**No practice effect, Longitudinal test for candidate genes REST and BDNF accounting for epilepsy type age sex seizure free status for various cognitive tasks in the SANAD**

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

log: M:\Studies\Alix\Sanad\_longitudinal\_new2.log.smcl

log type: smcl

opened on: 29 Oct 2014, 16:26:48

.

. use "M:\Studies\Alix\Sanad\_cog1.dta"

.

. \*time-invariant unobserved individual differences

.

. \*select cognitive variables for longitudinal analysis

.

. gen ID=sanad\_id

.

. gen y1=lvrt\_nondom\_1

(8 missing values generated)

. gen y2=lcvst1

(5 missing values generated)

. gen y3=rey\_imm1

. gen y4=rey\_del1

.

. foreach var of varlist y1 y2 y3 y4 {

2. summ `var'

3. replace `var'=(`var'-r(mean))/r(sd)

4. }

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 74 5.757838 .2138702 5.42 6.22

(74 real changes made)

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 77 2.414156 .3122682 1.77 3.23

(77 real changes made)

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 82 44.82927 8.563207 25 63

(82 real changes made)

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 82 8.780488 2.83725 2 15

(82 real changes made)

.

. reshape long y, i(ID) j(d)

(note: j = 1 2 3 4)

Data wide -> long

-----------------------------------------------------------------------------

Number of obs. 82 -> 328

Number of variables 164 -> 162

j variable (4 values) -> d

xij variables:

y1 y2 ... y4 -> y

-----------------------------------------------------------------------------

. summ

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

ID | 0

d | 328 2.5 1.119742 1 4

sanad\_id | 0

dob | 0

type | 328 1.182927 .3871972 1 2

-------------+--------------------------------------------------------

sex | 328 .4512195 .4983751 0 1

age\_baseline | 328 39.63415 14.75053 15 70

mth12\_ass\_~s | 328 .8536585 .3539882 0 1

date\_rand | 0

age\_adm | 328 40.14268 14.7244 15.3 70.5

-------------+--------------------------------------------------------

date\_1 | 0

total\_seiz | 328 112 391.0546 2 3300

class\_no\_s~e | 328 1.585366 .4934115 1 2

sanad\_seiz~e | 328 8.634146 5.528934 1 20

date\_first~e | 0

-------------+--------------------------------------------------------

date\_rec\_r~e | 0

eeg\_done | 328 .9268293 .2608144 0 1

eeg\_abnormal | 328 .7682927 .738604 0 3

scan\_done | 328 .8902439 .3130631 0 1

scan\_abnor~l | 328 .5731707 .8712954 0 3

-------------+--------------------------------------------------------

education | 112 12.85714 2.396909 11 19

colour\_blind | 120 .0666667 .2504897 0 1

dyslexia | 116 .0344828 .1832572 0 1

date\_12mth | 0

age\_adm2 | 280 42.23143 14.62346 16.3 70.2

-------------+--------------------------------------------------------

test\_retes~t | 280 388.1143 39.73227 350 566

age\_12mth\_~s | 280 41.74286 14.64386 16 70

no\_seizure~s | 280 67.2 220.676 0 1760

meds\_12mts | 328 5.780488 4.527927 1 15

education\_~h | 0

-------------+--------------------------------------------------------

tap\_dom1 | 312 55.7 10.0457 31.4 82.6

tap\_nondom1 | 312 50.21538 9.125732 30 69.8

vrt\_dom1 | 296 334.4189 83.63326 211 574

lvrt\_dom\_1 | 296 5.783919 .2337132 5.35 6.35

vrt\_nondom1 | 296 324.0946 72.10372 227 502

-------------+--------------------------------------------------------

lvrt\_nondo~1 | 296 5.757838 .21278 5.42 6.22

bcrt\_1 | 316 396.2405 115.7909 60 684

cvst\_1 | 308 11.7526 3.914203 5.85 25.3

lcvst1 | 308 2.414156 .3107387 1.77 3.23

story\_imm1 | 328 8.268293 2.853396 2 15

-------------+--------------------------------------------------------

story\_del1 | 328 7.079268 3.137491 0 15

words\_sim1 | 312 18.84615 3.421426 9 24

words\_ser1 | 316 14.91139 4.177612 7 23

figs\_sim1 | 312 12.11538 3.692282 3 20

figs\_ser1 | 312 13.83333 4.039728 5 21

-------------+--------------------------------------------------------

rey\_imm1 | 328 44.82927 8.523836 25 63

rey\_del1 | 328 8.780488 2.824205 2 15

stroop\_cw1 | 300 94 16.95873 52 112

class\_stro~1 | 300 2.306667 .8495261 1 3

ben\_tot1 | 328 38.68293 10.79118 15 60

-------------+--------------------------------------------------------

fas\_raw\_1 | 328 34.10976 11.01459 10 54

amipb\_sco~a1 | 328 57.7439 15.94011 17 102

amipb\_spe~a1 | 324 45.33333 10.85907 22 80

amipb\_sco~b1 | 328 57.95122 17.06394 20 99

amipb\_spe~b1 | 324 47 11.69266 24 80

-------------+--------------------------------------------------------

amipb\_av~e\_1 | 328 57.84756 15.61907 22 98

amipb\_av~d\_1 | 320 45.74375 10.39622 23 68

tap\_dom3 | 264 54.39091 9.018 24.6 73

tap\_nondom3 | 260 48.62154 8.384145 23 66.4

vrt\_dom3 | 260 339.9231 98.35109 216 757

-------------+--------------------------------------------------------

lvrt\_dom\_3 | 260 5.795538 .2527931 5.38 6.63

vrt\_nondom3 | 256 357.3906 111.0983 222 833

lvrt\_nondo~3 | 256 5.838906 .2700769 5.4 6.73

bcrt\_3 | 268 395.5373 108.5023 139 720

cvst\_3 | 264 11.32606 3.628188 4.73 27.2

-------------+--------------------------------------------------------

lncvst\_3 | 264 2.380909 .2983744 1.55 3.3

story\_imm3 | 280 7.778571 3.619576 2 16

story\_del3 | 280 6.985714 3.384522 0 15.5

words\_sim3 | 268 17.92537 4.001174 9 24

words\_ser3 | 276 14.63768 4.427915 4 24

-------------+--------------------------------------------------------

figs\_sim3 | 272 12.23529 4.145393 2 20

figs\_ser3 | 264 14.28788 4.0105 4 23

rey\_imm3 | 280 42.27143 8.003443 23 65

rey\_del3 | 280 7.7 2.763562 2 14

stroop\_cw3 | 256 95.60938 16.87287 48 112

-------------+--------------------------------------------------------

class\_stro~3 | 256 1.421875 .7882408 0 2

ben\_tot3 | 280 37.31429 10.27862 11 58

fas\_raw3 | 280 32.67143 10.47506 5 55

amipb\_sco~a3 | 280 59.27143 17.34732 23 100

amipb\_spe~a3 | 280 42.94286 10.29025 18 71

-------------+--------------------------------------------------------

amipb\_sco~b3 | 280 58.48571 18.14378 22 103

amipb\_spe~b3 | 280 45.7 10.45811 17 72

amipb\_av~e\_3 | 280 58.87857 17.03411 25 100.5

amipb\_av~d\_3 | 276 44.71014 9.72547 30 71.5

tap\_dom\_long | 256 -1.171875 10.65921 -35 30.2

-------------+--------------------------------------------------------

tap\_nondom~g | 252 -1.812698 9.63148 -39.8 19.4

vrt\_dom\_long | 236 20.81356 102.7006 -222 473

lvrt\_dom\_l~g | 236 .0535593 .2499618 -.57 .98

vrt\_nondom~g | 240 39.95 101.3055 -209 385

lvrt\_nondo~g | 240 .1018333 .2453278 -.54 .82

-------------+--------------------------------------------------------

bcrt\_long | 260 3.476923 129.5906 -465 483

cvst\_long | 252 -.2769842 3.4077 -9.82 11.98

lncvst\_long | 252 -.025873 .2456028 -.82 .58

story\_imm\_~g | 280 -.5142857 3.17243 -9 6.5

story\_del\_~g | 280 -.1285714 3.04528 -7 8

-------------+--------------------------------------------------------

words\_sim\_~g | 256 -.796875 4.192167 -9 11

words\_ser\_~g | 264 -.3484848 3.576401 -10 6

figs\_sim\_l~g | 256 .28125 3.8008 -9 8

figs\_ser\_l~g | 248 .983871 4.241656 -8 11

rey\_imm\_long | 280 -2.914286 7.93837 -20 18

-------------+--------------------------------------------------------

rey\_del\_long | 280 -1.171429 2.436117 -7 4

stroop\_cw\_~g | 252 1.84127 14.25237 -29 43

class\_stro~g | 252 -.8888889 .7804608 -3 1

ben\_tot\_long | 280 -1.985714 8.125349 -23 15

fas\_raw\_long | 280 -1.985714 8.125349 -23 15

-------------+--------------------------------------------------------

amip~ea\_long | 280 .3285714 10.72126 -25 32

amip~da\_long | 276 -2.971014 8.638133 -26 20

amip~eb\_long | 280 .0857143 8.58897 -19 33

amip~db\_long | 276 -1.681159 8.928798 -27 18

amipb~e\_long | 280 .2071429 8.471539 -15 27

-------------+--------------------------------------------------------

amipb~d\_long | 268 -1.955224 8.055859 -24 16.5

patientid | 0

mthdata | 0

id | 0

rs3806746 | 284 1.732394 .6052245 1 3

-------------+--------------------------------------------------------

rs4109037 | 328 1.207317 .406004 1 2

rs3755901 | 328 1.231707 .4505866 1 3

rs3000 | 288 1.75 .6625892 1 3

rs1713985 | 328 1.170732 .3768493 1 2

rs13125082 | 284 1.549296 .6465725 1 3

-------------+--------------------------------------------------------

rs6847086 | 280 1.771429 .6595628 1 3

rs1277306 | 328 1.658537 .6299267 1 3

rs1105434 | 284 1.71831 .6763673 1 3

rs2227902 | 288 1.208333 .4068233 1 2

rs3796529 | 308 1.38961 .5391716 1 3

-------------+--------------------------------------------------------

rs2227901 | 328 1.365854 .5307013 1 3

rs781667 | 328 1.560976 .5872772 1 3

rs1491851 | 288 1.708333 .7360787 1 3

rs2049048 | 276 1.376812 .5933314 1 3

rs1491850 | 328 1.878049 .6707565 1 3

-------------+--------------------------------------------------------

rs11030123 | 324 1.222222 .4721337 1 3

rs12273363 | 288 1.375 .4849656 1 2

rs11030121 | 284 1.647887 .6952355 1 3

rs7934165 | 260 1.969231 .679978 1 3

rs11030119 | 284 1.746479 .6874608 1 3

-------------+--------------------------------------------------------

rs2030324 | 312 1.884615 .7169203 1 3

rs988748 | 324 1.419753 .5644625 1 3

rs2049046 | 324 1.876543 .7445607 1 3

rs7127507 | 288 1.680556 .7244152 1 3

rs7103411 | 288 1.430556 .5493459 1 3

-------------+--------------------------------------------------------

rs11030108 | 320 1.6625 .7072176 1 3

rs2049045 | 328 1.353659 .5274589 1 3

rs11030104 | 328 1.414634 .5628938 1 3

rs11030102 | 324 1.518519 .5911863 1 3

rs6265 | 328 1.378049 .5336446 1 3

-------------+--------------------------------------------------------

rs7124442 | 328 1.695122 .7284355 1 3

rs4923463 | 328 1.402439 .5609026 1 3

rs10501087 | 288 1.416667 .5474044 1 3

rs7927728 | 276 1.144928 .3917462 1 3

rs11602246 | 288 1.125 .3312946 1 2

-------------+--------------------------------------------------------

rs11030094 | 288 1.763889 .6982917 1 3

rs10742179 | 328 1.54878 .5884191 1 3

rs1387144 | 288 1.833333 .6883804 1 3

rs7939810 | 280 1.671429 .6924359 1 3

rs12807253 | 312 1 0 1 1

-------------+--------------------------------------------------------

rs12223664 | 324 1.975309 .7033808 1 3

rs11030066 | 324 1.283951 .5034757 1 3

rs4923456 | 328 1.463415 .5893058 1 3

rs10501086 | 328 1.182927 .3871972 1 2

seizurefree | 280 .7285714 .4454929 0 1

-------------+--------------------------------------------------------

seizure52 | 280 .2571429 .4378414 0 1

y | 315 -2.24e-09 .9952115 -2.38981 2.612639

.

