

**Table S1** Correlation of PC1 and ASR and DSM-Oriented Scale measures

Characteristics	Men (n=458)	Women (n=491)	All (n=949)
ASR_Anxious/Depressed			
r	-0.01	0.08	0.03
P	0.826	0.069	0.296
ASR_Withdrawn			
r	-0.06	-0.02	-0.04
P	0.189	0.597	0.180
ASR_Somatic Complaints			
r	0.07	0.09	0.08
P	0.143	0.044	0.013
ASR_Thought			
r	0.06	0.05	0.06
P	0.230	0.328	0.091
ASR_Attention			
r	0.03	0.12	0.07
P	0.537	0.010	0.040
ASR_Aggressive			
r	0.09	0.16	0.12
P	0.045	<0.001	<0.001
ASR_Rule-Breaking			
r	0.36	0.29	0.33
P	<0.001	<0.001	<0.001
ASR_Intrusive			
r	0.12	0.18	0.15
P	0.011	<0.001	<0.001
ASR_Other			
r	0.08	0.09	0.09
P	0.094	0.047	0.008
ASR_Critical Items			
r	0.24	0.18	0.22
P	<0.001	<0.001	<0.001
ASR_Internalizing			
r	-0.00	0.08	0.04
P	0.958	0.098	0.279
ASR_Externalizing			
r	0.24	0.26	0.25
P	<0.001	<0.001	<0.001
ASR_Total			
r	0.10	0.15	0.12
P	0.031	0.001	<0.001
DSM_Depressive			
r	0.04	0.09	0.07
P	0.378	0.046	0.036
DSM_Anxiety			
r	0.06	0.10	0.08
P	0.234	0.033	0.018
DSM_Somatic			
r	0.05	0.06	0.06
P	0.258	0.222	0.095
DSM_Avoidant			
r	-0.09	-0.02	-0.06
P	0.045	0.614	0.059
DSM_AD/H			
r	0.08	0.17	0.12
P	0.086	<0.001	<0.001
DSM_Inattention			
r	0.02	0.09	0.05
P	0.681	0.039	0.129
DSM_Hyperactivity			
r	0.13	0.21	0.16
P	0.005	<0.001	<0.001
DSM_Antisocial			
r	0.19	0.12	0.16
P	<0.001	0.010	<0.001

PC1, first principal component (obtained of PCAs of all drinking measures); PCA, principal component analysis; ASR, Achenbach Adult Self-Report; DSM, Diagnostic and Statistical Manual of Mental Disorders; AD/H, Attention Deficit and Hyperactive Disorder.

**Table S2** Correlation of negative network and ASR and DSM-Oriented Scale measures

Characteristics	Men (n=458)	Women (n=491)	All (n=949)
ASR_Anxious/Depressed			
r	0.04	0.02	0.03
P	0.410	0.737	0.373
ASR_Withdrawn			
r	0.08	0.01	0.03
P	0.099	0.844	0.367
ASR_Somatic Complaints			
r	0.01	-0.03	0.02
P	0.798	0.589	0.626
ASR_Thought			
r	0.11	-0.06	0.01
P	0.022	0.194	0.851
ASR_Attention			
r	-0.01	-0.01	-0.01
P	0.779	0.893	0.795
ASR_Aggressive			
r	-0.01	-0.03	0.01
P	0.808	0.473	0.843
ASR_Rule-Breaking			
r	-0.16	-0.13	-0.11
P	<0.001	0.004	<0.001
ASR_Intrusive			
r	-0.07	-0.08	-0.08
P	0.128	0.087	0.018
ASR_Other			
r	0.02	-0.02	0.00
P	0.747	0.743	0.991
ASR_Critical Items			
r	-0.05	-0.05	-0.05
P	0.268	0.242	0.165
ASR_Internalizing			
r	0.05	0.00	0.03
P	0.311	0.956	0.361
ASR_Externalizing			
r	-0.10	-0.09	-0.07
P	0.038	0.039	0.035
ASR_Total			
r	-0.00	-0.03	-0.01
P	0.976	0.451	0.775
DSM_Depressive			
r	0.01	0.00	-0.01
P	0.772	0.960	0.791
DSM_Anxiety			
r	0.00	0.03	0.00
P	0.994	0.533	0.922
DSM_Somatic			
r	0.01	-0.01	0.04
P	0.853	0.832	0.260
DSM_Avoidant			
r	0.09	0.01	0.06
P	0.060	0.899	0.093
DSM_AD/H			
r	-0.01	-0.09	-0.02
P	0.834	0.046	0.553
DSM_Inattention			
r	-0.02	-0.02	-0.01
P	0.692	0.627	0.759
DSM_Hyperactivity			
r	0.00	-0.15	-0.03
P	0.952	0.001	0.442
DSM_Antisocial			
r	-0.05	-0.01	-0.03
P	0.304	0.875	0.407

