

Supplements

Reduced locus-coeruleus phasic activity reflects attenuated selectivity during visual sensory processing in autism

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Contents

Abbreviations	2
Covariate Models	3
Supplement 1: Covariate Model: SEPR	3
Supplement 2: Covariate Model: BPS	3
Supplement 3: Covariate Model: P3 amplitude	4
Supplement 4: Covariate Model: P3 latency	4
Supplement 5: Covariate Model: MMN amplitude	5
Supplement 6: Covariate Model: MMN latency	5
Main Models on Condition Level	6
Supplement 7: Main Model: SEPR	6
Supplement 8: Main Model: BPS	6
Supplement 9: Main Model: P3 amplitude	7
Supplement 10: Main Model: P3 latency	7
Supplement 11: Main Model: MMN amplitude	8
Supplement 12: Main Model: MMN latency	8
Supplement 13: MMN difference wave amplitude	9
Supplement 14: MMN difference wave latency	9
Supplement 15: SEPR on RT	10
Supplement 16: BPS on RT	10
Supplement 17: P3 amplitude on RT	11
Supplement 18: P3 latency on RT	11
Supplement 19: MMN amplitude on RT	12
Supplement 20: MMN latency on RT	12
Supplement 21: Manipulations on RT	13
Main Models on Trial Level	13
Supplement 22: Main Model: SEPR	13
Supplement 23: Main Model: BPS	14
Supplement 24: Main Model: P3 amplitude	14
Supplement 25: Main Model: P3 latency	15
Supplement 26: SEPR on RT	15
Supplement 27: BPS on RT	16
Supplement 28: P3 amplitude on RT	16
Supplement 29: P3 latency on RT	17
Supplement 30: Manipulations on RT	17
Supplement 31: Associations between pupillometric measures	18
Supplement 32: Associations between SEPR and P3 amplitude	19

Miscellaneous	20
Supplement 33: Power simulation	20
Supplement 34: Data exclusion process	21
Supplement 35: BPS defined as 50 ms	21
Supplement 36: BPS defined as 500 ms	22
Supplement 37: BPS-SEPR Model Fit	22
Supplement 38: Quadratic association between BPS and RT	23
Supplement 39: MMN Topographies	23

Abbreviations

SEPR = stimulus-evoked pupillary response
BPS = baseline pupil size
MMN = mismatch negativity
ASD = autism spectrum disorder group
CON = control group
MHC = mental health conditions group
RT = reaction time

Covariate Models

Supplement 1: Covariate Model: SEPR

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	651.60	651.60	1	889	3131.93	0.000
group	0.36	0.18	2	123	0.86	0.425
stimulus_salience	8.63	8.63	1	889	41.49	0.000
task_utility	1.15	1.15	1	889	5.51	0.019
age	0.01	0.01	1	123	0.05	0.825
gender	0.30	0.30	1	123	1.44	0.232
iq_verbal_estimate	0.36	0.36	1	123	1.73	0.190
iq_nonverbal_estimate	0.01	0.01	1	123	0.03	0.852
stimulus:group	6.38	3.19	2	889	15.33	0.000
stimulus:stimulus_salience	21.35	21.35	1	889	102.61	0.000
group:stimulus_salience	0.35	0.17	2	889	0.83	0.435
stimulus:task_utility	3.78	3.78	1	889	18.17	0.000
group:task_utility	0.54	0.27	2	889	1.30	0.273
stimulus_salience:task_utility	0.04	0.04	1	889	0.20	0.653
stimulus:group:stimulus_salience	0.38	0.19	2	889	0.91	0.402
stimulus:group:task_utility	0.70	0.35	2	889	1.69	0.185
stimulus:stimulus_salience:task_utility	0.07	0.07	1	889	0.34	0.562
group:stimulus_salience:task_utility	0.00	0.00	2	889	0.01	0.995
stimulus:group:stimulus_salience:task_utility	0.02	0.01	2	889	0.05	0.954

Supplement 2: Covariate Model: BPS

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	0.83	0.83	1	889	13.30	0.000
group	0.07	0.03	2	123	0.56	0.574
stimulus_salience	45.76	45.76	1	889	731.85	0.000
task_utility	0.01	0.01	1	889	0.11	0.738
age	0.44	0.44	1	123	7.02	0.009
gender	0.14	0.14	1	123	2.24	0.137
iq_verbal_estimate	0.02	0.02	1	123	0.26	0.610
iq_nonverbal_estimate	0.08	0.08	1	123	1.22	0.271
stimulus:group	0.00	0.00	2	889	0.02	0.984
stimulus:stimulus_salience	0.18	0.18	1	889	2.86	0.091
group:stimulus_salience	1.36	0.68	2	889	10.91	0.000
stimulus:task_utility	0.00	0.00	1	889	0.05	0.827
group:task_utility	0.36	0.18	2	889	2.84	0.059
stimulus_salience:task_utility	0.15	0.15	1	889	2.47	0.117
stimulus:group:stimulus_salience	0.03	0.02	2	889	0.26	0.774
stimulus:group:task_utility	0.00	0.00	2	889	0.02	0.982
stimulus:stimulus_salience:task_utility	0.00	0.00	1	889	0.02	0.897
group:stimulus_salience:task_utility	0.16	0.08	2	889	1.30	0.273
stimulus:group:stimulus_salience:task_utility	0.00	0.00	2	889	0.04	0.965

Supplement 3: Covariate Model: P3 amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	95.38	95.38	1	798	371.42	0.000
group	0.86	0.43	2	110	1.67	0.194
stimulus_salience	7.70	7.70	1	798	30.00	0.000
task_utility	9.88	9.88	1	798	38.47	0.000
age	0.60	0.60	1	110	2.35	0.128
gender	0.20	0.20	1	110	0.78	0.380
iq_verbal_estimate	0.46	0.46	1	110	1.78	0.185
iq_nonverbal_estimate	0.34	0.34	1	110	1.32	0.254
stimulus:group	2.21	1.10	2	798	4.30	0.014
stimulus:stimulus_salience	5.65	5.65	1	798	22.02	0.000
group:stimulus_salience	0.76	0.38	2	798	1.48	0.229
stimulus:task_utility	4.09	4.09	1	798	15.93	0.000
group:task_utility	0.85	0.42	2	798	1.65	0.192
stimulus_salience:task_utility	0.29	0.29	1	798	1.12	0.290
stimulus:group:stimulus_salience	1.50	0.75	2	798	2.92	0.054
stimulus:group:task_utility	0.59	0.30	2	798	1.15	0.317
stimulus:stimulus_salience:task_utility	0.00	0.00	1	798	0.00	0.960
group:stimulus_salience:task_utility	0.86	0.43	2	798	1.68	0.188
stimulus:group:stimulus_salience:task_utility	0.71	0.36	2	798	1.39	0.250