. drop if y==.

(13 observations deleted)

. tab d,gen(d)

d | Freq. Percent Cum.

------------+-----------------------------------

1 | 74 23.49 23.49

2 | 77 24.44 47.94

3 | 82 26.03 73.97

4 | 82 26.03 100.00

------------+-----------------------------------

Total | 315 100.00

.

. gen ad1=age\_adm\*d1

. gen ad2=age\_adm\*d2

. gen ad3=age\_adm\*d3

. gen ad4=age\_adm\*d4

.

. gen agea1=age\_adm-30

. gen agea2=age\_adm2-30

(46 missing values generated)

.

. drop if ID==ID[\_n-1]

(233 observations deleted)

.

. gen y11=lvrt\_nondom\_1

(8 missing values generated)

. gen y21=lcvst1

(5 missing values generated)

. gen y31=rey\_imm1

. gen y41=rey\_del1

. gen y12=lvrt\_nondom\_3

(18 missing values generated)

. gen y22=lncvst\_3

(16 missing values generated)

. gen y32=rey\_imm3

(12 missing values generated)

. gen y42=rey\_del3

(12 missing values generated)

.

.

.

. reshape long y1 y2 y3 y4 agea , i(ID) j(t)

(note: j = 1 2)

Data wide -> long

-----------------------------------------------------------------------------

Number of obs. 82 -> 164

Number of variables 180 -> 176

j variable (2 values) -> t

xij variables:

y11 y12 -> y1

y21 y22 -> y2

y31 y32 -> y3

y41 y42 -> y4

agea1 agea2 -> agea

-----------------------------------------------------------------------------

. tab t, gen(t)

t | Freq. Percent Cum.

------------+-----------------------------------

1 | 82 50.00 50.00

2 | 82 50.00 100.00

------------+-----------------------------------

Total | 164 100.00

. sort ID t

.

. by ID: drop if ID==ID[\_n-1] & t==t[\_n-1]

(0 observations deleted)

. gen p1=0

. gen p2=0

. gen p3=0

. gen p4=0

. gen p10=0

.

. factor y1 y2 y3 y4, factor(1)

(obs=132)

Factor analysis/correlation Number of obs = 132

Method: principal factors Retained factors = 1

Rotation: (unrotated) Number of params = 4

--------------------------------------------------------------------------

Factor | Eigenvalue Difference Proportion Cumulative

-------------+------------------------------------------------------------

Factor1 | 1.57395 1.36613 1.0534 1.0534

Factor2 | 0.20783 0.31011 0.1391 1.1925

Factor3 | -0.10228 0.08308 -0.0685 1.1241

Factor4 | -0.18537 . -0.1241 1.0000

--------------------------------------------------------------------------

LR test: independent vs. saturated: chi2(6) = 150.27 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

---------------------------------------

Variable | Factor1 | Uniqueness

-------------+----------+--------------

y1 | -0.2565 | 0.9342

y2 | -0.3221 | 0.8962

y3 | 0.8669 | 0.2485

y4 | 0.8080 | 0.3471

---------------------------------------

. predict y10

(regression scoring assumed)

Scoring coefficients (method = regression)

------------------------

Variable | Factor1

-------------+----------

y1 | -0.06136

y2 | -0.07473

y3 | 0.54939

y4 | 0.35687

------------------------

. sort ID t

.

. by ID: replace p1=sum(cond(y1~=.,1,0))

(152 real changes made)

. by ID: replace p2=sum(cond(y2~=.,1,0))

(157 real changes made)

. by ID: replace p3=sum(cond(y3~=.,1,0))

(164 real changes made)

. by ID: replace p4=sum(cond(y4~=.,1,0))

(164 real changes made)

. by ID: replace p10=sum(cond(y10~=.,1,0))

(146 real changes made)

.

. pwcorr y1 y2 y3 y4 y10, obs

| y1 y2 y3 y4 y10

-------------+---------------------------------------------

y1 | 1.0000

| 138

|

y2 | 0.2086 1.0000

| 132 143

|

y3 | -0.2592 -0.2977 1.0000

| 138 143 152

|

y4 | -0.1122 -0.1873 0.7813 1.0000

| 138 143 152 152

|

y10 | -0.2860 -0.3591 0.9666 0.9009 1.0000

| 132 132 132 132 132

|

.

. set maxiter 20

.

. \*egen REST=group(rs3755901 rs1105434 rs2227902 rs3796529 rs2227901)

. \*egen BDNF=group(rs12273363 rs2030324 rs6265 rs7124442 rs4923463)

. \*global SNP REST BDNF

.

. foreach gene of varlist rs3755901 rs1105434 rs2227902 rs3796529 rs2227901 rs1491850 rs12273363 rs2030324 rs11030108 rs6265 rs7124442 rs4923463 rs11030094{

2. tab `gene'

3. gen gene=`gene'

4. gen gage=age\_adm\*`gene'

5.

. di ""

6. di "Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker `gene' accounting for epilepsy type age and sex"

7. xi:xtmixed y1 type sex seizurefree gene agea gage || ID: agea , cov(unstr)

8. xi:xtmixed y1 type sex seizurefree i.gene\*agea || ID: agea , cov(unstr)

9. testparm \_Igene\*

10. testparm \_IgenX\*

11. sort `gene'

12. by `gene': summ y1

13.

. di ""

14. di "Log transformed computerised visual search task (average speed response/processing information) task & marker `gene' accounting for epilepsy type age and sex"

15. xi:xtmixed y2 type sex seizurefree gene agea gage || ID: agea , cov(unstr)

16. xi:xtmixed y2 type sex seizurefree i.gene\*agea || ID: agea , cov(unstr)

17. testparm \_Igene\*

18. testparm \_IgenX\*

19. sort `gene'

20. by `gene': summ y2

21.

. di ""

22. di "Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker `gene' accounting for epilepsy type age and sex"

23. xi:xtmixed y3 type sex seizurefree gene agea gage || ID: agea , cov(unstr)

24. xi:xtmixed y3 type sex seizurefree i.gene\*agea || ID: agea , cov(unstr)

25. testparm \_Igene\*

26. testparm \_IgenX\*

27. sort `gene'

28. by `gene': summ y3

29.

.

. di ""

30. di "Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker `gene' accounting for epylepsy type age and sex"

31. xi:xtmixed y4 type sex seizurefree gene agea gage || ID: agea , cov(unstr)

32. xi:xtmixed y4 type sex seizurefree i.gene\*agea || ID: agea , cov(unstr)

33. testparm \_Igene\*

34. testparm \_IgenX\*

35. sort `gene'

36. by `gene': summ y4

37.

. di ""

38. di "Score on common factor & marker `gene' accounting for epilepsy type age and sex"

39. xi:xtmixed y10 type sex seizurefree gene agea gage || ID: agea , cov(unstr)

40. xi:xtmixed y10 type sex seizurefree i.gene\*agea || ID: agea , cov(unstr)

41. testparm \_Igene\*

42. testparm \_IgenX\*

43. sort `gene'

44. by `gene': summ y10

45.

.

. drop gene gage

46. }

rs3755901 | Freq. Percent Cum.

------------+-----------------------------------

1 | 128 78.05 78.05

2 | 34 20.73 98.78

3 | 2 1.22 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs3755901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -14.747674

Iteration 1: log restricted-likelihood = -14.042851

Iteration 2: log restricted-likelihood = -13.899104

Iteration 3: log restricted-likelihood = -13.815633

Iteration 4: log restricted-likelihood = -13.780273

Iteration 5: log restricted-likelihood = -13.77216

Iteration 6: log restricted-likelihood = -13.77115

Iteration 7: log restricted-likelihood = -13.770915

Iteration 8: log restricted-likelihood = -13.770855

Iteration 9: log restricted-likelihood = -13.770842

Iteration 10: log restricted-likelihood = -13.770839

Iteration 11: log restricted-likelihood = -13.770839

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 8.22

Log restricted-likelihood = -13.770839 Prob > chi2 = 0.2227

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0480595 .0725912 -0.66 0.508 -.1903356 .0942166

sex | -.0405492 .0533693 -0.76 0.447 -.1451512 .0640528

seizurefree | -.0320313 .0602042 -0.53 0.595 -.1500293 .0859667

gene | -.1261135 .1597387 -0.79 0.430 -.4391955 .1869686

agea | .0006793 .0051873 0.13 0.896 -.0094876 .0108462

gage | -.0000728 .0038921 -0.02 0.985 -.0077013 .0075556

\_cons | 6.051324 .1320848 45.81 0.000 5.792443 6.310206

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019924 .0018956 .0003087 .0128596

sd(\_cons) | .1402297 .0348579 .0861492 .2282596

corr(agea,\_cons) | .9999984 .0048331 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .186579 .0169105 .1562121 .2228491

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.61 Prob > chi2 = 0.0035

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -15.230923

Iteration 1: log restricted-likelihood = -14.558262

Iteration 2: log restricted-likelihood = -14.3926

Iteration 3: log restricted-likelihood = -14.327573

Iteration 4: log restricted-likelihood = -14.304595

Iteration 5: log restricted-likelihood = -14.297801

Iteration 6: log restricted-likelihood = -14.296196

Iteration 7: log restricted-likelihood = -14.295885

Iteration 8: log restricted-likelihood = -14.295812

Iteration 9: log restricted-likelihood = -14.295795

Iteration 10: log restricted-likelihood = -14.295791

Iteration 11: log restricted-likelihood = -14.29579

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 8.50

Log restricted-likelihood = -14.29579 Prob > chi2 = 0.3861

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.039681 .0743174 -0.53 0.593 -.1853405 .1059785

sex | -.040398 .0537087 -0.75 0.452 -.1456652 .0648691

seizurefree | -.0329707 .0608828 -0.54 0.588 -.1522989 .0863574

\_Igene\_2 | -.1351203 .0686345 -1.97 0.049 -.2696415 -.0005992

\_Igene\_3 | -1.331596 5.434034 -0.25 0.806 -11.98211 9.318914

agea | .0002357 .0022134 0.11 0.915 -.0041024 .0045739

\_IgenXagea\_2 | .0022998 .0043257 0.53 0.595 -.0061784 .0107779

\_IgenXagea\_3 | .0497645 .2661977 0.19 0.852 -.4719735 .5715024

\_cons | 5.916352 .1181246 50.09 0.000 5.684832 6.147872

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019453 .0019294 .0002785 .0135898

sd(\_cons) | .1410316 .0353687 .0862675 .2305609

corr(agea,\_cons) | .9999965 .0076491 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1882187 .017162 .157416 .2250487

