

**Supplementary Table1:** Group Mean (SD) and Comparisons for each ERP Phenotype

Phenotype	SCZ	BID	Controls	SCZ vs. Controls	BID vs. Controls	SCZ vs. BID
P50 Ratio (%)	73.93 (41.9)	66.06 (41.5)	39.35 (26.7)	<b>P&lt;0.0001</b>	<b>P&lt;0.0001</b>	P=0.12
P3 Amplitude	8.11 (4.6)	9.13 (5.1)	13.01 (5.4)	<b>P&lt;0.0001</b>	<b>P&lt;0.0001</b>	P=0.54
P3 Latency	416.56 (89.2)	417.08 (82.7)	371.35 (52.4)	<b>P=0.001</b>	<b>P&lt;0.0001</b>	P=0.67
Gamma 40Hz*	0.136 (.14)	0.142 (.12)	0.234 (.14)	<b>P&lt;0.0001</b>	<b>P&lt;0.0001</b>	P=0.76

Note: age, sex were included as covariates. \* SCZ n=103, BID n=110, HC n=116

**Supplementary Table 2.** Results for SNPs with  $p < 10^{-5}$  for the sensory gating (P50)

CHR	SNP	P	CHR	SNP	P
1	rs116590260	3.88E-06	3	rs2944438	5.36E-06
1	rs2666498	6.24E-06	3	rs2934127	1.68E-06
1	rs10889306	5.60E-06	3	rs16860909	5.75E-06
1	rs11207939	6.78E-06	3	chr3_148511660_I**	8.23E-06
1	rs2666470	2.36E-06	3	rs116586451	5.49E-06
1	rs2941679	7.52E-06	4	MERGED_DEL_2_25917*	1.45E-06
1	rs71628699	5.67E-06	6	rs6933791	8.93E-06
1	rs74404550	5.43E-06	6	rs79082752	2.82E-06
1	rs35588936	4.84E-06	6	rs2480006	2.23E-06
1	rs71628702	5.28E-06	6	rs4712725	4.74E-06
1	rs112630935	2.58E-06	6	rs7755443	3.85E-06
1	rs111342069	3.16E-06	6	rs2149465	4.90E-06
1	chr1_155973646_D*	2.65E-06	6	rs4712726	4.20E-06
1	rs12730388	1.92E-06	6	rs2498282	2.12E-06
1	rs17385169	2.63E-06	6	rs1928079	1.60E-06
1	rs35200356	2.70E-06	6	rs12664157	8.07E-06
1	rs7513082	8.77E-07	6	rs16887031	6.29E-06
1	rs71630611	8.19E-07	6	rs140136635	5.72E-06
1	rs7555839	2.97E-06	6	rs111452919	6.86E-06

Mei-Hua Hall: Table

1	rs12735992	3.01E-06	6	rs11756772	6.61E-06
1	rs34224286	1.02E-06	6	rs112957989	6.61E-06
1	rs78510691	5.82E-06	6	rs115919213	6.69E-06
2	rs11689918	4.71E-06	6	rs76299936	6.60E-06
2	rs2058586	1.99E-06	6	rs35860242	6.37E-06
2	rs55943122	9.97E-06	7	rs62463878	5.94E-06
2	rs12469840	8.45E-06	7	rs112690815	5.95E-06
2	rs2900638	4.76E-06	8	rs73682378	2.65E-06
2	rs11898557	2.90E-06	8	rs12155545	4.40E-06
2	rs62147772	6.70E-06	9	chr9_31280309_D*	1.25E-06
2	rs74890112	1.41E-06	10	rs55931617	4.07E-07
2	rs112623157	1.95E-06	10	rs56329139	3.95E-07
2	rs72905561	1.49E-06	10	rs112156819	6.27E-06
2	rs112441872	2.05E-06	10	rs112440822	5.12E-06
2	rs72905565	1.04E-06	10	rs78160272	5.10E-06
2	rs72905566	1.06E-06	11	rs2500035	3.10E-06
2	rs147696438	6.94E-07	11	rs2403276	2.69E-06
2	rs6542045	8.71E-06	11	chr11_28743447_I**	8.25E-06
2	rs11691794	8.64E-06	11	rs7925780	9.72E-07
2	rs11688418	8.62E-06	11	rs4756259	3.31E-07
2	rs6706874	8.62E-06	11	rs61888369	4.91E-06

