

SUPPLEMENTARY MATERIAL:

TABLE A-1.
Mean Estimated Parameters calculated across 500 trials in each condition

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1) Class 1	0.997	0.979	0.982	0.994	0.999	0.980	0.892	1.091	1.017
GWESP (.1) Class 2	-	-	-	-	-	-	0.221	0.246	-
Mutual	2.340	2.340	2.340	2.338	2.339	2.337	2.340	2.339	2.342
Gender Match	0.519	0.523	0.518	0.521	0.519	0.521	0.513	0.511	0.522
Ethnicity Match	0.837	0.848	0.844	0.838	0.836	0.852	0.821	0.819	0.854
Sender Tobacco Use	0.173	0.174	0.128	0.119	0.153	0.134	0.155	0.161	0.125
Receiver Tobacco Use	-0.114	-0.121	-0.124	-0.132	-0.126	-0.131	-0.117	-0.117	-0.128
Sender Anti Social	-0.458	-0.594	-0.709	-0.785	-0.511	-0.620	-0.466	-0.524	-0.594
Receiver Anti Social	0.226	0.227	0.242	0.252	0.242	0.228	0.232	0.226	0.237
Sender MJ	0.271	0.308	0.300	0.336	0.265	0.307	0.254	0.259	0.335
Receiver MJ	0.208	0.212	0.216	0.212	0.201	0.196	0.212	0.209	0.212
Receiver Alcohol Use	0.043	0.040	0.034	0.029	0.040	0.048	0.039	0.036	0.039
Abs Diff Tobacco Use	-0.207	-0.202	-0.196	-0.189	-0.195	-0.191	-0.199	-0.199	-0.194
Abs Diff MJ	-0.392	-0.391	-0.397	-0.390	-0.385	-0.380	-0.391	-0.387	-0.391
Abs Diff Anti Social	-0.046	-0.067	-0.087	-0.121	-0.052	-0.081	-0.040	-0.041	-0.077
Abs Diff Alcohol Use	-0.013	-0.011	-0.004	-0.001	-0.009	-0.016	-0.012	-0.010	-0.011
Sender Alcohol Use Class 1	0.077	0.064	0.005	-0.001	0.024	0.000	0.090	0.083	0.053
Sender Alcohol Use Class 2	-	-	-0.262	-0.987	-0.209	-0.997	-	-	0.046
Edges Class 1	-3.691	-3.299	-3.845	-3.836	-3.672	-3.277	-3.721	-3.684	-3.773
Edges Class 2	-4.384	-4.528	-	-	-4.368	-4.519	-	-	-4.097

MJ: Marijuana, Abs Diff: Absolute Difference

TABLE A-2.

Mean Raw Bias in the Parameter Estimates for Heterogeneous Models, calculated across 500 trials in each condition

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1) Class 1	0.027	0.009	0.012	0.024	0.029	0.010	-0.108	-0.109	0.047
GWESP (.1) Class 2	-	-	-	-	-	-	0.021	0.046	-
Mutual	0.000	0.000	0.000	-0.002	-0.001	-0.003	0.000	-0.001	0.002
Gender Match	-0.001	0.003	-0.002	0.001	-0.001	0.001	-0.007	-0.009	0.002
Ethnicity Match	-0.003	0.008	0.004	-0.002	-0.004	0.012	-0.019	-0.021	0.014
Sender Tobacco Use	0.043	0.044	-0.002	-0.011	0.023	0.004	0.025	0.031	-0.005
Receiver Tobacco Use	-0.004	-0.011	-0.014	-0.022	-0.016	-0.021	-0.007	-0.007	-0.018
Sender Anti Social	0.182	0.046	-0.069	-0.145	0.129	0.020	0.174	0.116	0.046
Receiver Anti Social	-0.014	-0.013	0.002	0.012	0.002	-0.012	-0.008	-0.014	-0.003
Sender MJ	-0.059	-0.022	-0.030	0.006	-0.065	-0.023	-0.076	-0.071	0.005
Receiver MJ	-0.002	0.002	0.006	0.002	-0.009	-0.014	0.002	-0.001	0.002
Receiver Alcohol Use	0.003	0.000	-0.006	-0.011	0.000	0.008	-0.001	-0.004	-0.001
Abs Diff Tobacco Use	0.003	0.008	0.014	0.021	0.015	0.019	0.011	0.011	0.016
Abs Diff MJ	-0.002	-0.001	-0.007	0.000	0.005	0.010	-0.001	0.003	-0.001
Abs Diff Anti Social	0.034	0.013	-0.007	-0.041	0.028	-0.001	0.040	0.039	0.003
Abs Diff Alcohol Use	-0.003	-0.001	0.006	0.009	0.001	-0.006	-0.002	0.000	-0.001
Sender Alcohol Use Class 1	0.017	0.004	0.005	-0.001	0.024	0.000	0.030	0.023	-0.007
Sender Alcohol Use Class 2	-	-	-0.012	0.013	0.041	0.003	-	-	-0.014
Edges Class 1	-0.191	-0.049	0.005	0.014	-0.172	-0.027	-0.071	-0.034	0.077
Edges Class 2	-0.134	-0.028	-	-	-0.118	0.231	-	-	-0.247

