bolded estimates are significant at p < 0.05.

Supplemental Table 2. Meta-Analysis of Regression Coefficients for Biological Sex, IPT, PGS, and Interactions Between them for Alcohol Use Behaviors Based on Random Effect Model.

Variable	β	Standard Error	p-value
Alcohol Consumption			
Sex			
Male	Reference		
Female	**-0.304**	**0.084**	**3.97×10^{-3}**
IPT Exposure			
No exposure	Reference		
IPT Exposure	**0.320**	**0.133**	**1.63×10^{-2}**
Sex by IPT Exposure	0.136	0.104	0.193
PGS			
PGS	**0.086**	**0.030**	**3.97×10^{-3}**
PGS by IPT Exposure	-0.047	0.049	0.333
Alcohol Use Disorder			
Sex			
Male	Reference		
Female	0.007	0.019	0.723
IPT Exposure			
No exposure	Reference		
IPT Exposure	**0.132**	**0.038**	**5.00×10^{-4}**
Sex by IPT Exposure	-0.003	0.031	0.919
PGS			
PGS	**0.019**	**0.006**	**1.16×10^{-3}**
PGS by IPT Exposure	-0.008	0.011	0.475

Note: IPT = interpersonal trauma, PGS = polygenic score, bolded estimates are significant at p < 0.05.

Supplemental Table 3. Regression Coefficients for Biological Sex, IPT, PGS, and Interactions Between them for Alcohol Use Behaviors Based on Fixed Effect Model Across Ancestries.

	EUR $N = 4331$	AFR $N = 1915$	AMR $N = 1126$	EAS $N = 862$	SAS $N = 772$	META $N = 9006$
Alcohol Consumption						
PC1						
β	0.188	-0.258	0.333	-0.385	0.223	0.044
Standard Error	0.034	0.051	0.087	0.079	0.092	0.024
p-value	**2.8×10^{-8}**	**4.1×10^{-7}**	**1.3×10^{-4}**	**1.4×10^{-6}**	**0.016**	0.074
PC2						
β	0.071	0.087	0.069	0.130	-0.070	0.070
Standard Error	0.033	0.051	0.070	0.079	0.092	0.024
p-value	**0.032**	0.086	0.328	0.099	0.443	**0.003**
PC3						
β	0.005	0.012	-0.068	0.229	0.071	0.023
Standard Error	0.034	0.051	0.069	0.078	0.093	0.024
p-value	0.892	0.809	0.324	**0.004**	0.448	0.338
PC4						
β	-0.024	0.005	0.275	0.104	-0.131	0.001
Standard Error	0.033	0.051	0.113	0.078	0.092	0.024
p-value	0.458	0.925	**0.015**	0.185	0.153	0.952
PC5						
β	0.074	-0.045	-0.020	-0.054	-0.096	0.014
Standard Error	0.034	0.051	0.077	0.078	0.092	0.024
p-value	**0.028**	0.374	0.789	0.492	0.295	0.560
PC6						
β	0.001	-0.006	0.214	-0.104	0.042	0.005
Standard Error	0.035	0.051	0.099	0.079	0.092	0.025
p-value	0.972	0.898	**0.031**	0.188	0.647	0.829
PC7						
β	0.018	0.015	-0.172	-0.069	-0.043	-0.008
Standard Error	0.035	0.051	0.095	0.081	0.093	0.025
p-value	0.607	0.765	0.070	0.400	0.644	0.735
PC8						
β	0.073	0.021	-0.082	0.082	0.005	0.037
Standard Error	0.037	0.051	0.072	0.078	0.092	0.025

p-value	0.052	0.679	0.257	0.295	0.953	0.141

PC9

β	-0.011	0.023	-0.066	0.016	-0.038	-0.010
Standard Error	0.033	0.051	0.069	0.080	0.093	0.024
p-value	0.731	0.644	0.341	0.845	0.684	0.687

PC10

β	0.014	-0.088	-0.041	0.083	0.055	-0.005
Standard Error	0.033	0.051	0.069	0.078	0.092	0.024
p-value	0.662	0.083	0.552	0.292	0.547	0.822

Sex$_{Female}$

β	-0.280	-0.404	-0.408	0.087	-0.535	-0.300
Standard Error	0.086	0.141	0.179	0.191	0.220	0.061
p-value	**0.001**	**0.004**	**0.023**	0.649	**0.052**	**1.02×10^{-6}**
Partial R^2	0.004	0.004	0.008	0.002	0.008	