Mei-Hua Hall: Table

2	rs10169159	8.62E-06	11	rs12273072	4.59E-06
2	rs12711738	8.63E-06	11	rs17366101	2.33E-06
2	rs34623958	8.62E-06	12	rs147103399	7.33E-06
2	rs114192794	8.34E-06	13	rs80180965	4.36E-06
2	rs7557281	6.97E-06	13	rs61950407	6.46E-06
2	chr2_113037697_I**	9.37E-06	13	rs188147411	1.24E-06
2	chr2_113038560_D*	8.08E-06	13	rs77041142	2.54E-06
2	rs6542050	8.29E-06	13	rs80040124	1.16E-06
2	rs6745942	8.28E-06	13	rs61969524	3.84E-06
2	rs10177573	8.29E-06	14	rs17201643	3.34E-06
2	rs12464478	2.30E-06	14	chr14_85625767_D*	7.92E-06
2	rs114991511	8.40E-06	14	rs2401977	2.61E-06
2	rs62174278	8.75E-06	14	rs4243689	7.84E-06
2	rs62171069	8.88E-06	14	rs7146008	2.59E-06
2	rs75672243	8.85E-06	14	rs12433069	2.76E-06
2	rs183405899	8.34E-06	15	rs75848984	6.01E-06
2	chr2_211980378_D*	9.99E-06	15	rs77879759	2.11E-06
2	rs151206640	2.94E-07	15	chr15_101799904_I**	9.91E-06
3	rs9756214	8.43E-06	17	rs3760338	8.23E-06
3	rs1565587	1.15E-06	17	rs72883103	6.99E-06
3	rs2933266	1.08E-06	18	rs9966346	4.82E-06

Mei-Hua Hall: Table

3	rs2934084	1.33E-06	19	rs45580639	5.65E-07
3	rs1994735	1.33E-06	19	rs116878764	3.51E-06
3	rs146864704	5.19E-07			

Note: \*chr\_D is a deletion variant; \*\*chr\_I is an insertion variant

**Supplementary Table 3.** Results for SNPs with  $p < 10^{-5}$  for the ASSR gamma

CHR	SNP	P	CHR	SNP	P
1	rs41302778	8.89E-06	9	rs11793578	8.12E-06
1	rs74654056	8.28E-06	10	rs4319415	9.98E-06
1	rs72771915	6.67E-06	10	chr10_5652532_D*	8.11E-06
1	rs72771923	6.02E-06	10	rs3981241	6.81E-06
2	rs74926429	4.88E-06	10	rs17153575	1.70E-06
2	chr2_84531338_D*	8.24E-06	10	rs192455786	1.67E-06
2	rs150465452	1.34E-06	12	rs3782302	4.25E-06
2	rs150657852	2.59E-06	12	chr12_26804298_D*	2.57E-06
3	rs143277250	3.01E-06	12	rs4963668	4.27E-06
3	rs56031267	5.23E-06	12	rs1449567	4.69E-07
3	rs59886856	6.60E-06	12	rs4964013	1.89E-06
3	rs7642325	5.14E-06	12	rs1994134	4.27E-06
3	rs7642328	5.14E-06	12	rs10743589	4.27E-06
3	rs9814884	5.05E-06	12	rs1375656	4.27E-06
3	rs9818662	5.04E-06	12	rs2167068	4.28E-06
3	rs9818675	4.95E-06	12	chr12_26817273_I**	8.92E-07
3	rs114766768	6.64E-06	12	rs2035439	4.68E-07
3	chr3_159430635_D*	5.64E-07	12	rs2062165	4.68E-07
4	rs62409317	2.60E-06	12	rs4500564	9.82E-07