Supplement 4: Covariate Model: P3 latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	53.75	53.75	1	798	103.17	0.000
group	0.78	0.39	2	110	0.75	0.477
stimulus_salience	0.19	0.19	1	798	0.37	0.545
task_utility	3.01	3.01	1	798	5.78	0.016
age	0.15	0.15	1	110	0.28	0.596
gender	0.36	0.36	1	110	0.70	0.406
iq_verbal_estimate	0.87	0.87	1	110	1.68	0.198
iq_nonverbal_estimate	0.27	0.27	1	110	0.52	0.471
stimulus:group	0.25	0.12	2	798	0.24	0.790
stimulus:stimulus_salience	9.97	9.97	1	798	19.15	0.000
group:stimulus_salience	0.65	0.32	2	798	0.62	0.537
stimulus:task_utility	0.21	0.21	1	798	0.40	0.525
group:task_utility	2.78	1.39	2	798	2.67	0.070
stimulus_salience:task_utility	1.94	1.94	1	798	3.73	0.054
stimulus:group:stimulus_salience	1.51	0.76	2	798	1.45	0.235
stimulus:group:task_utility	1.03	0.51	2	798	0.99	0.374
stimulus:stimulus_salience:task_utility	0.59	0.59	1	798	1.14	0.286
group:stimulus_salience:task_utility	2.02	1.01	2	798	1.94	0.145
stimulus:group:stimulus_salience:task_utility	0.30	0.15	2	798	0.29	0.748

Supplement 5: Covariate Model: MMN amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	9.82	9.82	1	798	32.70	0.000
group	1.14	0.57	2	110	1.90	0.155
stimulus_salience	0.10	0.10	1	798	0.32	0.571
task_utility	0.39	0.39	1	798	1.30	0.254
age	1.77	1.77	1	110	5.91	0.017
gender	0.00	0.00	1	110	0.00	0.999
iq_verbal_estimate	0.31	0.31	1	110	1.03	0.313
iq_nonverbal_estimate	0.01	0.01	1	110	0.03	0.852
stimulus:group	0.90	0.45	2	798	1.50	0.224
stimulus:stimulus_salience	0.63	0.63	1	798	2.10	0.147
group:stimulus_salience	0.52	0.26	2	798	0.87	0.420
stimulus:task_utility	0.89	0.89	1	798	2.98	0.085
group:task_utility	0.38	0.19	2	798	0.63	0.534
stimulus_salience:task_utility	1.35	1.35	1	798	4.48	0.035
stimulus:group:stimulus_salience	0.31	0.16	2	798	0.52	0.595
stimulus:group:task_utility	0.52	0.26	2	798	0.86	0.424
stimulus:stimulus_salience:task_utility	0.87	0.87	1	798	2.91	0.088
group:stimulus_salience:task_utility	0.51	0.25	2	798	0.84	0.430
stimulus:group:stimulus_salience:task_utility	0.47	0.24	2	798	0.79	0.456

Supplement 6: Covariate Model: MMN latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	0.27	0.27	1	798	0.48	0.490
group	0.21	0.11	2	110	0.19	0.829
stimulus_salience	6.40	6.40	1	798	11.26	0.001
task_utility	0.10	0.10	1	798	0.17	0.682
age	0.59	0.59	1	110	1.03	0.312
gender	0.09	0.09	1	110	0.15	0.695
iq_verbal_estimate	0.02	0.02	1	110	0.04	0.849
iq_nonverbal_estimate	0.17	0.17	1	110	0.29	0.589
stimulus:group	0.13	0.06	2	798	0.11	0.893
stimulus:stimulus_salience	0.54	0.54	1	798	0.96	0.328
group:stimulus_salience	0.10	0.05	2	798	0.09	0.912
stimulus:task_utility	1.50	1.50	1	798	2.64	0.104
group:task_utility	1.27	0.64	2	798	1.12	0.327
stimulus_salience:task_utility	6.10	6.10	1	798	10.73	0.001
stimulus:group:stimulus_salience	0.49	0.25	2	798	0.43	0.649
stimulus:group:task_utility	0.41	0.21	2	798	0.36	0.696
stimulus:stimulus_salience:task_utility	0.68	0.68	1	798	1.19	0.275
group:stimulus_salience:task_utility	0.78	0.39	2	798	0.68	0.506
stimulus:group:stimulus_salience:task_utility	0.20	0.10	2	798	0.18	0.835

Main Models on Condition Level

Supplement 7: Main Model: SEPR

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	726.13	726.13	1	980	3582.12	0.000
group	1.14	0.57	2	138	2.81	0.064
stimulus_salience	8.58	8.58	1	980	42.31	0.000
task_utility	1.42	1.42	1	980	6.98	0.008
age	0.02	0.02	1	138	0.09	0.759
gender	0.29	0.29	1	138	1.44	0.232
stimulus:group	8.12	4.06	2	980	20.02	0.000
stimulus:stimulus_salience	22.86	22.86	1	980	112.78	0.000
group:stimulus_salience	0.28	0.14	2	980	0.70	0.499
stimulus:task_utility	4.44	4.44	1	980	21.92	0.000
group:task_utility	0.48	0.24	2	980	1.19	0.304
stimulus_salience:task_utility	0.00	0.00	1	980	0.01	0.904
stimulus:group:stimulus_salience	0.55	0.28	2	980	1.36	0.256
stimulus:group:task_utility	0.72	0.36	2	980	1.77	0.170
stimulus:stimulus_salience:task_utility	0.02	0.02	1	980	0.08	0.771
group:stimulus_salience:task_utility	0.01	0.00	2	980	0.02	0.985
stimulus:group:stimulus_salience:task_utility	0.03	0.01	2	980	0.07	0.936

Supplement 8: Main Model: BPS

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	0.95	0.95	1	980	15.51	0.000
group	0.13	0.06	2	138	1.03	0.360
stimulus_salience	46.95	46.95	1	980	764.85	0.000
task_utility	0.04	0.04	1	980	0.63	0.429
age	0.60	0.60	1	138	9.75	0.002
gender	0.13	0.13	1	138	2.09	0.151
stimulus:group	0.00	0.00	2	980	0.04	0.964
stimulus:stimulus_salience	0.21	0.21	1	980	3.38	0.066
group:stimulus_salience	1.56	0.78	2	980	12.71	0.000
stimulus:task_utility	0.00	0.00	1	980	0.04	0.848
group:task_utility	0.28	0.14	2	980	2.29	0.102
stimulus_salience:task_utility	0.16	0.16	1	980	2.65	0.104
stimulus:group:stimulus_salience	0.05	0.02	2	980	0.39	0.678
stimulus:group:task_utility	0.00	0.00	2	980	0.03	0.968
stimulus:stimulus_salience:task_utility	0.00	0.00	1	980	0.04	0.844
group:stimulus_salience:task_utility	0.25	0.12	2	980	2.02	0.133
stimulus:group:stimulus_salience:task_utility	0.00	0.00	2	980	0.03	0.966