IPT Exposure$_{Yes}$

β	0.347	-0.120	0.577	0.246	0.725	0.313
Standard Error	0.113	0.205	0.249	0.300	0.313	0.085
p-value	**0.002**	0.557	**0.021**	0.413	**0.021**	**2.13×10^{-4}**
Partial R^2	0.006	0.007	0.012	0.007	0.022	

Sex$_{Female}$ by IPT Exposure$_{Yes}$

β	0.019	0.523	-0.081	0.265	0.222	0.136
Standard Error	0.141	0.239	0.303	0.369	0.410	0.104
p-value	0.895	**0.029**	0.788	0.473	0.589	0.193
Partial R^2	3.9×10^{-6}	0.002	6.2×10^{-5}	5.8×10^{-4}	3.7×10^{-4}	

PGS$_{consumption}$

β	0.086	0.093	0.121	0.023	0.107	0.086
Standard Error	0.043	0.063	0.090	0.092	0.112	0.030
p-value	**0.045**	0.144	0.178	0.806	0.338	**3.97×10^{-3}**
Partial R^2	0.001	0.001	0.002	7.8×10^{-4}	0.002	

PGS$_{consumption}$ by IPT Exposure$_{Yes}$

β	-0.041	-0.146	-0.019	0.098	0.004	-0.047
Standard Error	0.067	0.106	0.140	0.176	0.201	0.049
p-value	0.544	0.166	0.895	0.578	0.982	0.333
Partial R^2	8.3×10^{-5}	0.001	1.5×10^{-5}	3.4×10^{-4}	6.3×10^{-7}	

Alcohol Use Disorder

PC1

β	0.033	-0.029	0.001	-0.043	0.008	0.006
Standard Error	0.006	0.009	0.020	0.013	0.016	0.004
p-value	**8.9×10⁻⁸**	**0.002**	0.947	**7.4×10⁻⁴**	0.601	0.155

PC2

β	0.006	-0.001	0.007	0.014	-0.017	0.003
Standard Error	0.007	0.009	0.016	0.013	0.017	0.004
p-value	0.410	0.885	0.668	0.276	0.295	0.481

PC3

β	-0.008	0.010	7.4×10⁻⁴	-0.005	-0.015	-0.003
Standard Error	0.008	0.011	0.016	0.016	0.016	0.005
p-value	0.320	0.334	0.964	0.778	0.362	0.574

PC4

β	0.008	1.8×10⁻⁴	0.018	0.021	0.008	0.008
Standard Error	0.006	0.009	0.026	0.016	0.018	0.005
p-value	0.186	0.984	0.490	0.188	0.648	0.104

PC5

β	0.015	0.016	-0.017	-0.004	-0.003	0.005
Standard Error	0.005	0.011	0.015	0.005	0.018	0.003
p-value	**0.003**	0.156	0.282	0.444	0.861	0.137

PC6

β	-0.017	-0.011	0.029	0.007	0.024	-0.001
Standard Error	0.009	0.010	0.023	0.007	0.018	0.004
p-value	0.046	0.295	0.198	0.334	0.186	0.776

PC7

β	-0.002	-0.003	-0.013	0.001	0.002	-0.002
Standard Error	0.008	0.011	0.022	0.014	0.017	0.005
p-value	0.787	0.774	0.545	0.934	0.887	0.695

PC8

β	0.010	-0.008	0.018	0.016	4.9×10⁻⁴	0.006
Standard Error	0.008	0.010	0.017	0.014	0.017	0.005
p-value	0.213	0.453	0.277	0.268	0.977	0.237

PC9

β	-0.002	0.007	0.011	0.022	0.004	0.009
Standard Error	0.007	0.011	0.016	0.007	0.016	0.004
p-value	0.799	0.536	0.508	**0.002**	0.811	**0.030**