MJ: Marijuana, Abs Diff: Absolute Difference

TABLE A-3.
Mean Parameters for Homogeneous Models calculated across 500 trials for each condition

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1)	1.097	1.290	0.993	1.069	1.142	1.622	0.535	0.586	1.006
Mutual	2.348	2.359	2.339	2.331	2.348	2.332	2.344	2.343	2.344
Gender Match	0.505	0.480	0.517	0.511	0.499	0.440	0.482	0.474	0.519
Ethnicity Match	0.785	0.710	0.844	0.806	0.767	0.619	0.716	0.692	0.852
Sender Tobacco Use	0.181	0.209	0.157	0.199	0.209	0.271	0.180	0.193	0.117
Receiver Tobacco Use	-0.097	-0.087	-0.111	-0.100	-0.090	-0.062	-0.094	-0.088	-0.128
Sender Anti Social	-0.347	-0.139	-0.539	-0.408	-0.274	0.001	-0.200	-0.113	-0.632
Receiver Anti Social	0.214	0.198	0.230	0.209	0.219	0.152	0.207	0.195	0.236
Sender MJ	0.234	0.157	0.299	0.302	0.193	0.143	0.188	0.155	0.327
Receiver MJ	0.203	0.201	0.214	0.208	0.198	0.201	0.209	0.207	0.209
Receiver Alcohol Use	0.036	0.022	0.030	-0.011	0.026	0.014	0.025	0.019	0.039
Abs Diff Tobacco Use	-0.218	-0.214	-0.208	-0.212	-0.219	-0.215	-0.200	-0.202	-0.194
Abs Diff MJ	-0.383	-0.365	-0.395	-0.389	-0.378	-0.348	-0.372	-0.365	-0.388
Abs Diff Anti Social	0.042	0.111	-0.029	0.073	0.089	0.215	0.085	0.113	-0.078
Abs Diff Alcohol Use	-0.011	-0.008	-0.002	0.041	0.003	0.024	-0.011	-0.009	-0.011
Sender Alcohol Use	0.109	0.140	-0.146	-0.467	-0.068	-0.164	0.119	0.135	0.059
Edges	-4.267	-4.618	-3.913	-4.061	-4.354	-5.088	-3.852	-3.843	-3.895