Supplement 9: Main Model: P3 amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	106.42	106.42	1	889	429.53	0.000
group	2.30	1.15	2	125	4.65	0.011
stimulus_salience	8.56	8.56	1	889	34.54	0.000
task_utility	10.74	10.74	1	889	43.37	0.000
age	1.30	1.30	1	125	5.24	0.024
gender	0.14	0.14	1	125	0.58	0.448
stimulus:group	2.99	1.49	2	889	6.03	0.003
stimulus:stimulus_salience	6.77	6.77	1	889	27.33	0.000
group:stimulus_salience	0.71	0.35	2	889	1.43	0.241
stimulus:task_utility	4.36	4.36	1	889	17.61	0.000
group:task_utility	0.66	0.33	2	889	1.34	0.262
stimulus_salience:task_utility	0.19	0.19	1	889	0.77	0.381
stimulus:group:stimulus_salience	1.51	0.75	2	889	3.04	0.048
stimulus:group:task_utility	0.29	0.15	2	889	0.59	0.557
stimulus:stimulus_salience:task_utility	0.00	0.00	1	889	0.00	0.996
group:stimulus_salience:task_utility	1.14	0.57	2	889	2.31	0.100
stimulus:group:stimulus_salience:task_utility	0.63	0.32	2	889	1.28	0.279

Supplement 10: Main Model: P3 latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	54.31	54.31	1	889	100.21	0.000
group	1.80	0.90	2	125	1.66	0.195
stimulus_salience	0.31	0.31	1	889	0.58	0.447
task_utility	4.91	4.91	1	889	9.06	0.003
age	0.20	0.20	1	125	0.37	0.546
gender	0.60	0.60	1	125	1.11	0.293
stimulus:group	0.68	0.34	2	889	0.63	0.535
stimulus:stimulus_salience	10.51	10.51	1	889	19.39	0.000
group:stimulus_salience	0.19	0.10	2	889	0.18	0.839
stimulus:task_utility	0.12	0.12	1	889	0.22	0.643
group:task_utility	3.32	1.66	2	889	3.07	0.047
stimulus_salience:task_utility	0.93	0.93	1	889	1.72	0.190
stimulus:group:stimulus_salience	1.45	0.73	2	889	1.34	0.262
stimulus:group:task_utility	0.86	0.43	2	889	0.79	0.452
stimulus:stimulus_salience:task_utility	0.95	0.95	1	889	1.75	0.187
group:stimulus_salience:task_utility	1.87	0.94	2	889	1.73	0.178
stimulus:group:stimulus_salience:task_utility	0.12	0.06	2	889	0.11	0.898

Supplement 11: Main Model: MMN amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	11.22	11.22	1	889	38.44	0.000
group	0.90	0.45	2	125	1.54	0.218
stimulus_salience	0.17	0.17	1	889	0.57	0.449
task_utility	0.31	0.31	1	889	1.08	0.300
age	1.72	1.72	1	125	5.89	0.017
gender	0.00	0.00	1	125	0.00	0.960
stimulus:group	0.96	0.48	2	889	1.65	0.193
stimulus:stimulus_salience	0.65	0.65	1	889	2.21	0.137
group:stimulus_salience	0.71	0.36	2	889	1.22	0.296
stimulus:task_utility	0.82	0.82	1	889	2.80	0.094
group:task_utility	0.17	0.09	2	889	0.29	0.745
stimulus_salience:task_utility	0.93	0.93	1	889	3.17	0.075
stimulus:group:stimulus_salience	0.45	0.23	2	889	0.78	0.459
stimulus:group:task_utility	0.52	0.26	2	889	0.89	0.411
stimulus:stimulus_salience:task_utility	0.75	0.75	1	889	2.57	0.109
group:stimulus_salience:task_utility	0.75	0.37	2	889	1.28	0.279
stimulus:group:stimulus_salience:task_utility	0.20	0.10	2	889	0.33	0.716

Supplement 12: Main Model: MMN latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	0.00	0.00	1	889	0.01	0.931
group	0.13	0.07	2	125	0.12	0.888
stimulus_salience	8.29	8.29	1	889	14.79	0.000
task_utility	0.04	0.04	1	889	0.07	0.786
age	0.70	0.70	1	125	1.25	0.266
gender	0.01	0.01	1	125	0.02	0.899
stimulus:group	0.23	0.11	2	889	0.20	0.815
stimulus:stimulus_salience	0.48	0.48	1	889	0.86	0.353
group:stimulus_salience	0.25	0.12	2	889	0.22	0.803
stimulus:task_utility	0.78	0.78	1	889	1.38	0.240
group:task_utility	1.66	0.83	2	889	1.48	0.228
stimulus_salience:task_utility	4.93	4.93	1	889	8.78	0.003
stimulus:group:stimulus_salience	0.10	0.05	2	889	0.09	0.913
stimulus:group:task_utility	1.08	0.54	2	889	0.96	0.383
stimulus:stimulus_salience:task_utility	0.10	0.10	1	889	0.17	0.680
group:stimulus_salience:task_utility	0.41	0.21	2	889	0.37	0.691
stimulus:group:stimulus_salience:task_utility	0.24	0.12	2	889	0.21	0.809

Supplement 13: MMN difference wave amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
group	1.96	0.98	2	125	1.08	0.344
stimulus_salience	3.59	3.59	1	381	3.95	0.047
task_utility	0.05	0.05	1	381	0.06	0.808
age	3.50	3.50	1	125	3.85	0.052
gender	0.38	0.38	1	125	0.41	0.521
group:stimulus_salience	3.47	1.73	2	381	1.91	0.150
group:task_utility	4.55	2.28	2	381	2.51	0.083
stimulus_salience:task_utility	3.73	3.73	1	381	4.11	0.043
group:stimulus_salience:task_utility	1.83	0.91	2	381	1.01	0.366

Supplement 14: MMN difference wave latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
group	0.92	0.46	2	125	0.49	0.614
stimulus_salience	3.37	3.37	1	381	3.60	0.059
task_utility	2.98	2.98	1	381	3.18	0.075
age	13.78	13.78	1	125	14.71	0.000
gender	2.44	2.44	1	125	2.60	0.109
group:stimulus_salience	0.02	0.01	2	381	0.01	0.990
group:task_utility	0.21	0.11	2	381	0.11	0.894
stimulus_salience:task_utility	0.01	0.01	1	381	0.01	0.910
group:stimulus_salience:task_utility	0.24	0.12	2	381	0.13	0.880

Supplement 15: SEPR on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
SEPR	6.18	6.18	1	540	24.70	0.000
group	0.77	0.38	2	219	1.53	0.218
stimulus_salience	10.66	10.66	1	437	42.57	0.000
task_utility	24.15	24.15	1	412	96.46	0.000
age	2.06	2.06	1	134	8.24	0.005
gender	1.80	1.80	1	134	7.17	0.008
SEPR:group	0.24	0.12	2	537	0.48	0.618
SEPR:stimulus_salience	0.10	0.10	1	413	0.41	0.522
group:stimulus_salience	0.53	0.26	2	437	1.05	0.351
SEPR:task_utility	0.11	0.11	1	409	0.43	0.513
group:task_utility	0.33	0.16	2	413	0.66	0.518
stimulus_salience:task_utility	0.27	0.27	1	405	1.07	0.302
SEPR:group:stimulus_salience	0.06	0.03	2	413	0.13	0.880
SEPR:group:task_utility	0.07	0.04	2	409	0.14	0.869
SEPR:stimulus_salience:task_utility	0.54	0.54	1	408	2.17	0.141
group:stimulus_salience:task_utility	0.05	0.02	2	405	0.09	0.911
SEPR:group:stimulus_salience:task_utility	0.39	0.20	2	408	0.79	0.456