ASR, Achenbach Adult Self-Report; DSM, Diagnostic and Statistical Manual of Mental Disorders; AD/H, Attention Deficit and Hyperactive Disorder.

**Table S3** Correlation of positive network and ASR and DSM-Oriented Scale measures

Characteristics	Men (n=458)	Women (n=491)	All (n=949)
ASR_Anxious/Depressed			
r	0.04	-0.06	-0.05
P	0.344	0.157	0.172
ASR_Withdrawn			
r	0.02	-0.04	-0.05
P	0.679	0.448	0.112
ASR_Somatic Complaints			
r	0.11	0.06	-0.01
P	0.019	0.208	0.793
ASR_Thought			
r	-0.02	-0.01	-0.04
P	0.756	0.602	0.233
ASR_Attention			
r	0.03	-0.05	-0.04
P	0.531	0.324	0.266
ASR_Aggressive			
r	0.08	0.10	0.01
P	0.098	0.757	0.862
ASR_Rule-Breaking			
r	0.12	0.10	0.06
P	0.010	0.024	0.056
ASR_Intrusive			
r	0.05	0.14	0.06
P	0.31	0.124	0.081
ASR_Other			
r	0.06	0.03	-0.01
P	0.219	0.614	0.840
ASR_Critical Items			
r	0.08	-0.02	0.03
P	0.090	0.686	0.447
ASR_Internalizing			
r	0.06	-0.03	-0.04
P	0.170	0.547	0.196
ASR_Externalizing			
r	0.12	0.09	0.05
P	0.023	0.040	0.145
ASR_Total			
r	0.08	-0.01	-0.02
P	0.112	0.537	0.645
DSM_Depressive			
r	0.03	-0.03	-0.02
P	0.467	0.536	0.576
DSM_Anxiety			
r	0.08	-0.04	-0.04
P	0.102	0.318	0.219
DSM_Somatic			
r	0.11	0.03	-0.01
P	0.022	0.409	0.783
DSM_Avoidant			
r	0.010	-0.10	-0.07
P	0.846	0.026	0.036
DSM_AD/H			
r	0.06	-0.01	-0.02
P	0.204	0.856	0.591
DSM_Inattention			
r	0.04	-0.06	-0.07
P	0.446	0.228	0.047
DSM_Hyperactivity			
r	0.07	0.05	0.04
P	0.124	0.079	0.193
DSM_Antisocial			
r	0.07	0.05	0.02
P	0.155	0.265	0.500

ASR, Achenbach Adult Self-Report; DSM, Diagnostic and Statistical Manual of Mental Disorders; AD/H, Attention Deficit and Hyperactive Disorder.