MJ: Marijuana, Abs Diff: Absolute Difference

TABLE A-4.
Raw Bias for Homogeneous Models

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1) Class 1	0.127	0.320	0.023	0.099	0.172	0.652	-0.465	-0.614	0.036
GWESP (.1) Class 2	0.127	0.320	0.023	0.099	0.172	0.652	0.335	0.386	0.036
Mutual	0.008	0.019	-0.001	-0.009	0.008	-0.008	0.004	0.003	0.004
Gender Match	-0.015	-0.040	-0.003	-0.009	-0.021	-0.080	-0.038	-0.046	-0.001
Ethnicity Match	-0.055	-0.130	0.004	-0.034	-0.073	-0.221	-0.124	-0.148	0.012
Sender Tobacco Use	0.051	0.079	0.027	0.069	0.079	0.141	0.050	0.063	-0.013
Receiver Tobacco Use	0.013	0.023	-0.001	0.010	0.020	0.048	0.016	0.022	-0.018
Sender Anti Social	0.293	0.501	0.101	0.232	0.366	0.641	0.440	0.527	0.008
Receiver Anti Social	-0.026	-0.042	-0.010	-0.031	-0.021	-0.088	-0.033	-0.045	-0.004
Sender MJ	-0.096	-0.173	-0.031	-0.028	-0.137	-0.187	-0.142	-0.175	-0.003
Receiver MJ	-0.007	-0.009	0.004	-0.002	-0.012	-0.009	-0.001	-0.003	-0.001
Receiver Alcohol Use	-0.004	-0.018	-0.010	-0.051	-0.014	-0.026	-0.015	-0.021	-0.001
Abs Diff Tobacco Use	-0.008	-0.004	0.002	-0.002	-0.009	-0.005	0.010	0.008	0.016
Abs Diff MJ	0.007	0.025	-0.005	0.001	0.012	0.042	0.018	0.025	0.002
Abs Diff Anti Social	0.122	0.191	0.051	0.153	0.169	0.295	0.165	0.193	0.002
Abs Diff Alcohol Use	-0.001	0.002	0.008	0.051	0.013	0.034	-0.001	0.001	-0.001
Sender Alcohol Use Class 1	0.049	0.080	-0.146	-0.467	-0.068	-0.164	0.059	0.075	-0.001
Sender Alcohol Use Class 2	0.049	0.080	0.104	0.533	0.182	0.836	0.059	0.075	-0.001
Edges Class 1	-0.767	-1.368	-0.063	-0.211	-0.854	-1.838	-0.202	-0.193	-0.045
Edges Class 2	-0.017	-0.118	-0.063	-0.211	-0.104	-0.338	-0.202	-0.193	-0.045

MJ: Marijuana, Abs Diff: Absolute Difference

TABLE A-5.

Mean Estimated Standard Error calculated across 500 trials per condition | Simulation Error calculated from the difference between the parameter estimates and the true parameter estimates across 500 trials per condition - Heterogeneous Networks. Results indicate disagreement between estimated standard error and simulation error due to the implementation of classification likelihood estimation.

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1) Class 1	.153 .152	.140 .126	.172 .158	.148 .148	.137 .137	.122 .118	.086 .342	.099 .430	.207 .199
GWESP (.1) Class 2	-	-	-	-	-	-	.086 .348	.099 .434	-
Mutual	.070 .063	.072 .065	.068 .060	.071 .067	.072 .071	.077 .071	.096 .069	.094 .067	.068 .060
Gender Match	.039 .033	.040 .036	.037 .032	.038 .035	.039 .036	.042 .038	.056 .040	.056 .039	.037 .032
Ethnicity Match	.039 .038	.041 .038	.038 .033	.039 .035	.041 .038	.043 .040	.056 .044	.055 .041	.038 .034
Sender Tobacco Use	.075 .076	.074 .086	.087 .083	.092 .091	.084 .090	.081 .083	.107 .086	.103 .088	.082 .080
Receiver Tobacco Use	.073 .066	.073 .065	.086 .081	.091 .088	.082 .080	.079 .076	.106 .077	.101 .072	.081 .073
Sender Anti Social	.130 .198	.131 .150	.134 .129	.135 .136	.134 .200	.138 .145	.171 .200	.168 .161	.129 .150
Receiver Anti Social	.128 .113	.130 .119	.127 .117	.131 .128	.131 .127	.137 .127	.172 .132	.171 .120	.126 .110
Sender MJ	.074 .077	.077 .078	.076 .079	.097 .094	.082 .095	.107 .104	.108 .099	.109 .100	.076 .069
Receiver MJ	.074 .064	.077 .070	.076 .069	.098 .097	.083 .077	.108 .104	.108 .077	.109 .078	.075 .065
Receiver Alcohol Use	.042 .037	.043 .038	.045 .042	.056 .052	.046 .044	.053 .049	.058 .044	.057 .040	.042 .037
Abs Diff Tobacco Use	.073 .067	.072 .064	.086 .082	.091 .089	.082 .079	.079 .075	.106 .076	.101 .075	.081 .073
Abs Diff MJ	.068 .058	.071 .065	.071 .063	.095 .091	.078 .071	.105 .097	.104 .072	.106 .072	.069 .058
Abs Diff Anti Social	.113 .114	.115 .109	.111 .107	.115 .107	.116 .114	.122 .111	.162 .127	.160 .119	.113 .101
Abs Diff Alcohol Use	.035 .031	.036 .032	.039 .034	.051 .049	.040 .035	.047 .043	.051 .037	.051 .035	.035 .031
Sender Alcohol Use Class 1	.042 .055	.043 .051	.054 .145	.068 .498	.055 .136	.079 .505	.057 .059	.057 .056	.050 .049
Sender Alcohol Use Class 2	-	-	.053 .144	.068 .499	.055 .129	.076 .504	-	-	.051 .050
Edges Class 1	.189 .420	.174 .653	.207 .193	.183 .183	.173 .409	.155 .632	.132 .121	.143 .115	.246 .289
Edges Class 2	.189 .390	.174 .618	-	-	.173 .379	.156 .644	-	-	.246 .289

MJ: Marijuana, Abs Diff: Absolute Difference

TABLE A-6.