PC10

β	-0.004	0.001	0.005	-0.006	0.018	-0.001

|						
Standard Error	0.008	0.010	0.016	0.010	0.020	0.005
p-value	0.600	0.888	0.737	0.563	0.370	0.832
Sex$_{Female}$						
β	-0.023	-0.002	-0.037	0.018	0.088	0.002
Standard Error	0.019	0.027	0.038	0.025	0.034	0.012
p-value	0.228	0.939	0.338	0.477	**0.01**	0.880
Partial R^2	9.3×10^{-5}	1.5×10^{-4}	0.002	4.7×10^{-5}	0.003	
IPT Exposure$_{Yes}$						
β	0.091	0.042	0.132	0.166	0.295	0.110
Standard Error	0.028	0.043	0.061	0.068	0.066	0.020
p-value	**1.26×10^{-3}**	0.322	**0.03**	**0.015**	**8.72×10^{-6}**	**3.50×10^{-8}**
Partial R^2	0.011	0.006	0.01	0.015	0.036	
Sex$_{Female}$ by IPT Exposure$_{Yes}$						
β	0.037	0.047	-0.032	-0.054	-0.155	0.008
Standard Error	0.035	0.050	0.072	0.080	0.087	0.024
p-value	0.281	0.354	0.657	0.501	0.075	0.727
Partial R^2	2.66×10^{-4}	4.32×10^{-4}	1.77×10^{-4}	5.38×10^{-4}	4.63×10^{-3}	
PGS$_{AUD}$						
β	0.022	0.022	-0.0002	0.015	0.023	0.019
Standard Error	0.010	0.012	0.020	0.013	0.016	0.006
p-value	**2.17×10^{-2}**	0.070	0.992	0.256	0.169	**1.17×10^{-3}**
Partial R^2	0.001	0.002	1.5×10^{-5}	0.001	0.001	
PGS$_{AUD}$ by IPT Exposure$_{Yes}$						
β	-0.007	-0.008	-0.005	-0.017	-0.007	-0.008
Standard Error	0.016	0.022	0.033	0.037	0.044	0.011
p-value	0.663	0.715	0.877	0.649	0.878	0.475
Partial R^2	4.4×10^{-5}	6.3×10^{-5}	2.7×10^{-5}	2.2×10^{-4}	7.6×10^{-5}	