**Table S4** Mediation statistics of negative network, PC1 and rule-breaking in all people

Models	Path a (X → M)	Path b (M → Y)	Path c (X → Y)	Path c' (X → Y)	Mediation path (c-c')
Model 1: X (PC1) → Y (negative network) mediated by M (rule-breaking)					
β	0.987	-0.009	-0.248	-0.239	-0.009
P	0.000	0.389	0.000	0.000	0.388
Model 2: X (negative network) → Y (PC1) mediated by M (rule-breaking)					
β	-0.342	0.102	-0.265	-0.230	-0.034
P	0.000	0.000	0.000	0.000	0.001
Model 3: X (rule-breaking) → Y (PC1) mediated by M (negative network)					
β	-0.036	-0.230	0.110	0.102	0.008
P	0.001	0.000	0.000	0.000	0.002
Model 4: X (PC1) → Y (rule-breaking) mediated by M (negative network)					
β	-0.248	-0.087	0.987	0.965	0.022
P	0.000	0.385	0.000	0.000	0.388
Model 5: X (rule-breaking) → Y (negative network) mediated by M (PC1)					
β	0.110	-0.239	-0.036	-0.009	-0.026
P	0.000	0.000	0.001	0.389	0.000
Model 6: X (negative network) → Y (rule-breaking) mediated by M (PC1)					
β	-0.265	0.965	-0.342	-0.087	-0.256
P	0.000	0.000	0.000	0.385	0.000

PC1, first principal component (obtained of PCAs of all drinking measures); PCA, principal component analysis.

**Table S5** Mediation statistics of negative network, PC1 and rule-breaking in men

Models	Path a (X → M)	Path b (M → Y)	Path c (X → Y)	Path c' (X → Y)	Mediation path (c-c')
Model 1: X (PC1) → Y (negative network) mediated by M (rule-breaking)					
β	1.085	0.016	-0.675	-0.693	0.018
P	0.000	0.318	0.000	0.000	0.324
Model 2: X (negative network) → Y (PC1) mediated by M (rule-breaking)					
β	-0.382	0.091	-0.430	-0.396	-0.035
P	0.000	0.000	0.000	0.000	0.001
Model 3: X (rule-breaking) → Y (PC1) mediated by M (negative network)					
β	-0.064	-0.396	0.116	0.091	0.025
P	0.000	0.000	0.000	0.000	0.001
Model 4: X (PC1) → Y (rule-breaking) mediated by M (negative network)					
β	-0.675	0.119	1.085	1.165	-0.080
P	0.000	0.324	0.000	0.000	0.327
Model 5: X (rule-breaking) → Y (negative network) mediated by M (PC1)					
β	0.116	-0.693	-0.064	0.016	-0.080
P	0.000	0.000	0.000	0.318	0.000
Model 6: X (negative network) → Y (rule-breaking) mediated by M (PC1)					
β	-0.430	1.165	-0.382	0.119	-0.501
P	0.000	0.000	0.000	0.324	0.000

PC1, first principal component (obtained of PCAs of all drinking measures); PCA, principal component analysis.

**Table S6** Mediation statistics of negative network, PC1 and rule-breaking in women

Models	Path a (X → M)	Path b (M → Y)	Path c (X → Y)	Path c' (X → Y)	Mediation path (c-c')
Model 1: X (PC1) → Y (negative network) mediated by M (rule-breaking)					
β	0.842	-0.005	-0.667	-0.663	-0.004
P	0.000	0.861	0.000	0.000	0.862
Model 2: X (negative network) → Y (PC1) mediated by M (rule-breaking)					
β	-0.245	0.081	-0.274	-0.254	-0.020
P	0.004	0.000	0.000	0.000	0.010
Model 3: X (rule-breaking) → Y (PC1) mediated by M (negative network)					
β	-0.070	-0.254	0.099	0.081	0.018
P	0.012	0.000	0.000	0.000	0.016
Model 4: X (PC1) → Y (rule-breaking) mediated by M (negative network)					
β	-0.667	-0.018	0.842	0.830	0.012
P	0.000	0.861	0.000	0.000	0.861
Model 5: X (rule-breaking) → Y (negative network) mediated by M (PC1)					
β	0.099	-0.663	-0.070	-0.005	-0.065
P	0.000	0.000	0.012	0.861	0.000
Model 6: X (negative network) → Y (rule-breaking) mediated by M (PC1)					
β	-0.274	0.830	-0.245	-0.018	-0.228
P	0.000	0.000	0.004	0.861	0.000

PC1, first principal component (obtained of PCAs of all drinking measures); PCA, principal component analysis.