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.09 Prob > chi2 = 0.0045

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 3.93

Prob > chi2 = 0.1400

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.32

Prob > chi2 = 0.8534

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 108 5.821296 .2426917 5.42 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 28 5.717857 .2339414 5.4 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 2 5.485 .0353555 5.46 5.51

Log transformed computerised visual search task (average speed response/processing information) task & marker rs3755901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -21.668312

Iteration 1: log restricted-likelihood = -21.305958

Iteration 2: log restricted-likelihood = -21.209729

Iteration 3: log restricted-likelihood = -21.182207

Iteration 4: log restricted-likelihood = -21.169307

Iteration 5: log restricted-likelihood = -21.165152

Iteration 6: log restricted-likelihood = -21.163598

Iteration 7: log restricted-likelihood = -21.163111

Iteration 8: log restricted-likelihood = -21.162964

Iteration 9: log restricted-likelihood = -21.162936

Iteration 10: log restricted-likelihood = -21.16293

Iteration 11: log restricted-likelihood = -21.162929

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 24.08

Log restricted-likelihood = -21.162929 Prob > chi2 = 0.0005

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1618058 .0974081 -1.66 0.097 -.3527222 .0291105

sex | -.1003985 .0643091 -1.56 0.118 -.2264421 .025645

seizurefree | -.0232383 .0721445 -0.32 0.747 -.164639 .1181624

gene | .0326169 .2123239 0.15 0.878 -.3835303 .4487641

agea | .0083662 .0063798 1.31 0.190 -.0041379 .0208703

gage | -.0006154 .0047497 -0.13 0.897 -.0099247 .0086939

\_cons | 2.560304 .1861611 13.75 0.000 2.195435 2.925173

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0018554 .0020356 .0002161 .015933

sd(\_cons) | .2433774 .0363804 .1815688 .3262265

corr(agea,\_cons) | -.9999819 .0097473 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1760793 .0158415 .1476139 .2100338

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 30.02 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.158468

Iteration 1: log restricted-likelihood = -21.839935

Iteration 2: log restricted-likelihood = -21.750678

Iteration 3: log restricted-likelihood = -21.725711

Iteration 4: log restricted-likelihood = -21.711339

Iteration 5: log restricted-likelihood = -21.707273

Iteration 6: log restricted-likelihood = -21.704672

Iteration 7: log restricted-likelihood = -21.703862

Iteration 8: log restricted-likelihood = -21.703776

Iteration 9: log restricted-likelihood = -21.703755

Iteration 10: log restricted-likelihood = -21.703751

Iteration 11: log restricted-likelihood = -21.70375

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 24.03

Log restricted-likelihood = -21.70375 Prob > chi2 = 0.0023

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1575039 .1012906 -1.55 0.120 -.3560299 .041022

sex | -.0979511 .0648821 -1.51 0.131 -.2251178 .0292155

seizurefree | -.0250235 .0732992 -0.34 0.733 -.1686874 .1186404

\_Igene\_2 | .0323019 .0947584 0.34 0.733 -.1534212 .2180251

\_Igene\_3 | -2.130468 5.117729 -0.42 0.677 -12.16103 7.900097

agea | .0080584 .0027101 2.97 0.003 .0027468 .01337

\_IgenXagea\_2 | -.0014818 .0051049 -0.29 0.772 -.0114872 .0085235

\_IgenXagea\_3 | .1019415 .2504794 0.41 0.684 -.3889891 .5928722

\_cons | 2.564429 .1569836 16.34 0.000 2.256747 2.872111

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .001831 .0019609 .0002244 .0149369

sd(\_cons) | .2450085 .0368817 .1824097 .3290899

corr(agea,\_cons) | -.9999851 .0368358 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1771006 .0160471 .1482833 .2115182

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.60 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 0.29

Prob > chi2 = 0.8645

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.25

Prob > chi2 = 0.8821

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 111 2.404054 .3027552 1.55 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 30 2.388333 .330768 1.77 3.04

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 2 2.265 .0777817 2.21 2.32

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs3755901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -471.60648

Iteration 1: log restricted-likelihood = -470.78213

Iteration 2: log restricted-likelihood = -470.47817

Iteration 3: log restricted-likelihood = -470.39279

Iteration 4: log restricted-likelihood = -470.37454

Iteration 5: log restricted-likelihood = -470.37024

Iteration 6: log restricted-likelihood = -470.36925

Iteration 7: log restricted-likelihood = -470.36903

Iteration 8: log restricted-likelihood = -470.369

Iteration 9: log restricted-likelihood = -470.36899

Iteration 10: log restricted-likelihood = -470.36899 (not concave)

Iteration 11: log restricted-likelihood = -470.36899 (not concave)

Iteration 12: log restricted-likelihood = -470.36899 (not concave)

Iteration 13: log restricted-likelihood = -470.36899 (not concave)

Iteration 14: log restricted-likelihood = -470.36899 (not concave)

Iteration 15: log restricted-likelihood = -470.36899 (not concave)

Iteration 16: log restricted-likelihood = -470.36899 (not concave)

Iteration 17: log restricted-likelihood = -470.36899 (not concave)

Iteration 18: log restricted-likelihood = -470.36899 (not concave)

Iteration 19: log restricted-likelihood = -470.36899 (not concave)

Iteration 20: log restricted-likelihood = -470.36899 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 15.27

Log restricted-likelihood = -471.60648 Prob > chi2 = 0.0183

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.114724 2.326112 1.34 0.181 -1.444372 7.673819

sex | -3.718733 1.664052 -2.23 0.025 -6.980215 -.4572507

seizurefree | .6402864 1.85032 0.35 0.729 -2.986274 4.266846

gene | -6.090584 5.461675 -1.12 0.265 -16.79527 4.614103

agea | -.3484777 .1769608 -1.97 0.049 -.6953145 -.0016409

gage | .2111868 .1316319 1.60 0.109 -.0468071 .4691807

\_cons | 42.21707 4.419118 9.55 0.000 33.55576 50.87838

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2172105 . . .

sd(\_cons) | 4.636434 . . .

corr(agea,\_cons) | -.3328842 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.750027 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.59 Prob > chi2 = 0.0142

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -465.45848

Iteration 1: log restricted-likelihood = -464.64279

Iteration 2: log restricted-likelihood = -464.33495

Iteration 3: log restricted-likelihood = -464.2631

Iteration 4: log restricted-likelihood = -464.25686

Iteration 5: log restricted-likelihood = -464.25547

Iteration 6: log restricted-likelihood = -464.25515

Iteration 7: log restricted-likelihood = -464.2551

Iteration 8: log restricted-likelihood = -464.25509

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 14.32

Log restricted-likelihood = -464.25509 Prob > chi2 = 0.0737

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.025768 2.239029 1.35 0.177 -1.362649 7.414185

sex | -2.897808 1.600925 -1.81 0.070 -6.035563 .2399467

seizurefree | -.039653 1.775848 -0.02 0.982 -3.520251 3.440945

\_Igene\_2 | .9161112 2.012976 0.46 0.649 -3.02925 4.861472

\_Igene\_3 | -101.9018 172.3902 -0.59 0.554 -439.7804 235.9767

agea | -.1199671 .0659112 -1.82 0.069 -.2491506 .0092164

\_IgenXagea\_2 | .1993955 .1283827 1.55 0.120 -.0522299 .4510209

\_IgenXagea\_3 | 5.119967 8.445107 0.61 0.544 -11.43214 21.67207

\_cons | 42.24809 3.471416 12.17 0.000 35.44424 49.05194

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0504784 .0600127 .0049106 .5188967

sd(\_cons) | 4.259094 1.074909 2.597115 6.984628

corr(agea,\_cons) | .99997 .016627 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.971304 .5076101 5.05487 7.053884

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.33 Prob > chi2 = 0.0063

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.56

Prob > chi2 = 0.7563

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 2.77

Prob > chi2 = 0.2498

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 117 42.93162 8.392039 23 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 33 46.09091 8.307992 29 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 2 45.5 3.535534 43 48

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs3755901 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -325.66804

Iteration 1: log restricted-likelihood = -325.12781

Iteration 2: log restricted-likelihood = -324.90549

Iteration 3: log restricted-likelihood = -324.83168

Iteration 4: log restricted-likelihood = -324.81502

Iteration 5: log restricted-likelihood = -324.81019

Iteration 6: log restricted-likelihood = -324.80919

Iteration 7: log restricted-likelihood = -324.80903

Iteration 8: log restricted-likelihood = -324.80899

Iteration 9: log restricted-likelihood = -324.80898

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 14.88

Log restricted-likelihood = -324.80898 Prob > chi2 = 0.0212

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .8314861 .8394221 0.99 0.322 -.813751 2.476723

sex | -1.042745 .5698705 -1.83 0.067 -2.15967 .074181

seizurefree | .1903733 .6297556 0.30 0.762 -1.043925 1.424672

gene | -3.044545 1.810352 -1.68 0.093 -6.592769 .5036801

agea | -.1410975 .0554116 -2.55 0.011 -.2497021 -.0324928

gage | .0858169 .0409383 2.10 0.036 .0055793 .1660545

\_cons | 8.714919 1.554677 5.61 0.000 5.667807 11.76203

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0055371 .0195053 5.56e-06 5.518106

sd(\_cons) | 1.931863 .3444782 1.362057 2.740044

corr(agea,\_cons) | -.9997208 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.866589 .1586786 1.580113 2.205004

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.45 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -321.33087

Iteration 1: log restricted-likelihood = -320.87255

Iteration 2: log restricted-likelihood = -320.66258

Iteration 3: log restricted-likelihood = -320.59799

Iteration 4: log restricted-likelihood = -320.56443

Iteration 5: log restricted-likelihood = -320.55941

Iteration 6: log restricted-likelihood = -320.55814

Iteration 7: log restricted-likelihood = -320.55788

Iteration 8: log restricted-likelihood = -320.55782

Iteration 9: log restricted-likelihood = -320.55781

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 15.57

Log restricted-likelihood = -320.55781 Prob > chi2 = 0.0490

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .9214249 .8691615 1.06 0.289 -.7821003 2.62495

sex | -1.006948 .5725756 -1.76 0.079 -2.129175 .1152798

seizurefree | .130945 .6381206 0.21 0.837 -1.119748 1.381638

\_Igene\_2 | -.2019715 .8042799 -0.25 0.802 -1.778331 1.374388

\_Igene\_3 | -81.4694 54.20792 -1.50 0.133 -187.715 24.77616

agea | -.0502554 .0236404 -2.13 0.034 -.0965896 -.0039211

\_IgenXagea\_2 | .0723387 .043747 1.65 0.098 -.0134037 .1580812

\_IgenXagea\_3 | 4.050255 2.654511 1.53 0.127 -1.15249 9.253

\_cons | 8.033494 1.322985 6.07 0.000 5.440491 10.6265

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0068094 .0199297 .000022 2.110566

sd(\_cons) | 1.952238 .3529706 1.369723 2.782483

corr(agea,\_cons) | -.9996881 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.876942 .1599579 1.588215 2.218158

