

Appendix 1

Items of Achenbach Adult Self-Report (ASR)

Participants were required to circle 0 (not true), 1 (somewhat or sometimes true), or 2 (very or often true) for each item to describe themselves over the past 6 months.

Rule-breaking behavior subscale

1. I use drugs (other than alcohol and nicotine) for non-medical purposes.
2. I damage or destroy my things.
3. I break rules at work or elsewhere.
4. I don't feel guilty after doing something I shouldn't.
5. I hang around people who get in trouble.
6. I am impulsive or act without thinking.
7. I lie or cheat.
8. My behavior is irresponsible.
9. I steal.
10. I drink too much alcohol or get drunk.
11. I do things that may cause me trouble with the law.
12. I fail to pay my debts or meet other financial responsibilities.
13. I have trouble managing money or credit cards.
14. I have trouble keeping a job.

Intrusive subscale

1. I brag.
2. I try to get a lot of attention.
3. I show off or clown.
4. I talk too much.
5. I tease others a lot.
6. I am louder than others.

Table S1 Drinking variables of men and women

Characteristic	Men (n=406)	Women (n=464)	<i>t</i>	P value*
SSAGA_Alc_D4_Dp_Sx	0.77±0.98	0.37±0.64	6.64	0.000
SSAGA_Alc_D4_Ab_Dx	1.79±1.59	1.41±1.22	3.83	0.000
SSAGA_Alc_D4_Ab_Sx	0.38±0.67	0.16±0.45	5.46	0.000
SSAGA_Alc_D4_Dp_Dx	1.37±1.15	1.12±0.69	3.68	0.000
SSAGA_Alc_12_Drinks_Per_Day	2.78±1.71	1.72±1.2	9.07	0.000
SSAGA_Alc_12_Frq	-3.9±1.67	-4.55±1.39	5.79	0.000
SSAGA_Alc_12_Frq_5plus	-3.4±1.28	-4.12±0.98	7.98	0.000
SSAGA_Alc_12_Frq_Drk	-2.83±0.99	-3.29±0.71	6.62	0.000
SSAGA_Alc_12_Max_Drk	3.61±2.07	2.2±1.29	10.22	0.000
SSAGA_Alc_Age_1st_Use	3.05±1.29	3.12±1.32	-0.95	0.342
SSAGA_Alc_Hvy_Drinks_Per_Day	3.88±1.73	2.81±1.58	8.72	0.000
SSAGA_Alc_Hvy_Frq	-3.08±1.81	-3.69±1.67	5.19	0.000
SSAGA_Alc_Hvy_Frq_5plus	-2.62±1.41	-3.34±1.37	7.12	0.000
SSAGA_Alc_Hvy_Frq_Drk	-2.12±1.11	-2.51±1.1	4.76	0.000
SSAGA_Alc_Hvy_Max_Drinks	4.32±2.03	2.6±1.42	12.98	0.000
PC1	0.37±1.08	-0.32±0.79	9.75	0.000

Data are represented as mean ± standard deviation. *, two-sample *t*-test (with age as a covariate). Because men and women differed significantly in age, age was included as a covariate in all analyses. SSAGA_Alc_D4_Dp_Sx (Number of DSM4 Alcohol Dependence Criteria Endorsed), SSAGA_Alc_D4_Ab_Dx (DSM4 Alcohol Abuse Criteria Met), SSAGA_Alc_D4_Ab_Sx (DSM4 Alcohol Abuse number of symptoms), SSAGA_Alc_D4_Dp_Dx (DSM4 Alcohol Dependence Criteria Met), SSAGA_Alc_12_Drinks_Per_Day (Drinks per drinking day in past 12 months), SSAGA_Alc_12_Frq (Frequency of any alcohol use in past 12 months), SSAGA_Alc_12_Frq_5plus (Frequency of drinking 5+ drinks in past 12 months), SSAGA_Alc_12_Frq_Drk (Frequency drunk in past 12 months), SSAGA_Alc_12_Max_Drk (Max drinks in a single day in past 12 months), SSAGA_Alc_Age_1st_Use (Age at first alcohol use: <15=1, 15-16=2, 17-18=3, 19-20=4, 21+=5), SSAGA_Alc_Hvy_Drinks_Per_Day (Drinks per day in heaviest 12-month period), SSAGA_Alc_Hvy_Frq (Frequency of any alcohol use, heaviest 12-month period), SSAGA_Alc_Hvy_Frq_5plus (Frequency of drinking 5+ drinks, heaviest 12-month period), SSAGA_Alc_Hvy_Frq_Drk (Frequency drunk in heaviest 12-month period), SSAGA_Alc_Hvy_Max_Drinks (Lifetime max drinks in single day), PC1 (Severity of alcohol use as quantified by the weight of the first principal component of PCA of all 15 drinking measures). Note that SSAGA_Alc_12_Frq, SSAGA_Alc_12_Frq_5plus, SSAGA_Alc_12_Frq_Drk, SSAGA_Alc_Hvy_Frq, SSAGA_Alc_Hvy_Frq_5plus and SSAGA_Alc_Hvy_Frq_Drk were flipped, so these entries are negative in value because the original scales needed to be reversed in scoring so that across metrics, a higher value reflects more severe alcohol misuse, to be consistent.