Note: IPT = interpersonal trauma, PGS = polygenic score, bolded estimates are significant at p < 0.05.
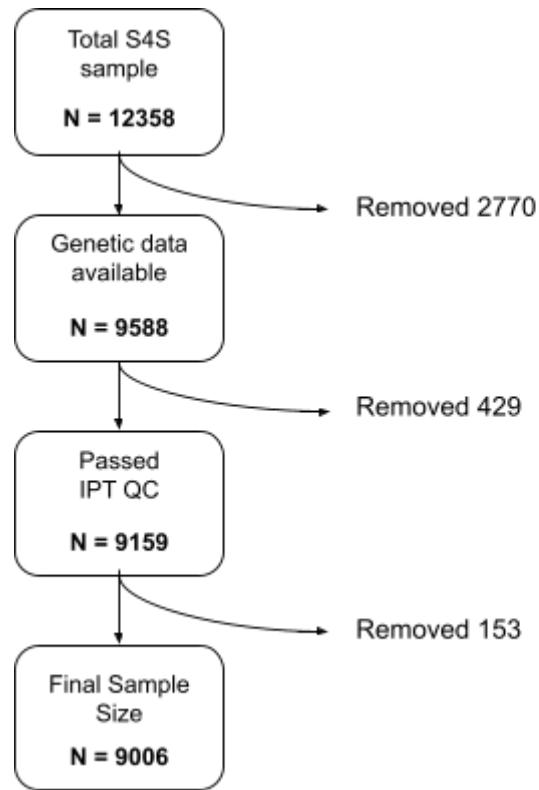
Supplemental Figure 1: Study Sample Size. Flow chart showing sample sizes at each quality control step.
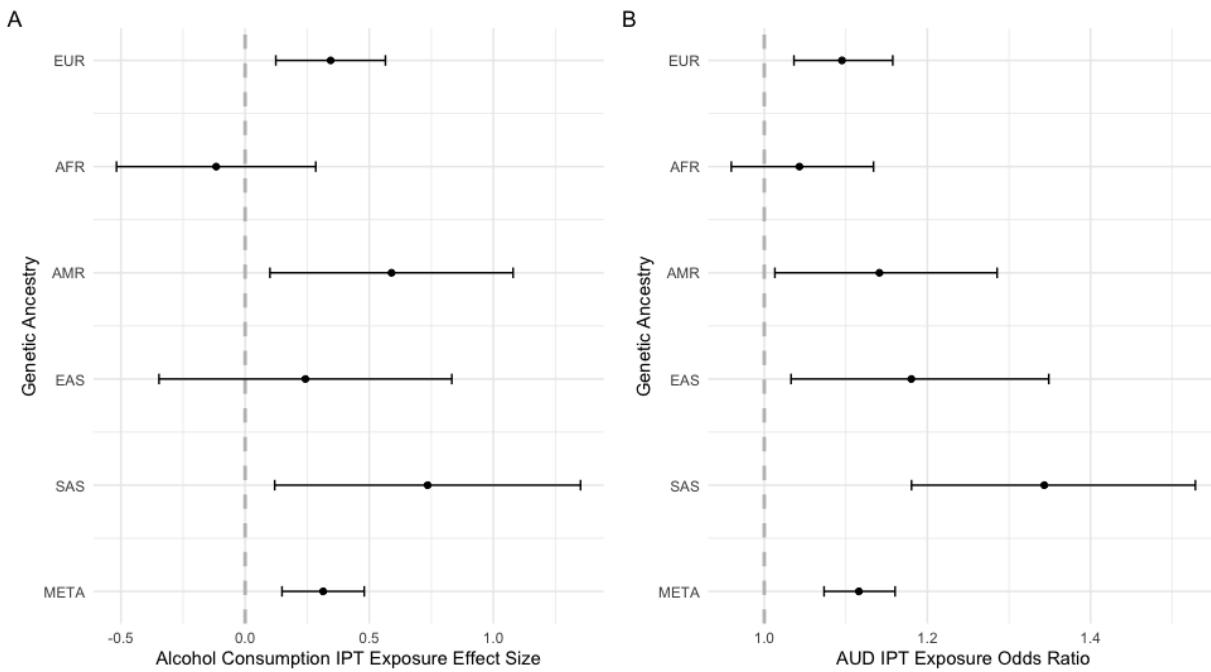
Supplemental Figure 2: Effect of IPT Exposure on Alcohol Behaviors Across Ancestries.
Forest plots showing the interpersonal trauma (IPT) effect on A) alcohol consumption and B) alcohol use disorder (AUD) across ancestries and meta-analyzed (META).
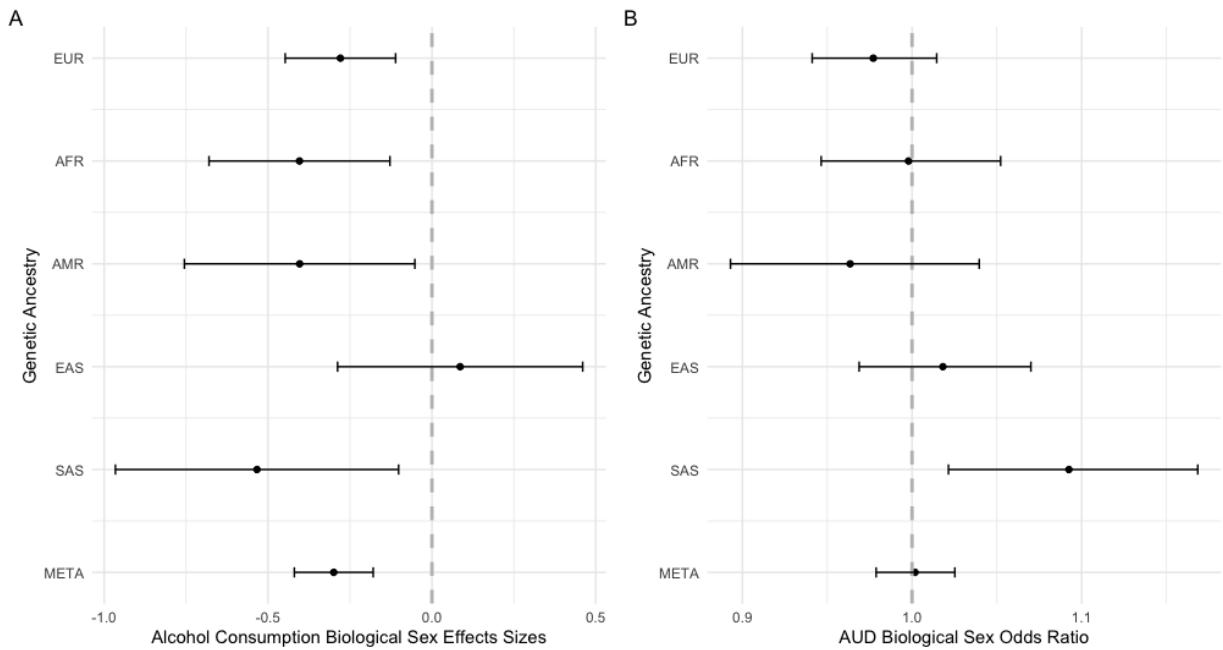
Supplemental Figure 3: Effect of Biological Sex on Alcohol Behaviors Across Ancestries.
Forest plots showing the biological sex effect on A) alcohol consumption and B) alcohol use
disorder (AUD) across ancestries and meta-analyzed (META).