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.23 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 2.32

Prob > chi2 = 0.3138

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 5.04

Prob > chi2 = 0.0803

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 117 8.136752 2.855442 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 33 8.757576 2.872611 3 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 2 9 2.828427 7 11

Score on common factor & marker rs3755901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -147.56493

Iteration 1: log restricted-likelihood = -147.18775

Iteration 2: log restricted-likelihood = -146.97279

Iteration 3: log restricted-likelihood = -146.93711

Iteration 4: log restricted-likelihood = -146.92789

Iteration 5: log restricted-likelihood = -146.92522

Iteration 6: log restricted-likelihood = -146.92486

Iteration 7: log restricted-likelihood = -146.92479

Iteration 8: log restricted-likelihood = -146.92478

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 23.43

Log restricted-likelihood = -146.92478 Prob > chi2 = 0.0007

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .12347 .2430309 0.51 0.611 -.3528617 .5998018

sex | -.3738513 .1752069 -2.13 0.033 -.7172506 -.0304521

seizurefree | -.0621691 .2023082 -0.31 0.759 -.458686 .3343477

gene | -.7757094 .539808 -1.44 0.151 -1.833714 .2822948

agea | -.0509386 .0171991 -2.96 0.003 -.0846483 -.017229

gage | .0291718 .0130287 2.24 0.025 .0036359 .0547076

\_cons | .1327719 .4580737 0.29 0.772 -.7650361 1.03058

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0033664 .0061487 .0000939 .1207421

sd(\_cons) | .4880309 .1095686 .3142988 .7577955

corr(agea,\_cons) | .9998915 .0824406 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5903114 .0545156 .4925747 .7074409

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.16 Prob > chi2 = 0.0043

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -145.35801

Iteration 1: log restricted-likelihood = -145.08412

Iteration 2: log restricted-likelihood = -145.03027

Iteration 3: log restricted-likelihood = -145.01056

Iteration 4: log restricted-likelihood = -145.00711

Iteration 5: log restricted-likelihood = -145.00604

Iteration 6: log restricted-likelihood = -145.00595

Iteration 7: log restricted-likelihood = -145.00595

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 24.57

Log restricted-likelihood = -145.00595 Prob > chi2 = 0.0018

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .183103 .244712 0.75 0.454 -.2965237 .6627297

sex | -.3668406 .1735099 -2.11 0.034 -.7069138 -.0267674

seizurefree | -.0955765 .2017559 -0.47 0.636 -.4910108 .2998579

\_Igene\_2 | .2044979 .2271382 0.90 0.368 -.2406848 .6496805

\_Igene\_3 | -16.06752 17.39048 -0.92 0.356 -50.15223 18.01719

agea | -.0206264 .0072408 -2.85 0.004 -.0348181 -.0064348

\_IgenXagea\_2 | .0318831 .0147295 2.16 0.030 .0030138 .0607523

\_IgenXagea\_3 | .812517 .8519152 0.95 0.340 -.8572061 2.48224

\_cons | .1400999 .3992671 0.35 0.726 -.6424491 .922649

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0087871 .0447024 4.11e-07 187.9958

sd(\_cons) | .4618587 .1427572 .2520048 .8464659

corr(agea,\_cons) | .2787296 3.449075 -.9999985 .9999995

-----------------------------+------------------------------------------------

sd(Residual) | .6023412 .056049 .5019224 .7228506

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.70 Prob > chi2 = 0.0085

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 1.67

Prob > chi2 = 0.4336

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 5.58

Prob > chi2 = 0.0614

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 104 -.0942387 .885295 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 26 .3595306 .8934051 -1.314686 1.949504

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3755901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 2 .2265152 .5599512 -.16943 .6224605

rs1105434 | Freq. Percent Cum.

------------+-----------------------------------

1 | 58 40.85 40.85

2 | 66 46.48 87.32

3 | 18 12.68 100.00

------------+-----------------------------------

Total | 142 100.00

(22 missing values generated)

(22 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs1105434 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -19.378407

Iteration 1: log restricted-likelihood = -18.667683

Iteration 2: log restricted-likelihood = -18.488866

Iteration 3: log restricted-likelihood = -18.400143

Iteration 4: log restricted-likelihood = -18.369835

Iteration 5: log restricted-likelihood = -18.361429

Iteration 6: log restricted-likelihood = -18.359278

Iteration 7: log restricted-likelihood = -18.358778

Iteration 8: log restricted-likelihood = -18.358673

Iteration 9: log restricted-likelihood = -18.358655

Iteration 10: log restricted-likelihood = -18.35865

Iteration 11: log restricted-likelihood = -18.358649

Computing standard errors:

Mixed-effects REML regression Number of obs = 109

Group variable: ID Number of groups = 58

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 4.15

Log restricted-likelihood = -18.358649 Prob > chi2 = 0.6558

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0810388 .09316 -0.87 0.384 -.2636291 .1015515

sex | -.0243984 .0636362 -0.38 0.701 -.1491231 .1003263

seizurefree | -.0249217 .0699221 -0.36 0.722 -.1619665 .1121231

gene | .0645737 .1381803 0.47 0.640 -.2062546 .335402

agea | -.0003992 .0060679 -0.07 0.948 -.012292 .0114936

gage | .0000165 .0032115 0.01 0.996 -.006278 .006311

\_cons | 5.818876 .1805388 32.23 0.000 5.465027 6.172726

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0017313 .0021375 .000154 .0194661

sd(\_cons) | .145955 .0394098 .0859772 .2477733

corr(agea,\_cons) | .999998 .0048066 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1964709 .019238 .1621626 .2380378

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.44 Prob > chi2 = 0.0152

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -24.064616

Iteration 1: log restricted-likelihood = -23.41899

Iteration 2: log restricted-likelihood = -23.177898

Iteration 3: log restricted-likelihood = -23.108905

Iteration 4: log restricted-likelihood = -23.096206

Iteration 5: log restricted-likelihood = -23.093264

Iteration 6: log restricted-likelihood = -23.092536

Iteration 7: log restricted-likelihood = -23.092351

Iteration 8: log restricted-likelihood = -23.092316

Iteration 9: log restricted-likelihood = -23.092309

Iteration 10: log restricted-likelihood = -23.092308

Computing standard errors:

Mixed-effects REML regression Number of obs = 109

Group variable: ID Number of groups = 58

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 4.18

Log restricted-likelihood = -23.092308 Prob > chi2 = 0.8403

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0879668 .0955088 -0.92 0.357 -.2751605 .099227

sex | -.0200421 .0655166 -0.31 0.760 -.1484523 .108368

seizurefree | -.0278476 .0727578 -0.38 0.702 -.1704502 .1147551

\_Igene\_2 | .0472534 .0734867 0.64 0.520 -.0967778 .1912847

\_Igene\_3 | .1155931 .1516615 0.76 0.446 -.1816579 .4128442

agea | -.001394 .0036266 -0.38 0.701 -.0085021 .005714

\_IgenXagea\_2 | .0015024 .0043092 0.35 0.727 -.0069434 .0099481

\_IgenXagea\_3 | .0018121 .0079472 0.23 0.820 -.0137641 .0173884

\_cons | 5.901358 .1502405 39.28 0.000 5.606892 6.195824

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0017671 .002215 .0001515 .0206172

sd(\_cons) | .1506438 .0401821 .0893111 .2540957

corr(agea,\_cons) | .9999961 .006772 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1966275 .0192484 .1622997 .238216

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.00 Prob > chi2 = 0.0117

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 0.79

Prob > chi2 = 0.6744

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.14

Prob > chi2 = 0.9342

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 49 5.753265 .2310518 5.4 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 55 5.810909 .2652202 5.42 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 14 5.897857 .213692 5.54 6.23

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 20 5.7845 .2306164 5.46 6.23

Log transformed computerised visual search task (average speed response/processing information) task & marker rs1105434 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -25.408974

Iteration 1: log restricted-likelihood = -25.001162

Iteration 2: log restricted-likelihood = -24.802404

Iteration 3: log restricted-likelihood = -24.749591

Iteration 4: log restricted-likelihood = -24.744095

Iteration 5: log restricted-likelihood = -24.742927

Iteration 6: log restricted-likelihood = -24.742687

Iteration 7: log restricted-likelihood = -24.742627

Iteration 8: log restricted-likelihood = -24.742615

Iteration 9: log restricted-likelihood = -24.742613

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 58

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 17.69

Log restricted-likelihood = -24.742613 Prob > chi2 = 0.0071

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1899749 .1351888 -1.41 0.160 -.45494 .0749903

sex | -.0940709 .0773667 -1.22 0.224 -.2457069 .0575651

seizurefree | -.0194252 .086267 -0.23 0.822 -.1885053 .149655

gene | -.0123446 .1777494 -0.07 0.945 -.360727 .3360377

agea | .0055001 .0073268 0.75 0.453 -.0088602 .0198603

gage | .0007504 .0038354 0.20 0.845 -.0067669 .0082677

\_cons | 2.602566 .2472037 10.53 0.000 2.118055 3.087076

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0016176 .0022649 .000104 .0251612

sd(\_cons) | .2562736 .0423329 .1853946 .3542508

corr(agea,\_cons) | -.9999883 .0163108 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1807558 .0176952 .1491981 .2189885

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 26.52 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -29.653948

Iteration 1: log restricted-likelihood = -29.21571

Iteration 2: log restricted-likelihood = -28.997322

Iteration 3: log restricted-likelihood = -28.950462

Iteration 4: log restricted-likelihood = -28.947772

Iteration 5: log restricted-likelihood = -28.947203

Iteration 6: log restricted-likelihood = -28.947093

Iteration 7: log restricted-likelihood = -28.947067

Iteration 8: log restricted-likelihood = -28.947062

Iteration 9: log restricted-likelihood = -28.947061

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 58

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 17.62

Log restricted-likelihood = -28.947061 Prob > chi2 = 0.0243

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1882995 .1386989 -1.36 0.175 -.4601443 .0835454

sex | -.0908627 .0798042 -1.14 0.255 -.247276 .0655505

seizurefree | -.0280714 .0891355 -0.31 0.753 -.2027737 .1466309

\_Igene\_2 | .0263812 .1036121 0.25 0.799 -.1766948 .2294572

\_Igene\_3 | .0569673 .1979773 0.29 0.774 -.331061 .4449956

agea | .0059219 .0044621 1.33 0.184 -.0028236 .0146674

\_IgenXagea\_2 | .0017786 .0052433 0.34 0.734 -.0084981 .0120554

\_IgenXagea\_3 | -.0020687 .0094138 -0.22 0.826 -.0205193 .016382

\_cons | 2.607962 .2071369 12.59 0.000 2.201981 3.013943

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0016291 .0023293 .0000988 .0268532

sd(\_cons) | .2616409 .0433213 .1891331 .361946

corr(agea,\_cons) | -.9999951 .0098641 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1805384 .0176038 .1491322 .2185586