Table S2 ASR measures of men and women

Characteristic	Men (n=406)	Women (n=464)	<i>t</i>	P value*
Anxious/Depressive	5.74±5.40	6.05±5.27	-1.27	0.206
Withdrawn	2.76±2.45	1.83±2.07	5.10	0.000
Somatic complaints	2.23±2.63	2.69±2.89	-2.30	0.022
Thought problems	2.26±2.18	1.99±2.06	0.66	0.507
Attention problems	6.78±4.44	5.91±4.17	2.36	0.019
Aggressive behavior	3.98±3.42	3.45±3.12	1.95	0.051
Rule breaking	3.29±3.22	1.80±2.19	6.90	0.000
Intrusive	2.62±2.25	2.08±2.00	3.19	0.001
Other problems	9.75±4.82	8.60±4.25	2.63	0.009
Critical items	4.50±3.46	3.50±2.82	3.62	0.000
Internalizing	10.73±9.05	10.58±8.56	-0.18	0.861
Externalizing	9.89±7.18	7.33±5.71	4.96	0.000

Data are represented as mean ± standard deviation. *, two-sample *t*-test (with age as a covariate). ASR, Achenbach Adult Self-Report.

Table S3 Correlation of PC1 and ASR measures

Characteristic	Men (n=406)	Women (n=464)	All (n=870)
Anxious/depressive			
r	-0.01	0.09	0.04
P	0.916	0.065	0.286
Withdrawn			
r	-0.04	-0.03	-0.03
P	0.453	0.547	0.353
Somatic complaints			
r	0.07	0.08	0.07
P	0.170	0.097	0.029
Thought problems			
r	0.07	0.03	0.06
P	0.188	0.492	0.094
Attention problems			
r	0.05	0.11	0.08
P	0.305	0.020	0.025
Aggressive behavior			
r	0.12	0.19	0.15
P	0.020	0.000	0.000
Rule breaking			
r	0.37	0.26	0.33
P	0.000	0.000	0.000
Intrusive			
r	0.16	0.21	0.18
P	0.001	0.000	0.000
Other problems			
r	0.11	0.11	0.12
P	0.025	0.016	0.001
Critical items			
r	0.27	0.16	0.23
P	0.000	0.001	0.000
Internalizing			
r	0.01	0.07	0.04
P	0.895	0.121	0.271
Externalizing			
r	0.27	0.28	0.27
P	0.000	0.000	0.000

Correlation analyses with sex and age as covariates in all subjects, and with age as a covariate in men/women separately. PC1, the first principal component obtained of principal component analyses of all drinking measures; ASR, Achenbach Adult Self-Report.

Table S4 Correlation of hypothalamus-PCL rsFC and ASR measures

Characteristic	Men (n=406)	Women (n=464)	All (n=870)
Anxious/depressive			
r	0.03	-0.01	0.01
P	0.535	0.908	0.718
Withdrawn			
r	-0.00	-0.00	-0.01
P	0.933	0.929	0.884
Somatic complaints			
r	0.05	0.04	0.04
P	0.275	0.402	0.192
Thought problems			
r	0.03	0.03	0.03
P	0.521	0.595	0.453
Attention problems			
r	0.05	-0.03	0.01
P	0.275	0.492	0.721
Aggressive behavior			
r	0.03	0.05	0.04
P	0.503	0.278	0.232
Rule breaking			
r	0.15	-0.01	0.09
P	0.002	0.898	0.009
Intrusive			
r	0.03	0.07	0.05
P	0.562	0.119	0.149
Other problems			
r	0.02	0.06	0.03
P	0.709	0.239	0.331
Critical items			
r	0.06	-0.02	0.02
P	0.222	0.682	0.497
Internalizing			
r	0.03	0.01	0.02
P	0.506	0.848	0.552
Externalizing			
r	0.09	0.05	0.07
P	0.060	0.275	0.029

Correlation analyses with sex and age as covariates in all subjects, and with age as a covariate in men/women separately. PCL, paracentral lobule; rsFC, resting state functional connectivity; ASR, Achenbach Adult Self-Report.

Table S5 Correlation of hypothalamus-left TPJ rsFC and ASR measures

Characteristic	Men (n=406)	Women (n=464)	All (n=870)
Anxious/depressive			
r	-0.03	0.03	-0.01
P	0.504	0.588	0.863
Withdrawn			
r	-0.05	0.02	-0.02
P	0.346	0.616	0.627
Somatic complaints			
r	-0.05	-0.03	-0.04
P	0.345	0.589	0.274
Thought problems			
r	-0.02	-0.06	-0.04
P	0.726	0.212	0.249
Attention problems			
r	0.03	0.05	0.04
P	0.539	0.245	0.225
Aggressive behavior			
r	0.01	-0.07	-0.03
P	0.895	0.129	0.375
Rule breaking			
r	0.06	-0.01	0.03
P	0.259	0.757	0.395
Intrusive			
r	-0.01	-0.13	-0.07
P	0.794	0.006	0.055
Other problems			
r	-0.01	-0.00	-0.01
P	0.918	0.939	0.842
Critical items			
r	0.03	-0.03	0.00
P	0.578	0.574	0.944
Internalizing			
r	-0.05	0.01	-0.02
P	0.354	0.786	0.565
Externalizing			
r	0.02	-0.09	-0.03
P	0.627	0.057	0.470

Correlation analyses with sex and age as covariates in all subjects, and with age as a covariate in men/women separately. TPJ, temporoparietal junction; rsFC, resting state functional connectivity; ASR, Achenbach Adult Self-Report.