## Mei-Hua Hall: Table

4	rs62409318	3.81E-06	12	rs7137901	4.27E-06
4	rs193065646	7.20E-06	12	rs1900942	4.26E-06
4	rs115983306	7.21E-06	12	rs10743591	4.68E-07
4	rs181531738	9.77E-08	12	rs1982385	2.12E-06
4	rs146360492	9.05E-08	12	rs7976479	2.02E-06
4	rs114213960	8.47E-08	12	rs187194665	8.64E-06
4	rs114676069	8.32E-07	12	rs185093666	1.19E-06
4	chr4_54122201_D*	5.60E-08	14	rs77380152	9.71E-06
4	rs183516975	5.95E-06	14	rs17099126	1.89E-06
4	rs9999174	3.96E-06	14	rs56187017	1.10E-06
4	rs72713720	4.20E-06	17	rs10445235	4.58E-06
4	rs12639918	1.21E-06	17	rs9913752	6.91E-06
4	rs28704581	4.37E-06	17	rs9912615	6.41E-06
4	rs9790585	5.50E-06	17	rs9904599	7.09E-06
4	rs4862775	8.61E-07	17	chr17_72272282_D*	5.26E-06
6	rs28442121	2.15E-06	17	rs9912714	6.01E-06
7	rs10271851	4.28E-06	17	rs9900615	1.78E-06
8	rs7813840	4.66E-06	17	rs9893381	5.57E-06
8	rs76043038	3.26E-06	17	rs56066632	6.15E-06
8	rs34693631	9.42E-06	19	rs8104171	1.39E-06
8	rs139947285	1.57E-06	19	rs17696172	9.13E-06

Mei-Hua Hall: Table

9	chr9_16858725_D*	3.53E-06	19	chr19_52606745_D*	7.79E-06
9	chr9_89672289_D*	8.39E-06	20	rs7272112	9.45E-06
9	rs117557066	9.25E-06	20	rs113525166	1.06E-06
			21	rs17275316	1.26E-06

Note: \*chr\_D is a deletion variant; \*\*chr\_I is an insertion variant



**Supplementary Table 4.** Results for SNPs with  $p < 10^{-5}$  for the P3 amplitude

CHR	SNP	P	CHR	SNP	P
1	chr1_58687881_D*	1.18E-06	10	rs149429405	6.01E-06
1	rs72667957	1.17E-06	10	rs2368204	8.60E-06
1	rs72667959	1.30E-06	12	rs497740	7.34E-06
1	rs72667963	4.54E-06	12	rs76354355	3.27E-06
1	rs72667964	2.17E-06	13	rs7321523	3.07E-06
1	rs56392128	2.01E-06	13	rs9598262	6.75E-06
1	rs55889715	1.07E-06	13	rs11618754	5.85E-06
1	rs114185709	1.12E-06	13	rs959442	6.94E-06
1	rs10493246	1.40E-06	13	rs9563914	7.50E-06
1	rs72667981	1.44E-06	14	rs41349946	4.36E-06
1	rs72667986	1.44E-06	14	rs7140607	7.57E-06
1	rs61823152	9.08E-06	15	rs72625758	9.57E-06
1	rs75685316	1.12E-06	16	rs7186708	7.94E-06
2	rs144682132	4.02E-06	17	rs4795917	6.25E-06
2	rs6734019	8.44E-06	18	rs181594891	9.05E-06
3	rs116175449	7.39E-06	18	rs184033365	5.57E-06
3	rs4417834	8.01E-06	18	rs150269099	8.23E-06
3	rs13084762	9.75E-06	18	rs72894540	3.61E-06
4	rs17597248	5.73E-06	18	rs72896572	2.09E-07