Supplement 16: BPS on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
BPS	0.07	0.07	1	286	0.27	0.602
group	1.50	0.75	2	131	2.79	0.065
stimulus_salience	32.02	32.02	1	500	119.35	0.000
task_utility	63.70	63.70	1	401	237.41	0.000
age	2.68	2.68	1	133	9.99	0.002
gender	1.55	1.55	1	130	5.79	0.018
BPS:group	0.68	0.34	2	274	1.27	0.283
BPS:stimulus_salience	0.00	0.00	1	410	0.01	0.929
group:stimulus_salience	0.71	0.36	2	498	1.33	0.265
BPS:task_utility	0.03	0.03	1	402	0.10	0.750
group:task_utility	0.73	0.36	2	401	1.36	0.258
stimulus_salience:task_utility	0.00	0.00	1	401	0.00	0.965
BPS:group:stimulus_salience	1.15	0.57	2	410	2.14	0.119
BPS:group:task_utility	0.28	0.14	2	402	0.52	0.597
BPS:stimulus_salience:task_utility	0.11	0.11	1	402	0.42	0.516
group:stimulus_salience:task_utility	0.24	0.12	2	401	0.45	0.636
BPS:group:stimulus_salience:task_utility	0.16	0.08	2	402	0.30	0.738

Supplement 17: P3 amplitude on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
P3_amplitude	0.14	0.14	1	482	0.56	0.457
group	1.38	0.69	2	129	2.81	0.064
stimulus_salience	27.67	27.67	1	379	112.36	0.000
task_utility	49.63	49.63	1	384	201.52	0.000
age	1.59	1.59	1	123	6.46	0.012
gender	1.72	1.72	1	123	6.99	0.009
P3_amplitude:group	0.78	0.39	2	479	1.58	0.206
P3_amplitude:stimulus_salience	0.49	0.49	1	380	2.01	0.157
group:stimulus_salience	0.18	0.09	2	379	0.36	0.697
P3_amplitude:task_utility	0.20	0.20	1	380	0.83	0.362
group:task_utility	1.06	0.53	2	384	2.16	0.117
stimulus_salience:task_utility	0.00	0.00	1	368	0.00	0.980
P3_amplitude:group:stimulus_salience	1.87	0.94	2	380	3.80	0.023
P3_amplitude:group:task_utility	0.48	0.24	2	379	0.96	0.382
P3_amplitude:stimulus_salience:task_utility	0.84	0.84	1	374	3.39	0.066
group:stimulus_salience:task_utility	0.36	0.18	2	368	0.73	0.483
P3_amplitude:group:stimulus_salience:task_utility	0.91	0.45	2	373	1.84	0.160

Supplement 18: P3 latency on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
P3_latency	0.02	0.02	1	459	0.09	0.768
group	1.42	0.71	2	129	2.95	0.056
stimulus_salience	29.29	29.29	1	370	121.73	0.000
task_utility	48.34	48.34	1	369	200.92	0.000
age	1.77	1.77	1	123	7.35	0.008
gender	1.62	1.62	1	123	6.72	0.011
P3_latency:group	1.41	0.71	2	458	2.93	0.054
P3_latency:stimulus_salience	0.25	0.25	1	380	1.06	0.305
group:stimulus_salience	0.25	0.13	2	370	0.53	0.590
P3_latency:task_utility	0.41	0.41	1	380	1.71	0.192
group:task_utility	2.06	1.03	2	369	4.28	0.015
stimulus_salience:task_utility	0.02	0.02	1	367	0.06	0.800
P3_latency:group:stimulus_salience	0.56	0.28	2	380	1.17	0.312
P3_latency:group:task_utility	2.19	1.09	2	380	4.54	0.011
P3_latency:stimulus_salience:task_utility	0.46	0.46	1	374	1.91	0.167
group:stimulus_salience:task_utility	0.09	0.05	2	367	0.20	0.822
P3_latency:group:stimulus_salience:task_utility	0.39	0.20	2	374	0.82	0.443

Supplement 19: MMN amplitude on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
mmn_amplitude	0.00	0.00	1	479	0.00	0.970
group	1.33	0.67	2	123	2.66	0.074
stimulus_salience	33.83	33.83	1	366	134.92	0.000
task_utility	59.02	59.02	1	365	235.42	0.000
age	1.80	1.80	1	125	7.16	0.008
gender	1.81	1.81	1	125	7.22	0.008
mmn_amplitude:group	0.22	0.11	2	479	0.44	0.642
mmn_amplitude:stimulus_salience	0.06	0.06	1	371	0.23	0.633
group:stimulus_salience	0.24	0.12	2	366	0.49	0.614
mmn_amplitude:task_utility	0.57	0.57	1	377	2.29	0.131
group:task_utility	1.57	0.78	2	365	3.13	0.045
stimulus_salience:task_utility	0.00	0.00	1	365	0.01	0.933
mmn_amplitude:group:stimulus_salience	1.55	0.77	2	371	3.09	0.047
mmn_amplitude:group:task_utility	0.57	0.29	2	376	1.14	0.322
mmn_amplitude:stimulus_salience:task_utility	0.00	0.00	1	374	0.02	0.902
group:stimulus_salience:task_utility	0.35	0.17	2	365	0.69	0.503
mmn_amplitude:group:stimulus_salience:task_utility	0.14	0.07	2	374	0.27	0.760

Supplement 20: MMN latency on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
mmn_latency	0.00	0.00	1	434	0.01	0.940
group	1.34	0.67	2	122	2.68	0.073
stimulus_salience	34.06	34.06	1	365	136.06	0.000
task_utility	63.50	63.50	1	364	253.67	0.000
age	1.90	1.90	1	123	7.61	0.007
gender	1.65	1.65	1	122	6.57	0.012
mmn_latency:group	0.00	0.00	2	433	0.00	0.997
mmn_latency:stimulus_salience	0.89	0.89	1	378	3.58	0.059
group:stimulus_salience	0.09	0.05	2	365	0.19	0.830
mmn_latency:task_utility	0.11	0.11	1	381	0.44	0.509
group:task_utility	1.14	0.57	2	364	2.28	0.104
stimulus_salience:task_utility	0.00	0.00	1	364	0.00	0.964
mmn_latency:group:stimulus_salience	0.26	0.13	2	378	0.52	0.593
mmn_latency:group:task_utility	0.75	0.37	2	381	1.49	0.226
mmn_latency:stimulus_salience:task_utility	0.43	0.43	1	379	1.72	0.191
group:stimulus_salience:task_utility	0.27	0.13	2	364	0.54	0.586
mmn_latency:group:stimulus_salience:task_utility	0.24	0.12	2	379	0.48	0.620