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 27.69 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 0.12

Prob > chi2 = 0.9436

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.24

Prob > chi2 = 0.8866

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 50 2.3758 .3005715 1.55 2.98

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 56 2.430179 .3397191 1.78 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 16 2.434375 .2673567 1.99 2.9

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 21 2.342857 .2539319 1.77 2.78

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs1105434 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -407.45637

Iteration 1: log restricted-likelihood = -406.75496

Iteration 2: log restricted-likelihood = -406.44209

Iteration 3: log restricted-likelihood = -406.35896

Iteration 4: log restricted-likelihood = -406.34956

Iteration 5: log restricted-likelihood = -406.34797

Iteration 6: log restricted-likelihood = -406.34769

Iteration 7: log restricted-likelihood = -406.34762

Iteration 8: log restricted-likelihood = -406.34761

Iteration 9: log restricted-likelihood = -406.3476

Iteration 10: log restricted-likelihood = -406.3476 (not concave)

Iteration 11: log restricted-likelihood = -406.3476 (not concave)

Iteration 12: log restricted-likelihood = -406.3476 (not concave)

Iteration 13: log restricted-likelihood = -406.3476 (not concave)

Iteration 14: log restricted-likelihood = -406.3476 (not concave)

Iteration 15: log restricted-likelihood = -406.3476 (not concave)

Iteration 16: log restricted-likelihood = -406.3476 (not concave)

Iteration 17: log restricted-likelihood = -406.3476 (not concave)

Iteration 18: log restricted-likelihood = -406.3476 (not concave)

Iteration 19: log restricted-likelihood = -406.3476 (not concave)

Iteration 20: log restricted-likelihood = -406.3476 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 120

Group variable: ID Number of groups = 60

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 5.76

Log restricted-likelihood = -407.45637 Prob > chi2 = 0.4509

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.006329 3.100987 0.32 0.746 -5.071493 7.084152

sex | -2.731154 2.032647 -1.34 0.179 -6.715069 1.252761

seizurefree | .9000535 2.177266 0.41 0.679 -3.367309 5.167416

gene | .522984 4.450375 0.12 0.906 -8.199591 9.245559

agea | -.08672 .2010195 -0.43 0.666 -.4807109 .307271

gage | -.0133161 .1059122 -0.13 0.900 -.2209001 .1942679

\_cons | 43.68996 5.526613 7.91 0.000 32.858 54.52193

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2294259 . . .

sd(\_cons) | 4.743353 . . .

corr(agea,\_cons) | -.1850368 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.832576 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.36 Prob > chi2 = 0.0063

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -403.38444

Iteration 1: log restricted-likelihood = -402.78515

Iteration 2: log restricted-likelihood = -402.51149

Iteration 3: log restricted-likelihood = -402.43467

Iteration 4: log restricted-likelihood = -402.40615

Iteration 5: log restricted-likelihood = -402.40093

Iteration 6: log restricted-likelihood = -402.39989

Iteration 7: log restricted-likelihood = -402.39965

Iteration 8: log restricted-likelihood = -402.39959

Iteration 9: log restricted-likelihood = -402.39958

Iteration 10: log restricted-likelihood = -402.39957 (not concave)

Iteration 11: log restricted-likelihood = -402.39957 (not concave)

Iteration 12: log restricted-likelihood = -402.39957 (not concave)

Iteration 13: log restricted-likelihood = -402.39957 (not concave)

Iteration 14: log restricted-likelihood = -402.39957 (not concave)

Iteration 15: log restricted-likelihood = -402.39957 (not concave)

Iteration 16: log restricted-likelihood = -402.39957 (not concave)

Iteration 17: log restricted-likelihood = -402.39957 (not concave)

Iteration 18: log restricted-likelihood = -402.39957 (not concave)

Iteration 19: log restricted-likelihood = -402.39957 (not concave)

Iteration 20: log restricted-likelihood = -402.39957 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 120

Group variable: ID Number of groups = 60

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 10.10

Log restricted-likelihood = -403.38444 Prob > chi2 = 0.2584

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.427376 3.040676 0.47 0.639 -4.53224 7.386992

sex | -3.412177 2.038556 -1.67 0.094 -7.407674 .5833191

seizurefree | 1.59383 2.161227 0.74 0.461 -2.642097 5.829757

\_Igene\_2 | 1.830515 2.229588 0.82 0.412 -2.539397 6.200427

\_Igene\_3 | -.5886731 4.319958 -0.14 0.892 -9.055636 7.878289

agea | .0262382 .1194439 0.22 0.826 -.2078675 .2603439

\_IgenXagea\_2 | -.2702516 .14714 -1.84 0.066 -.5586407 .0181375

\_IgenXagea\_3 | .037496 .2457553 0.15 0.879 -.4441755 .5191676

\_cons | 42.36687 4.42405 9.58 0.000 33.69589 51.03785

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2425107 . . .

sd(\_cons) | 4.400819 . . .

corr(agea,\_cons) | -.1947944 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.828382 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.76 Prob > chi2 = 0.0052

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.81

Prob > chi2 = 0.6671

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 4.10

Prob > chi2 = 0.1290

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 55 43.72727 7.474536 30 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 60 43.03333 8.887177 25 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 16 43.625 10.50635 23 58

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 21 45.2381 7.892432 29 59

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs1105434 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -280.47795

Iteration 1: log restricted-likelihood = -279.97116

Iteration 2: log restricted-likelihood = -279.60548 (not concave)

Iteration 3: log restricted-likelihood = -279.57694 (not concave)

Iteration 4: log restricted-likelihood = -279.5742

Iteration 5: log restricted-likelihood = -279.57365

Iteration 6: log restricted-likelihood = -279.57343

Iteration 7: log restricted-likelihood = -279.57338

Iteration 8: log restricted-likelihood = -279.57337

Computing standard errors:

Mixed-effects REML regression Number of obs = 120

Group variable: ID Number of groups = 60

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 9.05

Log restricted-likelihood = -279.57337 Prob > chi2 = 0.1708

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.5354315 1.07962 -0.50 0.620 -2.651447 1.580584

sex | -.608707 .6624586 -0.92 0.358 -1.907102 .689688

seizurefree | .4210426 .7160401 0.59 0.557 -.9823703 1.824456

gene | .1180689 1.460349 0.08 0.936 -2.744162 2.9803

agea | -.0735836 .0612253 -1.20 0.229 -.1935829 .0464157

gage | .0108426 .0324388 0.33 0.738 -.0527364 .0744216

\_cons | 8.472205 1.950155 4.34 0.000 4.649971 12.29444

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0014207 .0211387 3.07e-16 6.58e+09

sd(\_cons) | 1.9255 .3838457 1.30274 2.845964

corr(agea,\_cons) | -.9962192 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.875531 .1726585 1.5659 2.246387

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 16.90 Prob > chi2 = 0.0007

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -279.04358

Iteration 1: log restricted-likelihood = -278.66443

Iteration 2: log restricted-likelihood = -278.42166

Iteration 3: log restricted-likelihood = -278.39654

Iteration 4: log restricted-likelihood = -278.39475

Iteration 5: log restricted-likelihood = -278.3944

Iteration 6: log restricted-likelihood = -278.39433

Iteration 7: log restricted-likelihood = -278.39432

Computing standard errors:

Mixed-effects REML regression Number of obs = 120

Group variable: ID Number of groups = 60

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 12.41

Log restricted-likelihood = -278.39432 Prob > chi2 = 0.1340

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.5544845 1.036407 -0.54 0.593 -2.585804 1.476835

sex | -.6044846 .6683663 -0.90 0.366 -1.914459 .7054893

seizurefree | .6342236 .7166663 0.88 0.376 -.7704165 2.038864

\_Igene\_2 | 1.35982 .7734011 1.76 0.079 -.1560183 2.875658

\_Igene\_3 | .2094617 1.516164 0.14 0.890 -2.762166 3.181089

agea | -.0330203 .0359475 -0.92 0.358 -.1034761 .0374355

\_IgenXagea\_2 | -.0560384 .0430885 -1.30 0.193 -.1404903 .0284135

\_IgenXagea\_3 | .0432263 .0769498 0.56 0.574 -.1075926 .1940451

\_cons | 8.446316 1.537264 5.49 0.000 5.433334 11.4593

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0065299 .0206344 .0000133 3.196642

sd(\_cons) | 1.795777 .3699735 1.199179 2.689184

corr(agea,\_cons) | .9992081 .4057212 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.883099 .1721234 1.574235 2.252561

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 16.12 Prob > chi2 = 0.0011

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 3.22

Prob > chi2 = 0.1997

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 2.81

Prob > chi2 = 0.2450

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 55 7.672727 2.735599 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 60 8.35 2.904263 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 16 8.4375 3.119161 2 13

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 21 9.571429 2.501428 6 14

Score on common factor & marker rs1105434 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -130.49405

Iteration 1: log restricted-likelihood = -130.11964

Iteration 2: log restricted-likelihood = -129.82182

Iteration 3: log restricted-likelihood = -129.73744

Iteration 4: log restricted-likelihood = -129.69248

Iteration 5: log restricted-likelihood = -129.68274

Iteration 6: log restricted-likelihood = -129.68076

Iteration 7: log restricted-likelihood = -129.68031

Iteration 8: log restricted-likelihood = -129.6802

Iteration 9: log restricted-likelihood = -129.68018

Iteration 10: log restricted-likelihood = -129.68017

Computing standard errors:

Mixed-effects REML regression Number of obs = 103

Group variable: ID Number of groups = 56

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 10.11

Log restricted-likelihood = -129.68017 Prob > chi2 = 0.1201

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1294164 .3147796 -0.41 0.681 -.7463732 .4875404

sex | -.1985653 .2175282 -0.91 0.361 -.6249128 .2277821

seizurefree | -.0521382 .2477793 -0.21 0.833 -.5377767 .4335003

gene | .0687984 .4704086 0.15 0.884 -.8531856 .9907824

agea | -.0217061 .0212783 -1.02 0.308 -.0634108 .0199987

gage | .0005977 .0110564 0.05 0.957 -.0210725 .0222679

\_cons | .2812447 .6314698 0.45 0.656 -.9564134 1.518903

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .006319 .0070104 .0007183 .055588

sd(\_cons) | .524279 .1244815 .329199 .8349615

corr(agea,\_cons) | .9999899 .0113204 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5963227 .0604313 .4889007 .7273476

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.41 Prob > chi2 = 0.0015

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -131.64792

Iteration 1: log restricted-likelihood = -131.41932

Iteration 2: log restricted-likelihood = -131.26699 (not concave)

Iteration 3: log restricted-likelihood = -131.23858

Iteration 4: log restricted-likelihood = -131.19834

Iteration 5: log restricted-likelihood = -131.17856

Iteration 6: log restricted-likelihood = -131.17213

Iteration 7: log restricted-likelihood = -131.16989

Iteration 8: log restricted-likelihood = -131.16942

Iteration 9: log restricted-likelihood = -131.16931

Iteration 10: log restricted-likelihood = -131.16928

Iteration 11: log restricted-likelihood = -131.16927

Computing standard errors:

Mixed-effects REML regression Number of obs = 103

Group variable: ID Number of groups = 56

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 11.89

Log restricted-likelihood = -131.16927 Prob > chi2 = 0.1563

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0754286 .3122304 -0.24 0.809 -.6873889 .5365318

sex | -.2495437 .2201895 -1.13 0.257 -.6811072 .1820199

seizurefree | .0149429 .2535373 0.06 0.953 -.481981 .5118668

\_Igene\_2 | .2190583 .2422838 0.90 0.366 -.2558093 .6939259

\_Igene\_3 | .1421843 .4890593 0.29 0.771 -.8163543 1.100723

agea | -.0100206 .0128033 -0.78 0.434 -.0351147 .0150734

\_IgenXagea\_2 | -.0185074 .0149436 -1.24 0.216 -.0477962 .0107815

\_IgenXagea\_3 | .0008379 .0262904 0.03 0.975 -.0506904 .0523662

\_cons | .2103593 .5137114 0.41 0.682 -.7964966 1.217215

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0072606 .0066672 .0012005 .0439138

sd(\_cons) | .5105015 .1218947 .3197067 .8151589

corr(agea,\_cons) | .9999795 .0232795 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5989003 .060441 .4914182 .7298905

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.44 Prob > chi2 = 0.0015

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 0.82

Prob > chi2 = 0.6640

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 1.79

Prob > chi2 = 0.4089

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 46 -.0876188 .8548268 -1.853677 1.949504

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 52 -.009363 .9337227 -1.92953 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 14 .0417727 1.015941 -2.381441 1.312984

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1105434 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 20 .1966263 .8417157 -1.497013 1.628641

rs2227902 | Freq. Percent Cum.

------------+-----------------------------------

1 | 114 79.17 79.17

2 | 30 20.83 100.00

------------+-----------------------------------

Total | 144 100.00

(20 missing values generated)

(20 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs2227902 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.768769

Iteration 1: log restricted-likelihood = -17.240551

Iteration 2: log restricted-likelihood = -17.234449 (not concave)

Iteration 3: log restricted-likelihood = -17.032036

Iteration 4: log restricted-likelihood = -17.02373

Iteration 5: log restricted-likelihood = -17.023398

Iteration 6: log restricted-likelihood = -17.023374

Iteration 7: log restricted-likelihood = -17.023371

Iteration 8: log restricted-likelihood = -17.02337

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.83

Log restricted-likelihood = -17.02337 Prob > chi2 = 0.6994

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0914025 .0836913 -1.09 0.275 -.2554344 .0726295

sex | -.0154401 .0600443 -0.26 0.797 -.1331248 .1022445

seizurefree | -.0317229 .0680195 -0.47 0.641 -.1650387 .1015929

gene | -.0738251 .1815602 -0.41 0.684 -.4296765 .2820262

agea | .0001658 .0058901 0.03 0.978 -.0113787 .0117102

gage | -.0002317 .0046087 -0.05 0.960 -.0092646 .0088011

\_cons | 6.035789 .1437849 41.98 0.000 5.753976 6.317602

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0022892 .0020756 .0003872 .013535

sd(\_cons) | .1394282 .0391121 .0804588 .2416172

corr(agea,\_cons) | .9999988 .0043696 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1947987 .0189614 .160965 .2357441

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.31 Prob > chi2 = 0.0102

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.686484

Iteration 1: log restricted-likelihood = -17.172369

Iteration 2: log restricted-likelihood = -17.023401

Iteration 3: log restricted-likelihood = -16.979287

Iteration 4: log restricted-likelihood = -16.967333

Iteration 5: log restricted-likelihood = -16.96399

Iteration 6: log restricted-likelihood = -16.963144

Iteration 7: log restricted-likelihood = -16.962922

Iteration 8: log restricted-likelihood = -16.962869

Iteration 9: log restricted-likelihood = -16.962858

Iteration 10: log restricted-likelihood = -16.962856

Iteration 11: log restricted-likelihood = -16.962856

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.92

Log restricted-likelihood = -16.962856 Prob > chi2 = 0.6882

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.087693 .0837653 -1.05 0.295 -.2518701 .076484

sex | -.0171564 .0599839 -0.29 0.775 -.1347226 .1004098

seizurefree | -.0285391 .0678965 -0.42 0.674 -.1616137 .1045355

\_Igene\_2 | -.0927971 .0775191 -1.20 0.231 -.2447319 .0591376

agea | -.0004176 .0023729 -0.18 0.860 -.0050683 .0042332

\_IgenXagea\_2 | .0015513 .0046235 0.34 0.737 -.0075107 .0106132

\_cons | 5.952208 .1266412 47.00 0.000 5.703996 6.200421

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0022089 .0020702 .0003519 .0138649

sd(\_cons) | .1396799 .0391005 .0806971 .2417742

corr(agea,\_cons) | .9999983 .0059835 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1949693 .0189113 .161214 .2357922

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.23 Prob > chi2 = 0.0105

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

chi2( 1) = 1.43

Prob > chi2 = 0.2313

( 1) [y1]\_IgenXagea\_2 = 0

chi2( 1) = 0.11

Prob > chi2 = 0.7372

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 96 5.809687 .2460999 5.42 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 24 5.7425 .2441534 5.4 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 18 5.79 .2428507 5.46 6.23

Log transformed computerised visual search task (average speed response/processing information) task & marker rs2227902 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.839874

Iteration 1: log restricted-likelihood = -23.540819

Iteration 2: log restricted-likelihood = -23.418355

Iteration 3: log restricted-likelihood = -23.402684

Iteration 4: log restricted-likelihood = -23.373128

Iteration 5: log restricted-likelihood = -23.370464

Iteration 6: log restricted-likelihood = -23.369707

Iteration 7: log restricted-likelihood = -23.369549

Iteration 8: log restricted-likelihood = -23.369515

Iteration 9: log restricted-likelihood = -23.369509

Iteration 10: log restricted-likelihood = -23.369508

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 17.74

Log restricted-likelihood = -23.369508 Prob > chi2 = 0.0069

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1754675 .1203126 -1.46 0.145 -.4112759 .0603408

sex | -.0929306 .0750439 -1.24 0.216 -.2400139 .0541528

seizurefree | -.0305825 .0834673 -0.37 0.714 -.1941754 .1330103

gene | .0473022 .2403866 0.20 0.844 -.4238468 .5184512

agea | .0080116 .0071824 1.12 0.265 -.0060656 .0220888

gage | -.0007605 .0055576 -0.14 0.891 -.0116533 .0101323

\_cons | 2.579876 .2118023 12.18 0.000 2.164752 2.995001

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0014706 .0022805 .0000704 .0307244

sd(\_cons) | .2522127 .0398584 .1850322 .3437847

corr(agea,\_cons) | -.9999908 .0029477 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1795562 .0174246 .148456 .2171716

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 27.11 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.785225

Iteration 1: log restricted-likelihood = -23.464562

Iteration 2: log restricted-likelihood = -23.322471

Iteration 3: log restricted-likelihood = -23.289775

Iteration 4: log restricted-likelihood = -23.277089

Iteration 5: log restricted-likelihood = -23.275002

Iteration 6: log restricted-likelihood = -23.274452

Iteration 7: log restricted-likelihood = -23.274341

Iteration 8: log restricted-likelihood = -23.274318

Iteration 9: log restricted-likelihood = -23.274314

Iteration 10: log restricted-likelihood = -23.274312

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 17.91

Log restricted-likelihood = -23.274312 Prob > chi2 = 0.0065

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1776238 .1205382 -1.47 0.141 -.4138742 .0586267

sex | -.0891495 .0749935 -1.19 0.235 -.2361341 .0578352

seizurefree | -.0323235 .0833501 -0.39 0.698 -.1956867 .1310397

\_Igene\_2 | .0434923 .1067316 0.41 0.684 -.1656977 .2526823

agea | .0076141 .0029448 2.59 0.010 .0018424 .0133857

\_IgenXagea\_2 | -.0024495 .0056025 -0.44 0.662 -.0134302 .0085313

\_cons | 2.601498 .1755867 14.82 0.000 2.257354 2.945641

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0015449 .0021092 .0001064 .0224402

sd(\_cons) | .2530188 .0400345 .1855536 .3450136

corr(agea,\_cons) | -.9999917 .019127 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1793614 .0173786 .1483387 .2168719

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 27.25 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

chi2( 1) = 0.17

Prob > chi2 = 0.6836

( 1) [y2]\_IgenXagea\_2 = 0

chi2( 1) = 0.19

Prob > chi2 = 0.6620

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 98 2.405408 .3121365 1.55 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 26 2.421538 .3151976 1.89 3.04

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 19 2.333684 .2657319 1.77 2.78

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs2227902 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -411.87573

Iteration 1: log restricted-likelihood = -411.0987

Iteration 2: log restricted-likelihood = -410.81703

Iteration 3: log restricted-likelihood = -410.72825

Iteration 4: log restricted-likelihood = -410.71399

Iteration 5: log restricted-likelihood = -410.71084

Iteration 6: log restricted-likelihood = -410.71006

Iteration 7: log restricted-likelihood = -410.70987

Iteration 8: log restricted-likelihood = -410.70984

Iteration 9: log restricted-likelihood = -410.70983

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 11.48

Log restricted-likelihood = -410.70983 Prob > chi2 = 0.0747

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.418342 2.597598 0.93 0.352 -2.672856 7.50954

sex | -2.570651 1.853248 -1.39 0.165 -6.202951 1.061649

seizurefree | -.2250497 2.022412 -0.11 0.911 -4.188905 3.738806

gene | -6.678427 5.521567 -1.21 0.226 -17.5005 4.143646

agea | -.3812103 .1793989 -2.12 0.034 -.7328256 -.029595

gage | .2483257 .1394288 1.78 0.075 -.0249497 .5216012

\_cons | 42.24508 4.491951 9.40 0.000 33.44102 51.04914

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0592661 .0648934 .0069308 .5067911

sd(\_cons) | 4.672576 1.11245 2.93023 7.45094

corr(agea,\_cons) | .9999921 .0067961 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.856023 .530591 4.90319 6.994018

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.50 Prob > chi2 = 0.0023

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -412.49618

Iteration 1: log restricted-likelihood = -411.70432

Iteration 2: log restricted-likelihood = -411.42185

Iteration 3: log restricted-likelihood = -411.34347

Iteration 4: log restricted-likelihood = -411.32929

Iteration 5: log restricted-likelihood = -411.32603

Iteration 6: log restricted-likelihood = -411.3252

Iteration 7: log restricted-likelihood = -411.32503

Iteration 8: log restricted-likelihood = -411.32501

Iteration 9: log restricted-likelihood = -411.325

Iteration 10: log restricted-likelihood = -411.325 (not concave)

Iteration 11: log restricted-likelihood = -411.325 (not concave)

Iteration 12: log restricted-likelihood = -411.325 (not concave)

Iteration 13: log restricted-likelihood = -411.325 (not concave)

Iteration 14: log restricted-likelihood = -411.325 (not concave)

Iteration 15: log restricted-likelihood = -411.325 (not concave)