Mei-Hua Hall: Table

6	rs34375936	9.43E-06	18	rs150280039	9.18E-06
6	rs13205715	5.90E-06	18	chr18_71776149_I**	8.64E-06
7	rs147909402	7.82E-07	19	rs56357228	2.40E-06
7	rs146938454	8.62E-07	19	chr19_2540372_D*	2.27E-06
7	rs149286257	3.65E-06	19	rs12977761	2.52E-06
7	rs79432086	4.45E-06	19	rs67768503	1.36E-06
7	rs116874802	4.55E-06	19	rs35511982	1.39E-06
8	rs138606037	3.77E-07	19	rs66701648	7.41E-07
9	rs341487	4.90E-06	19	rs6510682	7.67E-07
9	rs341485	4.59E-06	19	rs11879339	1.36E-06
9	rs116933968	7.20E-06	20	rs202384	6.29E-06
9	rs111375237	1.33E-06			

Note: \*chr\_D is a deletion variant; \*\*chr\_I is an insertion variant

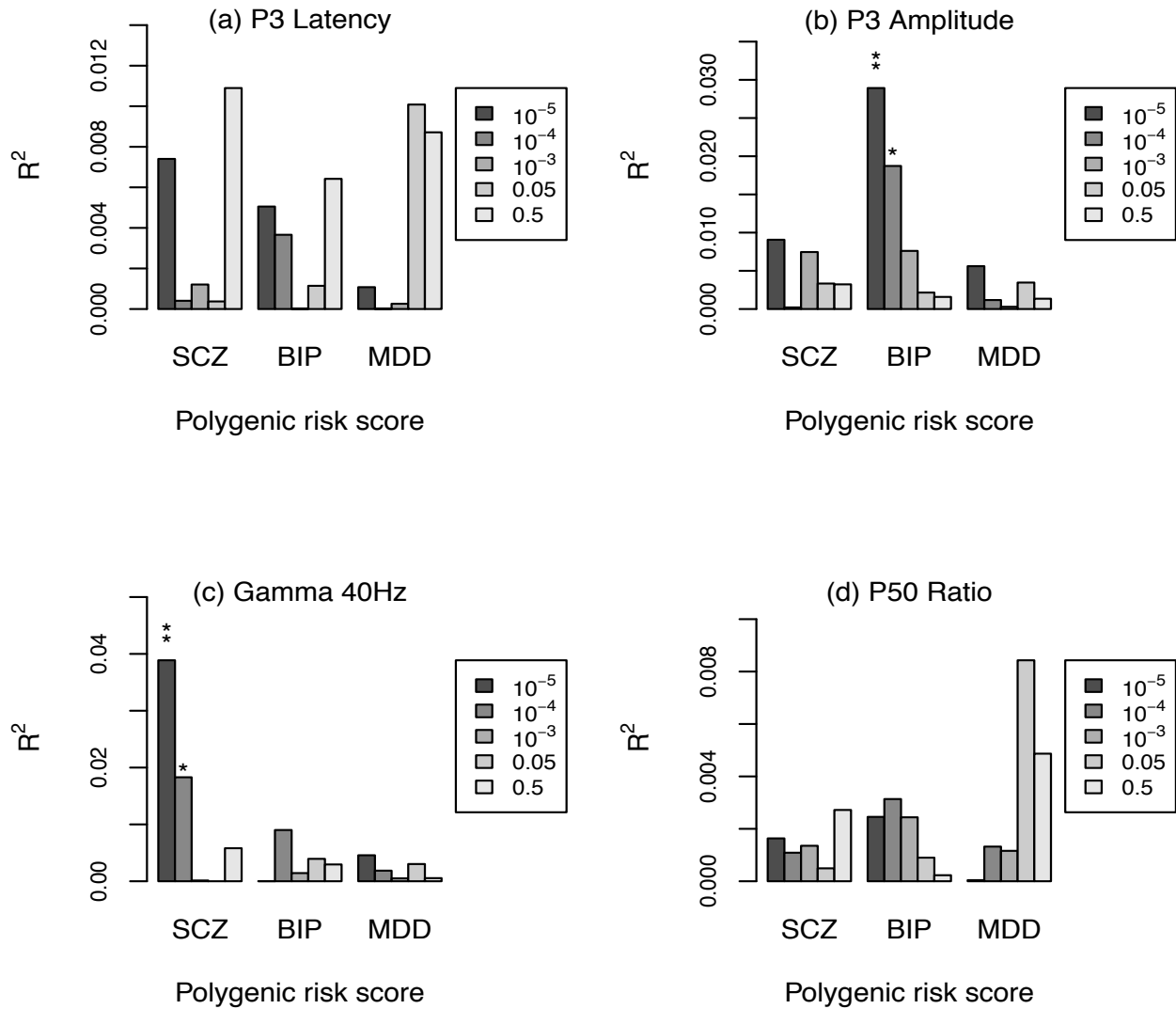
**Supplementary Table 5.** Results for SNPs with  $p < 10^{-5}$  for the P3 latency