Supplement 21: Manipulations on RT

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
group	1.26	0.63	2	136	2.38	0.096
stimulus_salience	42.96	42.96	1	415	162.11	0.000
task_utility	67.26	67.26	1	415	253.80	0.000
age	2.54	2.54	1	136	9.59	0.002
gender	1.49	1.49	1	136	5.60	0.019
group:stimulus_salience	0.70	0.35	2	415	1.33	0.266
group:task_utility	0.86	0.43	2	415	1.62	0.199
stimulus_salience:task_utility	0.00	0.00	1	415	0.00	0.948
group:stimulus_salience:task_utility	0.18	0.09	2	415	0.34	0.715

Main Models on Trial Level

Supplement 22: Main Model: SEPR

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	15627.63	15627.63	1	73647	21542.69	0.000
group	6.00	3.00	2	142	4.13	0.018
stimulus_salience	166.24	166.24	1	73650	229.16	0.000
task_utility	37.50	37.50	1	73647	51.70	0.000
age	0.09	0.09	1	139	0.13	0.723
gender	0.00	0.00	1	138	0.00	0.959
stimulus:group	167.35	83.67	2	73647	115.34	0.000
stimulus:stimulus_salience	448.81	448.81	1	73644	618.69	0.000
group:stimulus_salience	6.93	3.46	2	73650	4.77	0.008
stimulus:task_utility	103.92	103.92	1	73642	143.25	0.000
group:task_utility	10.48	5.24	2	73647	7.22	0.001
stimulus_salience:task_utility	0.11	0.11	1	73648	0.15	0.697
stimulus:group:stimulus_salience	11.96	5.98	2	73644	8.24	0.000
stimulus:group:task_utility	16.68	8.34	2	73642	11.50	0.000
stimulus:stimulus_salience:task_utility	0.46	0.46	1	73642	0.63	0.427
group:stimulus_salience:task_utility	0.08	0.04	2	73648	0.05	0.949
stimulus:group:stimulus_salience:task_utility	0.46	0.23	2	73642	0.32	0.729

Supplement 23: Main Model: BPS

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	36.41	36.41	1	83663	150.73	0.000
group	0.49	0.25	2	138	1.02	0.363
stimulus_salience	1819.59	1819.59	1	83663	7531.97	0.000
task_utility	1.69	1.69	1	83663	7.00	0.008
age	2.39	2.39	1	138	9.91	0.002
gender	0.51	0.51	1	138	2.10	0.149
stimulus:group	0.19	0.09	2	83663	0.38	0.681
stimulus:stimulus_salience	7.96	7.96	1	83663	32.95	0.000
group:stimulus_salience	62.46	31.23	2	83663	129.27	0.000
stimulus:task_utility	0.07	0.07	1	83663	0.30	0.587
group:task_utility	10.32	5.16	2	83663	21.37	0.000
stimulus_salience:task_utility	4.80	4.80	1	83663	19.85	0.000
stimulus:group:stimulus_salience	1.86	0.93	2	83663	3.85	0.021
stimulus:group:task_utility	0.12	0.06	2	83663	0.26	0.773
stimulus:stimulus_salience:task_utility	0.08	0.08	1	83663	0.32	0.573
group:stimulus_salience:task_utility	9.84	4.92	2	83663	20.37	0.000
stimulus:group:stimulus_salience:task_utility	0.15	0.08	2	83663	0.32	0.730

Supplement 24: Main Model: P3 amplitude

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	595.58	595.58	1	63582	762.63	0.000
group	4.86	2.43	2	125	3.11	0.048
stimulus_salience	73.10	73.10	1	63584	93.61	0.000
task_utility	80.62	80.62	1	63583	103.23	0.000
age	6.39	6.39	1	124	8.19	0.005
gender	0.60	0.60	1	124	0.77	0.382
stimulus:group	12.47	6.24	2	63582	7.98	0.000
stimulus:stimulus_salience	26.02	26.02	1	63582	33.31	0.000
group:stimulus_salience	2.71	1.35	2	63584	1.73	0.176
stimulus:task_utility	48.69	48.69	1	63581	62.34	0.000
group:task_utility	5.32	2.66	2	63583	3.40	0.033
stimulus_salience:task_utility	2.87	2.87	1	63583	3.68	0.055
stimulus:group:stimulus_salience	0.47	0.23	2	63582	0.30	0.742
stimulus:group:task_utility	7.92	3.96	2	63581	5.07	0.006
stimulus:stimulus_salience:task_utility	0.97	0.97	1	63581	1.24	0.266
group:stimulus_salience:task_utility	6.12	3.06	2	63583	3.92	0.020
stimulus:group:stimulus_salience:task_utility	7.10	3.55	2	63581	4.55	0.011

Supplement 25: Main Model: P3 latency

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	458.24	458.24	1	63587	491.17	0.000
group	5.37	2.68	2	128	2.88	0.060
stimulus_salience	52.84	52.84	1	63595	56.64	0.000
task_utility	4.50	4.50	1	63590	4.82	0.028
age	0.59	0.59	1	124	0.64	0.427
gender	2.95	2.95	1	124	3.16	0.078
stimulus:group	27.24	13.62	2	63586	14.60	0.000
stimulus:stimulus_salience	0.70	0.70	1	63584	0.75	0.388
group:stimulus_salience	2.89	1.45	2	63595	1.55	0.212
stimulus:task_utility	51.81	51.81	1	63583	55.54	0.000
group:task_utility	4.18	2.09	2	63591	2.24	0.106
stimulus_salience:task_utility	3.49	3.49	1	63589	3.74	0.053
stimulus:group:stimulus_salience	1.56	0.78	2	63584	0.84	0.434
stimulus:group:task_utility	3.22	1.61	2	63583	1.73	0.178
stimulus:stimulus_salience:task_utility	4.38	4.38	1	63583	4.69	0.030
group:stimulus_salience:task_utility	0.61	0.30	2	63589	0.33	0.722
stimulus:group:stimulus_salience:task_utility	1.13	0.57	2	63583	0.61	0.545

Supplement 26: SEPR on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
SEPR	57.40	57.40	1	12566	83.84	0.000
group	2.51	1.25	2	147	1.83	0.164
stimulus_salience	95.83	95.83	1	12464	139.98	0.000
task_utility	327.86	327.86	1	12448	478.91	0.000
age	6.72	6.72	1	133	9.82	0.002
gender	4.58	4.58	1	132	6.70	0.011
SEPR:group	1.62	0.81	2	12563	1.18	0.307
SEPR:stimulus_salience	4.06	4.06	1	12460	5.93	0.015
group:stimulus_salience	2.16	1.08	2	12465	1.57	0.207
SEPR:task_utility	7.71	7.71	1	12450	11.27	0.001
group:task_utility	5.64	2.82	2	12449	4.12	0.016
stimulus_salience:task_utility	2.05	2.05	1	12443	2.99	0.084
SEPR:group:stimulus_salience	1.06	0.53	2	12459	0.78	0.460
SEPR:group:task_utility	1.22	0.61	2	12450	0.89	0.411
SEPR:stimulus_salience:task_utility	5.98	5.98	1	12446	8.74	0.003
group:stimulus_salience:task_utility	3.75	1.88	2	12443	2.74	0.065
SEPR:group:stimulus_salience:task_utility	1.27	0.63	2	12446	0.93	0.396