Iteration 16: log restricted-likelihood = -411.325 (not concave)

Iteration 17: log restricted-likelihood = -411.325 (not concave)

Iteration 18: log restricted-likelihood = -411.325 (not concave)

Iteration 19: log restricted-likelihood = -411.325 (not concave)

Iteration 20: log restricted-likelihood = -411.325 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.70

Log restricted-likelihood = -412.49618 Prob > chi2 = 0.0982

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.793795 2.821804 0.99 0.322 -2.73684 8.32443

sex | -3.158521 1.946404 -1.62 0.105 -6.973403 .6563611

seizurefree | .1816269 2.111526 0.09 0.931 -3.956889 4.320142

\_Igene\_2 | 1.061009 2.488897 0.43 0.670 -3.817139 5.939158

agea | -.1247993 .0808479 -1.54 0.123 -.2832583 .0336597

\_IgenXagea\_2 | .2032741 .1603315 1.27 0.205 -.1109698 .517518

\_cons | 42.33946 4.104225 10.32 0.000 34.29533 50.38359

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2169833 . . .

sd(\_cons) | 4.900161 . . .

corr(agea,\_cons) | -.2420924 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.798988 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.48 Prob > chi2 = 0.0094

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

chi2( 1) = 0.18

Prob > chi2 = 0.6699

( 1) [y3]\_IgenXagea\_2 = 0

chi2( 1) = 1.61

Prob > chi2 = 0.2049

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 104 42.91346 8.436065 23 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 29 46.06897 8.790949 29 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 19 44 7.195678 29 57

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs2227902 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -284.05687

Iteration 1: log restricted-likelihood = -283.67899

Iteration 2: log restricted-likelihood = -283.51151

Iteration 3: log restricted-likelihood = -283.45708

Iteration 4: log restricted-likelihood = -283.42938

Iteration 5: log restricted-likelihood = -283.42471

Iteration 6: log restricted-likelihood = -283.42445

Iteration 7: log restricted-likelihood = -283.42441

Iteration 8: log restricted-likelihood = -283.42439

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 13.37

Log restricted-likelihood = -283.42439 Prob > chi2 = 0.0375

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2700361 .9986378 0.27 0.787 -1.687258 2.22733

sex | -.7930974 .6600611 -1.20 0.230 -2.086793 .5005985

seizurefree | .0346463 .7209626 0.05 0.962 -1.378414 1.447707

gene | -3.534163 2.018761 -1.75 0.080 -7.490861 .4225349

agea | -.1751 .0620373 -2.82 0.005 -.2966908 -.0535092

gage | .1073659 .0475225 2.26 0.024 .0142236 .2005082

\_cons | 9.145415 1.718233 5.32 0.000 5.77774 12.51309

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0015341 .0217262 1.35e-15 1.74e+09

sd(\_cons) | 1.994481 .364874 1.393508 2.854633

corr(agea,\_cons) | .996302 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.825376 .1669233 1.525856 2.183692

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.58 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -285.25011

Iteration 1: log restricted-likelihood = -284.82319

Iteration 2: log restricted-likelihood = -284.63021

Iteration 3: log restricted-likelihood = -284.56723

Iteration 4: log restricted-likelihood = -284.54175

Iteration 5: log restricted-likelihood = -284.5352

Iteration 6: log restricted-likelihood = -284.53375

Iteration 7: log restricted-likelihood = -284.5334

Iteration 8: log restricted-likelihood = -284.53332

Iteration 9: log restricted-likelihood = -284.53331

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.95

Log restricted-likelihood = -284.53331 Prob > chi2 = 0.0898

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2681561 1.018429 0.26 0.792 -1.727927 2.26424

sex | -.7875829 .6562685 -1.20 0.230 -2.073846 .4986798

seizurefree | -.0131501 .7174496 -0.02 0.985 -1.419325 1.393025

\_Igene\_2 | -.0480298 .9039284 -0.05 0.958 -1.819697 1.723637

agea | -.0597278 .0255641 -2.34 0.019 -.1098325 -.009623

\_IgenXagea\_2 | .0745804 .0476202 1.57 0.117 -.0187534 .1679142

\_cons | 8.715971 1.460969 5.97 0.000 5.852525 11.57942

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0039374 .0217455 7.84e-08 197.8153

sd(\_cons) | 2.026784 .3794282 1.404289 2.925219

corr(agea,\_cons) | -.9988627 .636491 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.866553 .1692386 1.562654 2.229554

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.32 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

chi2( 1) = 0.00

Prob > chi2 = 0.9576

( 1) [y4]\_IgenXagea\_2 = 0

chi2( 1) = 2.45

Prob > chi2 = 0.1173

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 104 8 2.886191 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 29 8.758621 3.054916 3 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 19 9.105263 2.131633 6 14

Score on common factor & marker rs2227902 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -128.07605

Iteration 1: log restricted-likelihood = -127.80474

Iteration 2: log restricted-likelihood = -127.66707

Iteration 3: log restricted-likelihood = -127.64978

Iteration 4: log restricted-likelihood = -127.64032

Iteration 5: log restricted-likelihood = -127.63841

Iteration 6: log restricted-likelihood = -127.63785

Iteration 7: log restricted-likelihood = -127.63769

Iteration 8: log restricted-likelihood = -127.63766

Iteration 9: log restricted-likelihood = -127.63765

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 21.29

Log restricted-likelihood = -127.63765 Prob > chi2 = 0.0016

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0349145 .278046 0.13 0.900 -.5100456 .5798747

sex | -.2688898 .1983947 -1.36 0.175 -.6577363 .1199567

seizurefree | -.1335978 .2318358 -0.58 0.564 -.5879876 .320792

gene | -1.023514 .613972 -1.67 0.096 -2.226877 .1798492

agea | -.0652974 .0199388 -3.27 0.001 -.1043767 -.026218

gage | .0410552 .0159894 2.57 0.010 .0097165 .0723938

\_cons | .1155057 .4927527 0.23 0.815 -.8502719 1.081283

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0062936 .0068514 .0007452 .0531541

sd(\_cons) | .4986555 .1155069 .3166876 .7851817

corr(agea,\_cons) | .999867 .0994352 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5767351 .057865 .4737766 .7020681

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.80 Prob > chi2 = 0.0020

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -129.43715

Iteration 1: log restricted-likelihood = -129.11842

Iteration 2: log restricted-likelihood = -128.91778

Iteration 3: log restricted-likelihood = -128.90161

Iteration 4: log restricted-likelihood = -128.8972

Iteration 5: log restricted-likelihood = -128.89565

Iteration 6: log restricted-likelihood = -128.89535

Iteration 7: log restricted-likelihood = -128.89528

Iteration 8: log restricted-likelihood = -128.89526

Iteration 9: log restricted-likelihood = -128.89525

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 18.85

Log restricted-likelihood = -128.89525 Prob > chi2 = 0.0044

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0202279 .2838686 0.07 0.943 -.5361443 .5766

sex | -.2689555 .1992879 -1.35 0.177 -.6595525 .1216416

seizurefree | -.1517614 .2319502 -0.65 0.513 -.6063754 .3028526

\_Igene\_2 | .2466116 .2609423 0.95 0.345 -.2648259 .7580491

agea | -.02261 .0078564 -2.88 0.004 -.0380082 -.0072118

\_IgenXagea\_2 | .0306289 .0159423 1.92 0.055 -.0006174 .0618752

\_cons | .318623 .4395856 0.72 0.469 -.5429489 1.180195

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0048454 .0068549 .0003028 .0775452

sd(\_cons) | .5051986 .1206258 .3163891 .8066828

corr(agea,\_cons) | .9999676 .0395356 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5923608 .0590151 .4872858 .7200935

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.42 Prob > chi2 = 0.0038

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

chi2( 1) = 0.89

Prob > chi2 = 0.3446

( 1) [y10]\_IgenXagea\_2 = 0

chi2( 1) = 3.69

Prob > chi2 = 0.0547

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 92 -.1008022 .8905388 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 22 .3801979 .9626357 -1.314686 1.949504

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227902 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 18 .0505249 .7511397 -1.497013 1.503227

rs3796529 | Freq. Percent Cum.

------------+-----------------------------------

1 | 98 63.64 63.64

2 | 52 33.77 97.40

3 | 4 2.60 100.00

------------+-----------------------------------

Total | 154 100.00

(10 missing values generated)

(10 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs3796529 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -10.55323 (not concave)

Iteration 1: log restricted-likelihood = -9.6095673

Iteration 2: log restricted-likelihood = -9.355153

Iteration 3: log restricted-likelihood = -9.3328908

Iteration 4: log restricted-likelihood = -9.3289655

Iteration 5: log restricted-likelihood = -9.3285585

Iteration 6: log restricted-likelihood = -9.3284692

Iteration 7: log restricted-likelihood = -9.3284488

Iteration 8: log restricted-likelihood = -9.328444

Iteration 9: log restricted-likelihood = -9.3284428

Iteration 10: log restricted-likelihood = -9.3284426

Computing standard errors:

Mixed-effects REML regression Number of obs = 121

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 7.30

Log restricted-likelihood = -9.3284426 Prob > chi2 = 0.2936

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1638779 .0815349 -2.01 0.044 -.3236833 -.0040724

sex | -3.12e-06 .0589685 -0.00 1.000 -.1155792 .115573

seizurefree | -.0608583 .0648335 -0.94 0.348 -.1879295 .066213

gene | .3610598 .1765474 2.05 0.041 .0150332 .7070864

agea | .0068929 .0050098 1.38 0.169 -.0029261 .0167119

gage | -.0066393 .0038399 -1.73 0.084 -.0141654 .0008869

\_cons | 5.838958 .1300025 44.91 0.000 5.584158 6.093758

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0024344 .0020422 .0004703 .0126023

sd(\_cons) | .152727 .0326612 .1004347 .2322459

corr(agea,\_cons) | .9999998 .0008272 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1686211 .0157281 .1404482 .2024453

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.84 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -12.674089

Iteration 1: log restricted-likelihood = -11.740725 (not concave)

Iteration 2: log restricted-likelihood = -11.459069

Iteration 3: log restricted-likelihood = -11.451843

Iteration 4: log restricted-likelihood = -11.450493

Iteration 5: log restricted-likelihood = -11.45019

Iteration 6: log restricted-likelihood = -11.450115

Iteration 7: log restricted-likelihood = -11.450098

Iteration 8: log restricted-likelihood = -11.450094

Iteration 9: log restricted-likelihood = -11.450094

Computing standard errors:

Mixed-effects REML regression Number of obs = 121

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 6.87

Log restricted-likelihood = -11.450094 Prob > chi2 = 0.5509

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1474278 .0818331 -1.80 0.072 -.3078178 .0129622

sex | -.0031554 .0603356 -0.05 0.958 -.121411 .1151002

seizurefree | -.0435978 .0658598 -0.66 0.508 -.1726807 .0854851

\_Igene\_2 | .1441978 .0774584 1.86 0.063 -.0076179 .2960134

\_Igene\_3 | -2.055163 2.384744 -0.86 0.389 -6.729175 2.618849

agea | -.00002 .0023855 -0.01 0.993 -.0046955 .0046554

\_IgenXagea\_2 | -.0047371 .0047487 -1.00 0.319 -.0140444 .0045703

\_IgenXagea\_3 | .0698047 .0821832 0.85 0.396 -.0912715 .2308809

\_cons | 5.9751 .1267537 47.14 0.000 5.726667 6.223533

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0024067 .0021256 .0004262 .0135895

sd(\_cons) | .1535075 .0333371 .1002939 .2349548

corr(agea,\_cons) | .9999993 .001813 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1709482 .015902 .142457 .2051376