CHR	SNP	P	CHR	SNP	P
1	rs1223869	7.20E-06	8	rs1982229	8.10E-06
2	rs11678424	5.61E-07	10	rs2395024	4.14E-06
2	chr2_134206222_I**	1.73E-06	10	rs1463060	3.50E-06
3	rs2979982	9.20E-06	10	rs1947740	4.79E-06
3	rs2947652	7.35E-06	10	rs1947739	3.44E-06
3	rs6795578	6.88E-06	10	rs1463059	3.68E-06
3	rs4679199	5.42E-06	10	rs2616059	4.56E-06
3	rs11921312	6.54E-06	10	rs2616058	4.84E-06
3	rs9840826	7.43E-06	10	chr10_87991758_I**	9.48E-06
3	rs11711638	9.11E-06	10	rs2275227	4.53E-06
3	rs7633797	7.15E-06	10	rs11187569	3.64E-06
3	rs12637341	7.01E-06	15	rs1991214	9.62E-06
5	rs10472616	1.33E-06	15	rs2911854	4.00E-06
5	rs13360455	4.44E-06	15	rs2911853	3.97E-06
6	rs9504558	3.88E-06	15	rs2911851	4.17E-06
6	rs1323200	1.84E-06	15	rs63179863	6.56E-06
6	rs6914546	3.86E-06	15	rs2911849	4.72E-06
7	rs34277457	9.99E-08	15	rs10851487	9.62E-06
7	rs7778071	3.21E-07	15	rs1035705	9.27E-06

Mei-Hua Hall: Table

Note: \*\*chr\_I is an insertion variant

**Supplementary Figure 1.** The variance explained of different phenotypes in cases by polygenic schizophrenia score (PRS-SCZ, left), bipolar score (PRS-BIP, middle), and major depressive disorder (PRS-MDD, right) for different pcutoff SNP sets