Supplement 27: BPS on RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
BPS	0.06	0.06	1	9400	0.09	0.767
group	3.00	1.50	2	133	2.15	0.121
stimulus_salience	393.75	393.75	1	14273	563.94	0.000
task_utility	718.29	718.29	1	14145	1028.77	0.000
age	7.09	7.09	1	133	10.15	0.002
gender	3.93	3.93	1	132	5.62	0.019
BPS:group	4.45	2.23	2	8961	3.19	0.041
BPS:stimulus_salience	0.21	0.21	1	14161	0.30	0.581
group:stimulus_salience	2.07	1.03	2	14264	1.48	0.228
BPS:task_utility	0.00	0.00	1	14149	0.00	0.953
group:task_utility	9.18	4.59	2	14145	6.57	0.001
stimulus_salience:task_utility	0.78	0.78	1	14141	1.12	0.291
BPS:group:stimulus_salience	8.37	4.19	2	14160	6.00	0.002
BPS:group:task_utility	1.96	0.98	2	14148	1.40	0.246
BPS:stimulus_salience:task_utility	0.29	0.29	1	14145	0.41	0.521
group:stimulus_salience:task_utility	6.01	3.01	2	14141	4.31	0.013
BPS:group:stimulus_salience:task_utility	0.21	0.11	2	14145	0.15	0.860

Supplement 28: P3 amplitude on RT

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
z_P3_amplitude	346.35	346.35	1	10831	523.42	0.000
group	2.56	1.28	2	120	1.93	0.150
stimulus_salience	260.19	260.19	1	10725	393.20	0.000
task_utility	492.80	492.80	1	10721	744.73	0.000
age	7.76	7.76	1	120	11.73	0.001
gender	3.91	3.91	1	119	5.91	0.017
z_P3_amplitude:group	2.28	1.14	2	10826	1.72	0.178
z_P3_amplitude:stimulus_salience	1.22	1.22	1	10723	1.84	0.175
group:stimulus_salience	1.05	0.52	2	10724	0.79	0.453
z_P3_amplitude:task_utility	0.27	0.27	1	10717	0.41	0.522
group:task_utility	10.37	5.19	2	10721	7.84	0.000
stimulus_salience:task_utility	0.03	0.03	1	10716	0.05	0.819
z_P3_amplitude:group:stimulus_salience	4.65	2.33	2	10723	3.52	0.030
z_P3_amplitude:group:task_utility	2.97	1.49	2	10717	2.25	0.106
z_P3_amplitude:stimulus_salience:task_utility	3.25	3.25	1	10715	4.91	0.027
group:stimulus_salience:task_utility	6.23	3.11	2	10716	4.70	0.009
z_P3_amplitude:group:stimulus_salience:task_utility	2.20	1.10	2	10715	1.66	0.190

Supplement 29: P3 latency on RT

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
z_P3_latency	64.28	64.28	1	10770	92.97	0.000
group	3.40	1.70	2	120	2.46	0.090
stimulus_salience	308.45	308.45	1	10722	446.13	0.000
task_utility	550.97	550.97	1	10722	796.90	0.000
age	5.01	5.01	1	120	7.25	0.008
gender	5.13	5.13	1	119	7.42	0.007
z_P3_latency:group	0.64	0.32	2	10770	0.46	0.632
z_P3_latency:stimulus_salience	4.03	4.03	1	10722	5.84	0.016
group:stimulus_salience	0.55	0.27	2	10722	0.40	0.672
z_P3_latency:task_utility	0.57	0.57	1	10721	0.82	0.366
group:task_utility	7.43	3.72	2	10722	5.37	0.005
stimulus_salience:task_utility	0.41	0.41	1	10716	0.59	0.441
z_P3_latency:group:stimulus_salience	0.03	0.01	2	10722	0.02	0.980
z_P3_latency:group:task_utility	0.13	0.06	2	10721	0.09	0.913
z_P3_latency:stimulus_salience:task_utility	0.02	0.02	1	10716	0.03	0.873
group:stimulus_salience:task_utility	6.88	3.44	2	10715	4.98	0.007
z_P3_latency:group:stimulus_salience:task_utility	1.79	0.89	2	10716	1.29	0.275

Supplement 30: Manipulations on RT

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
group	2.91	1.46	2	134	2.07	0.131
stimulus_salience	468.87	468.87	1	14309	665.57	0.000
task_utility	755.08	755.08	1	14311	1071.86	0.000
age	7.14	7.14	1	133	10.13	0.002
gender	3.67	3.67	1	133	5.20	0.024
group:stimulus_salience	7.12	3.56	2	14309	5.06	0.006
group:task_utility	9.30	4.65	2	14310	6.60	0.001
stimulus_salience:task_utility	0.82	0.82	1	14305	1.17	0.280
group:stimulus_salience:task_utility	4.91	2.45	2	14305	3.48	0.031