Mean Standard Errors averaged across 500 trials per condition | Standard Deviations of the Estimated Parameters calculated across 500 trials per condition for Homogeneous Models. Results indicate that there is close agreement between the estimated errors and the simulation errors.

Condition	1	1+	2	2+	3	3+	4	4+	5
GWESP (.1)	0.156 0.160	0.153 0.156	0.172 0.160	0.151 0.154	0.141 0.146	0.144 0.171	0.075 0.081	0.088 0.089	0.204 0.197
Mutual	0.069 0.063	0.071 0.063	0.067 0.060	0.070 0.067	0.070 0.069	0.077 0.069	0.074 0.065	0.072 0.063	0.066 0.060
Gender Match	0.037 0.033	0.038 0.032	0.037 0.033	0.037 0.035	0.038 0.035	0.039 0.032	0.039 0.035	0.038 0.034	0.036 0.032
Ethnicity Match	0.038 0.034	0.038 0.034	0.037 0.033	0.038 0.034	0.039 0.034	0.040 0.034	0.040 0.035	0.038 0.033	0.036 0.032
Sender Tobacco Use	0.071 0.062	0.067 0.054	0.085 0.079	0.088 0.083	0.076 0.073	0.071 0.056	0.076 0.069	0.069 0.066	0.080 0.075
Receiver Tobacco Use	0.069 0.061	0.064 0.053	0.084 0.079	0.087 0.082	0.075 0.070	0.068 0.055	0.075 0.068	0.067 0.059	0.079 0.074
Sender Anti Social	0.128 0.116	0.129 0.121	0.127 0.122	0.130 0.122	0.129 0.116	0.134 0.120	0.131 0.132	0.128 0.118	0.124 0.116
Receiver Anti Social	0.126 0.114	0.127 0.116	0.125 0.117	0.128 0.125	0.128 0.126	0.133 0.117	0.129 0.120	0.126 0.110	0.123 0.109
Sender MJ	0.073 0.060	0.073 0.063	0.075 0.070	0.091 0.082	0.077 0.071	0.091 0.069	0.073 0.066	0.073 0.065	0.072 0.065
Receiver MJ	0.072 0.062	0.072 0.062	0.075 0.068	0.093 0.088	0.077 0.071	0.093 0.074	0.074 0.063	0.073 0.064	0.072 0.065
Receiver Alcohol Use	0.041 0.036	0.041 0.036	0.045 0.041	0.055 0.051	0.045 0.043	0.050 0.043	0.043 0.039	0.042 0.037	0.040 0.037
Abs Diff Tobacco Use	0.069 0.061	0.064 0.052	0.084 0.080	0.088 0.084	0.075 0.071	0.069 0.055	0.074 0.068	0.066 0.062	0.078 0.073
Abs Diff MJ	0.066 0.054	0.067 0.056	0.069 0.061	0.089 0.081	0.072 0.065	0.089 0.068	0.068 0.059	0.067 0.058	0.066 0.058
Abs Diff Anti Social	0.110 0.100	0.110 0.098	0.111 0.105	0.115 0.105	0.112 0.097	0.117 0.096	0.114 0.095	0.111 0.098	0.107 0.096
Abs Diff Alcohol Use	0.034 0.030	0.034 0.030	0.039 0.034	0.050 0.049	0.039 0.034	0.046 0.039	0.036 0.033	0.035 0.031	0.034 0.031
Sender Alcohol Use	0.041 0.036	0.041 0.039	0.044 0.043	0.054 0.053	0.045 0.041	0.050 0.043	0.043 0.040	0.041 0.040	0.040 0.036
Edges	0.192 0.199	0.188 0.195	0.208 0.194	0.185 0.192	0.176 0.179	0.177 0.204	0.110 0.115	0.122 0.124	0.241 0.230

MJ: Marijuana, Abs Diff: Absolute Difference