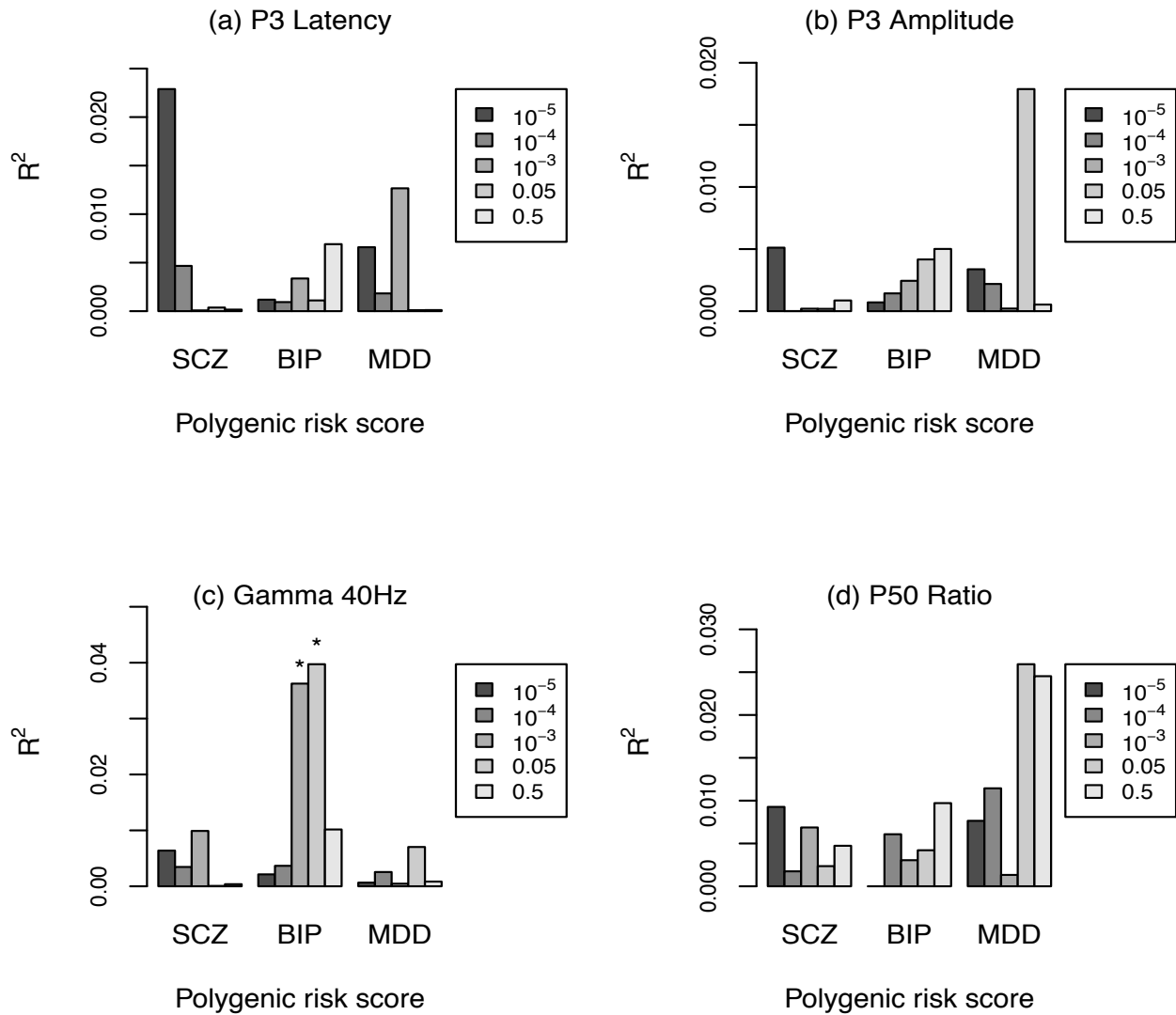


NOTE: \* $P < 0.05$ ; \*\* $P \leq 0.005$ . PRS-scz was associated with ASSR gamma in cases at  $P_T$   $1e-4$  and  $P_T$   $1e-5$ ; the latter remained significant after multiple testing correction. PRS-BIP was associated with P3 amplitude in cases at  $P_T$   $1e-4$  and  $P_T$   $1e-5$ , the latter again survived

## Mei-Hua Hall: Supplementary Figure

multiple testing correction. Among cases, higher genetic risk scores were associated with smaller evoked gamma and reduced P3 amplitudes.

**Supplementary Figure 2.** The variance explained of different phenotypes in controls by polygenic schizophrenia score (PRS-SCZ, left), bipolar score (PRS-BIP, middle), and major depressive disorder (PRS-MDD, right) for different pcutoff SNP sets



NOTE: \* $P < 0.05$