Supplement 31: Associations between pupillometric measures

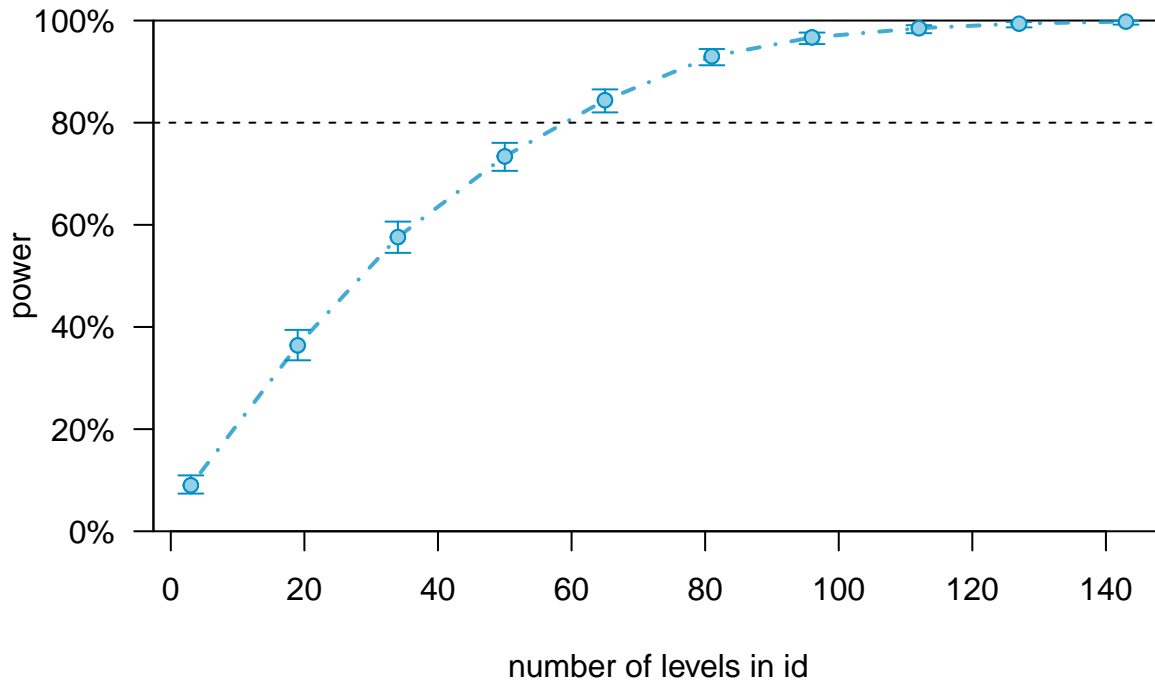
Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
BPS	5613.85	5613.85	1	71276	8897.69	0.000
stimulus	13943.87	13943.87	1	73618	22100.38	0.000
group	2.46	1.23	2	136	1.95	0.146
stimulus_salience	1300.10	1300.10	1	73727	2060.60	0.000
task_utility	33.74	33.74	1	73615	53.47	0.000
age	6.64	6.64	1	136	10.53	0.001
gender	1.34	1.34	1	135	2.13	0.147
BPS:stimulus	22.69	22.69	1	73615	35.96	0.000
BPS:group	65.67	32.83	2	70784	52.04	0.000
stimulus:group	146.70	73.35	2	73618	116.25	0.000
BPS:stimulus_salience	10.67	10.67	1	73628	16.91	0.000
stimulus:stimulus_salience	361.79	361.79	1	73615	573.42	0.000
group:stimulus_salience	11.35	5.68	2	73727	9.00	0.000
BPS:task_utility	0.90	0.90	1	73620	1.43	0.232
stimulus:task_utility	101.14	101.14	1	73614	160.29	0.000
group:task_utility	13.21	6.61	2	73615	10.47	0.000
stimulus_salience:task_utility	0.00	0.00	1	73617	0.00	0.993
BPS:stimulus:group	9.89	4.95	2	73615	7.84	0.000
BPS:stimulus:stimulus_salience	4.51	4.51	1	73614	7.15	0.007
BPS:group:stimulus_salience	2.86	1.43	2	73627	2.27	0.103
stimulus:group:stimulus_salience	11.56	5.78	2	73615	9.16	0.000
BPS:stimulus:task_utility	0.03	0.03	1	73614	0.04	0.842
BPS:group:task_utility	11.49	5.75	2	73620	9.11	0.000
stimulus:group:task_utility	22.22	11.11	2	73614	17.61	0.000
BPS:stimulus_salience:task_utility	0.14	0.14	1	73620	0.22	0.637
stimulus:stimulus_salience:task_utility	0.73	0.73	1	73614	1.16	0.282
group:stimulus_salience:task_utility	7.79	3.89	2	73616	6.17	0.002
BPS:stimulus:group:stimulus_salience	25.07	12.54	2	73614	19.87	0.000
BPS:stimulus:group:task_utility	8.27	4.14	2	73614	6.55	0.001
BPS:stimulus:stimulus_salience:task_utility	1.70	1.70	1	73614	2.69	0.101
BPS:group:stimulus_salience:task_utility	3.21	1.60	2	73620	2.54	0.079
stimulus:group:stimulus_salience:task_utility	0.77	0.38	2	73614	0.61	0.545
BPS:stimulus:group:stimulus_salience:task_utility	4.11	2.06	2	73614	3.26	0.038

Supplement 32: Associations between SEPR and P3 amplitude

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
SEPR	8.34	8.34	1	55539	10.84	0.001
stimulus	265.79	265.79	1	55509	345.39	0.000
group	5.34	2.67	2	128	3.47	0.034
stimulus_salience	11.94	11.94	1	55493	15.51	0.000
task_utility	38.81	38.81	1	55489	50.43	0.000
age	6.79	6.79	1	124	8.82	0.004
gender	0.68	0.68	1	124	0.88	0.349
SEPR:stimulus	50.77	50.77	1	55530	65.97	0.000
SEPR:group	6.96	3.48	2	55538	4.52	0.011
stimulus:group	8.38	4.19	2	55510	5.44	0.004
SEPR:stimulus_salience	9.56	9.56	1	55493	12.42	0.000
stimulus:stimulus_salience	0.43	0.43	1	55491	0.56	0.454
group:stimulus_salience	0.36	0.18	2	55493	0.24	0.789
SEPR:task_utility	1.44	1.44	1	55490	1.87	0.171
stimulus:task_utility	27.48	27.48	1	55489	35.72	0.000
group:task_utility	3.58	1.79	2	55489	2.33	0.098
stimulus_salience:task_utility	2.23	2.23	1	55490	2.90	0.089
SEPR:stimulus:group	0.76	0.38	2	55531	0.50	0.609
SEPR:stimulus:stimulus_salience	4.07	4.07	1	55492	5.29	0.021
SEPR:group:stimulus_salience	5.94	2.97	2	55493	3.86	0.021
stimulus:group:stimulus_salience	2.86	1.43	2	55491	1.86	0.156
SEPR:stimulus:task_utility	0.04	0.04	1	55491	0.05	0.831
SEPR:group:task_utility	0.53	0.26	2	55490	0.34	0.710
stimulus:group:task_utility	5.63	2.82	2	55489	3.66	0.026
SEPR:stimulus_salience:task_utility	0.87	0.87	1	55490	1.13	0.288
stimulus:stimulus_salience:task_utility	0.24	0.24	1	55488	0.31	0.579
group:stimulus_salience:task_utility	4.34	2.17	2	55490	2.82	0.060
SEPR:stimulus:group:stimulus_salience	3.17	1.58	2	55492	2.06	0.128
SEPR:stimulus:group:task_utility	0.01	0.00	2	55491	0.00	0.997
SEPR:stimulus:stimulus_salience:task_utility	0.00	0.00	1	55490	0.01	0.937
SEPR:group:stimulus_salience:task_utility	0.54	0.27	2	55490	0.35	0.704
stimulus:group:stimulus_salience:task_utility	4.52	2.26	2	55488	2.94	0.053
SEPR:stimulus:group:stimulus_salience:task_utility	2.02	1.01	2	55490	1.31	0.269

Miscellaneous

Supplement 33: Power simulation



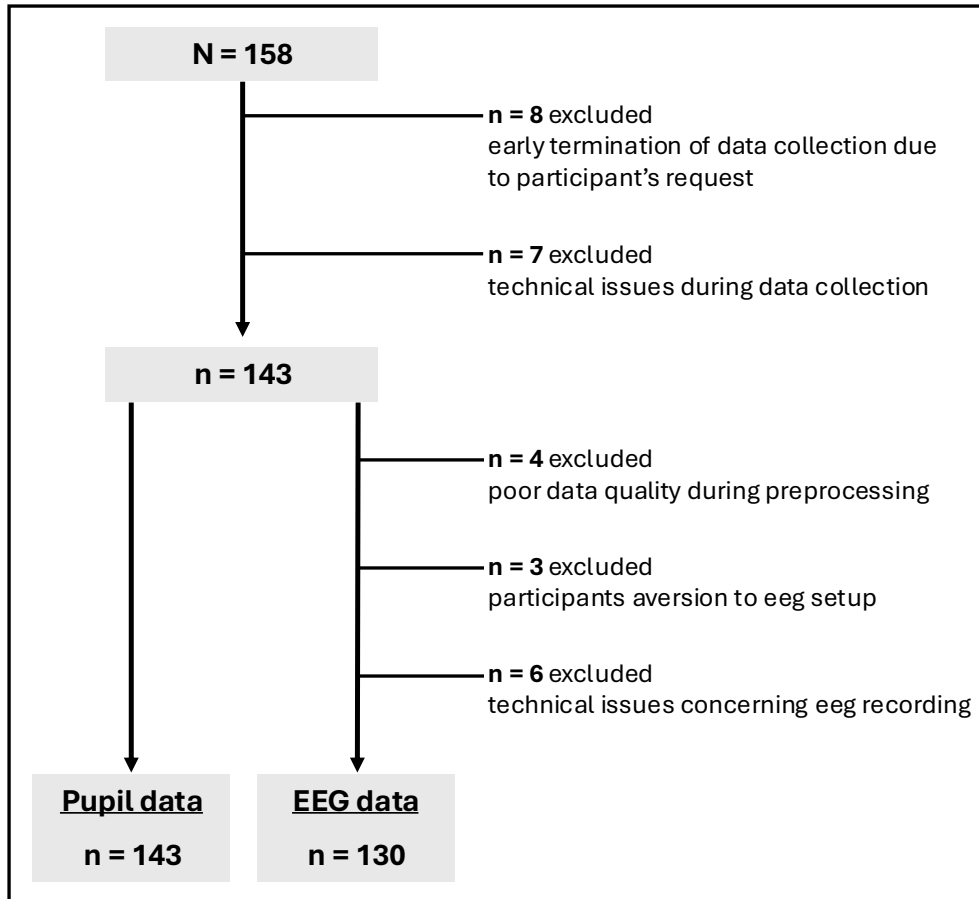
Power for model comparison, (95% confidence interval): 99.60% (98.98, 99.89)

Test: Likelihood ratio Comparison to $y \sim \text{group} + \text{condition} + [\text{re}]$

Based on 1000 simulations, (0 warnings, 0 errors) alpha = 0.05, nrow = 63778

Time elapsed: 0 h 14 m 55 s

Supplement 34: Data exclusion process



Supplement 35: BPS defined as 50 ms

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	1.22	1.22	1	980	20.04	0.000
group	0.13	0.06	2	138	1.03	0.360
stimulus_salience	45.37	45.37	1	980	746.51	0.000
task_utility	0.05	0.05	1	980	0.77	0.381
age	0.60	0.60	1	138	9.90	0.002
gender	0.13	0.13	1	138	2.08	0.152
stimulus:group	0.01	0.00	2	980	0.04	0.960
stimulus:stimulus_salience	0.27	0.27	1	980	4.42	0.036
group:stimulus_salience	1.52	0.76	2	980	12.53	0.000
stimulus:task_utility	0.00	0.00	1	980	0.02	0.881
group:task_utility	0.29	0.14	2	980	2.38	0.093
stimulus_salience:task_utility	0.18	0.18	1	980	2.89	0.090
stimulus:group:stimulus_salience	0.04	0.02	2	980	0.36	0.701
stimulus:group:task_utility	0.01	0.00	2	980	0.06	0.946
stimulus:stimulus_salience:task_utility	0.00	0.00	1	980	0.03	0.870
group:stimulus_salience:task_utility	0.24	0.12	2	980	2.00	0.136
stimulus:group:stimulus_salience:task_utility	0.00	0.00	2	980	0.03	0.970

Supplement 36: BPS defined as 500 ms

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
stimulus	0.42	0.42	1	980	6.73	0.010
group	0.13	0.07	2	138	1.06	0.349
stimulus_salience	48.57	48.57	1	980	781.65	0.000
task_utility	0.01	0.01	1	980	0.17	0.685
age	0.61	0.61	1	138	9.84	0.002
gender	0.13	0.13	1	138	2.07	0.152
stimulus:group	0.00	0.00	2	980	0.04	0.962
stimulus:stimulus_salience	0.15	0.15	1	980	2.37	0.124
group:stimulus_salience	1.55	0.77	2	980	12.45	0.000
stimulus:task_utility	0.01	0.01	1	980	0.21	0.649
group:task_utility	0.25	0.12	2	980	1.98	0.138
stimulus_salience:task_utility	0.14	0.14	1	980	2.21	0.138
stimulus:group:stimulus_salience	0.05	0.03	2	980	0.42	0.658
stimulus:group:task_utility	0.00	0.00	2	980	0.02	0.984
stimulus:stimulus_salience:task_utility	0.00	0.00	1	980	0.04	0.846
group:stimulus_salience:task_utility	0.26	0.13	2	980	2.07	0.127
stimulus:group:stimulus_salience:task_utility	0.00	0.00	2	980	0.03	0.973

Supplement 37: BPS-SEPR Model Fit

	number of parameters	AIC	BIC	log likelihood	deviance	Chi-squared	df	p-value
linear_fit	52	176288.6	176767.4	-88092.28	176184.6	NA	NA	NA
quadratic_fit	76	176081.1	176781.0	-87964.53	175929.1	255.5088	24	0
cubic_fit	100	175890.5	176811.4	-87845.27	175690.5	238.5232	24	0

Supplement 38: Quadratic association between BPS and RT

Effect	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
poly(BPS, 2)	0.56	0.28	2	11326	0.40	0.667
group	3.23	1.62	2	137	2.32	0.102
stimulus_salience	387.14	387.14	1	14299	556.43	0.000
task_utility	702.71	702.71	1	14167	1010.01	0.000
age	7.19	7.19	1	138	10.34	0.002
gender	4.01	4.01	1	137	5.77	0.018
poly(BPS, 2):group	13.63	3.41	4	11035	4.90	0.001
poly(BPS, 2):stimulus_salience	0.15	0.07	2	14226	0.10	0.900
group:stimulus_salience	2.08	1.04	2	14287	1.50	0.224
poly(BPS, 2):task_utility	0.03	0.02	2	14171	0.02	0.978
group:task_utility	7.96	3.98	2	14167	5.72	0.003
stimulus_salience:task_utility	0.37	0.37	1	14160	0.53	0.467
poly(BPS, 2):group:stimulus_salience	17.60	4.40	4	14224	6.32	0.000
poly(BPS, 2):group:task_utility	4.17	1.04	4	14170	1.50	0.200
poly(BPS, 2):stimulus_salience:task_utility	0.38	0.19	2	14165	0.27	0.763
group:stimulus_salience:task_utility	6.03	3.01	2	14160	4.33	0.013
poly(BPS, 2):group:stimulus_salience:task_utility	4.49	1.12	4	14165	1.61	0.168

Supplement 39: MMN Topographies