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.06 Prob > chi2 = 0.0003

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 4.30

Prob > chi2 = 0.1165

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 1.80

Prob > chi2 = 0.4068

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 81 5.772099 .2501235 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 45 5.821778 .2198273 5.49 6.23

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 4 5.775 .2066398 5.58 6.02

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 8 5.89375 .3382703 5.49 6.54

Log transformed computerised visual search task (average speed response/processing information) task & marker rs3796529 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -19.310288

Iteration 1: log restricted-likelihood = -19.011253

Iteration 2: log restricted-likelihood = -18.91632

Iteration 3: log restricted-likelihood = -18.89852

Iteration 4: log restricted-likelihood = -18.894486

Iteration 5: log restricted-likelihood = -18.890944

Iteration 6: log restricted-likelihood = -18.890721

Iteration 7: log restricted-likelihood = -18.890706

Iteration 8: log restricted-likelihood = -18.890705

Computing standard errors:

Mixed-effects REML regression Number of obs = 126

Group variable: ID Number of groups = 65

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 21.83

Log restricted-likelihood = -18.890705 Prob > chi2 = 0.0013

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1244928 .1057825 -1.18 0.239 -.3318228 .0828371

sex | -.1016657 .0670923 -1.52 0.130 -.2331641 .0298327

seizurefree | .0084089 .076032 0.11 0.912 -.1406112 .1574289

gene | -.2483753 .2361158 -1.05 0.293 -.7111538 .2144032

agea | .00103 .0058547 0.18 0.860 -.0104451 .0125051

gage | .0049707 .0046633 1.07 0.286 -.0041692 .0141106

\_cons | 2.63886 .1712306 15.41 0.000 2.303254 2.974466

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019351 .0019205 .0002766 .013536

sd(\_cons) | .2408461 .0362311 .1793458 .3234359

corr(agea,\_cons) | -.9999835 .0451875 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1727532 .0158249 .144362 .2067281

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.38 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -19.743688

Iteration 1: log restricted-likelihood = -19.342105

Iteration 2: log restricted-likelihood = -19.29179

Iteration 3: log restricted-likelihood = -19.278248

Iteration 4: log restricted-likelihood = -19.274743

Iteration 5: log restricted-likelihood = -19.274292

Iteration 6: log restricted-likelihood = -19.274262

Iteration 7: log restricted-likelihood = -19.274261

Computing standard errors:

Mixed-effects REML regression Number of obs = 126

Group variable: ID Number of groups = 65

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 26.27

Log restricted-likelihood = -19.274261 Prob > chi2 = 0.0009

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1366199 .1036327 -1.32 0.187 -.3397364 .0664965

sex | -.1245761 .0669332 -1.86 0.063 -.2557628 .0066105

seizurefree | -.0127079 .0754055 -0.17 0.866 -.1605001 .1350842

\_Igene\_2 | -.0762157 .1079316 -0.71 0.480 -.2877578 .1353264

\_Igene\_3 | 2.058386 2.106059 0.98 0.328 -2.069415 6.186186

agea | .0068764 .0025524 2.69 0.007 .0018738 .011879

\_IgenXagea\_2 | -.000804 .0054648 -0.15 0.883 -.0115148 .0099068

\_IgenXagea\_3 | -.0627701 .0723639 -0.87 0.386 -.2046008 .0790607

\_cons | 2.576751 .1560855 16.51 0.000 2.270829 2.882673

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .002637 .0149489 3.94e-08 176.4305

sd(\_cons) | .2374794 .0367914 .1752887 .3217348

corr(agea,\_cons) | -.884595 3.378076 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1738718 .0159655 .1452342 .2081562

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 28.23 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.51

Prob > chi2 = 0.4690

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.76

Prob > chi2 = 0.6834

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 89 2.407753 .3095185 1.77 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 44 2.339773 .2689816 1.55 2.98

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 4 2.745 .2418677 2.41 2.95

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 6 2.468333 .4284118 1.89 2.97

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs3796529 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -444.54854

Iteration 1: log restricted-likelihood = -443.12602

Iteration 2: log restricted-likelihood = -442.89084

Iteration 3: log restricted-likelihood = -442.82438

Iteration 4: log restricted-likelihood = -442.81443

Iteration 5: log restricted-likelihood = -442.81203

Iteration 6: log restricted-likelihood = -442.81159

Iteration 7: log restricted-likelihood = -442.81149

Iteration 8: log restricted-likelihood = -442.81146

Computing standard errors:

Mixed-effects REML regression Number of obs = 132

Group variable: ID Number of groups = 66

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 12.63

Log restricted-likelihood = -442.81146 Prob > chi2 = 0.0492

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.983733 2.458085 1.21 0.225 -1.834025 7.801491

sex | -3.191984 1.663841 -1.92 0.055 -6.453052 .0690839

seizurefree | -.8698573 1.799064 -0.48 0.629 -4.395958 2.656243

gene | 2.233466 5.375828 0.42 0.678 -8.302962 12.76989

agea | .0822232 .141804 0.58 0.562 -.1957076 .360154

gage | -.096664 .1098471 -0.88 0.379 -.3119602 .1186323

\_cons | 44.28845 4.007145 11.05 0.000 36.43459 52.14231

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0136408 .0655017 1.12e-06 166.8145

sd(\_cons) | 4.593988 1.133502 2.832486 7.450954

corr(agea,\_cons) | -.9997873 .0995258 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 6.075067 .5296759 5.12078 7.207192

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 8.18 Prob > chi2 = 0.0423

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -439.15681

Iteration 1: log restricted-likelihood = -437.83865

Iteration 2: log restricted-likelihood = -437.59431

Iteration 3: log restricted-likelihood = -437.52041

Iteration 4: log restricted-likelihood = -437.50982

Iteration 5: log restricted-likelihood = -437.50733

Iteration 6: log restricted-likelihood = -437.50687

Iteration 7: log restricted-likelihood = -437.50677

Iteration 8: log restricted-likelihood = -437.50674

Iteration 9: log restricted-likelihood = -437.50674 (not concave)

Iteration 10: log restricted-likelihood = -437.50673 (not concave)

Iteration 11: log restricted-likelihood = -437.50673 (not concave)

Iteration 12: log restricted-likelihood = -437.50673 (not concave)

Iteration 13: log restricted-likelihood = -437.50673 (not concave)

Iteration 14: log restricted-likelihood = -437.50673 (not concave)

Iteration 15: log restricted-likelihood = -437.50673 (not concave)

Iteration 16: log restricted-likelihood = -437.50673 (not concave)

Iteration 17: log restricted-likelihood = -437.50673 (not concave)

Iteration 18: log restricted-likelihood = -437.50673 (not concave)

Iteration 19: log restricted-likelihood = -437.50673 (not concave)

Iteration 20: log restricted-likelihood = -437.50673 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 132

Group variable: ID Number of groups = 66

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 11.18

Log restricted-likelihood = -439.15681 Prob > chi2 = 0.1917

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.814899 2.546326 1.11 0.269 -2.175809 7.805606

sex | -2.946689 1.81853 -1.62 0.105 -6.510942 .6175637

seizurefree | -.7202056 1.950261 -0.37 0.712 -4.542648 3.102236

\_Igene\_2 | .3586452 2.532763 0.14 0.887 -4.605479 5.32277

\_Igene\_3 | 4.019055 71.28019 0.06 0.955 -135.6875 143.7257

agea | -.0222939 .075698 -0.29 0.768 -.1706592 .1260714

\_IgenXagea\_2 | -.0784277 .1528224 -0.51 0.608 -.3779542 .2210987

\_IgenXagea\_3 | -.4708058 2.461939 -0.19 0.848 -5.296118 4.354506

\_cons | 43.48051 3.805572 11.43 0.000 36.02172 50.93929

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .1991271 . . .

sd(\_cons) | 4.700359 . . .

corr(agea,\_cons) | -.3493853 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.867139 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 5.33 Prob > chi2 = 0.1492

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.02

Prob > chi2 = 0.9886

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.29

Prob > chi2 = 0.8639

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 92 44.46739 7.942722 27 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 47 44.59574 8.445888 25 62

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 4 32.75 4.99166 29 40

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 9 35.22222 6.51494 23 44

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs3796529 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -308.20117

Iteration 1: log restricted-likelihood = -307.26805

Iteration 2: log restricted-likelihood = -306.9273

Iteration 3: log restricted-likelihood = -306.85013

Iteration 4: log restricted-likelihood = -306.83471

Iteration 5: log restricted-likelihood = -306.8325

Iteration 6: log restricted-likelihood = -306.83218

Iteration 7: log restricted-likelihood = -306.83212

Iteration 8: log restricted-likelihood = -306.83211

Computing standard errors:

Mixed-effects REML regression Number of obs = 132

Group variable: ID Number of groups = 66

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 14.66

Log restricted-likelihood = -306.83211 Prob > chi2 = 0.0231

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.321013 .9283518 1.42 0.155 -.4985234 3.140549

sex | -1.104398 .5949067 -1.86 0.063 -2.270394 .0615974

seizurefree | -.2033151 .6456203 -0.31 0.753 -1.468708 1.062077

gene | -1.292402 2.033716 -0.64 0.525 -5.278412 2.693609

agea | -.0212659 .0512934 -0.41 0.678 -.1217992 .0792674

gage | .0030693 .0400122 0.08 0.939 -.0753532 .0814918

\_cons | 9.303866 1.553831 5.99 0.000 6.258413 12.34932

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0243312 .0199584 .0048746 .1214476

sd(\_cons) | 2.08571 .3694476 1.473934 2.95141

corr(agea,\_cons) | -.9999946 .0034674 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.905569 .1660121 1.606455 2.260377

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.17 Prob > chi2 = 0.0004

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -305.45753

Iteration 1: log restricted-likelihood = -304.59705

Iteration 2: log restricted-likelihood = -304.25932

Iteration 3: log restricted-likelihood = -304.19107

Iteration 4: log restricted-likelihood = -304.1849

Iteration 5: log restricted-likelihood = -304.1838

Iteration 6: log restricted-likelihood = -304.18355

Iteration 7: log restricted-likelihood = -304.18349

Iteration 8: log restricted-likelihood = -304.18348

Computing standard errors:

Mixed-effects REML regression Number of obs = 132

Group variable: ID Number of groups = 66

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 14.97

Log restricted-likelihood = -304.18348 Prob > chi2 = 0.0597

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.083453 .9295745 1.17 0.244 -.7384797 2.905386

sex | -.9853949 .6148037 -1.60 0.109 -2.190388 .2195981

seizurefree | -.1989054 .6640094 -0.30 0.765 -1.50034 1.102529

\_Igene\_2 | -.6109254 .9457344 -0.65 0.518 -2.464531 1.24268

\_Igene\_3 | -14.49823 19.94412 -0.73 0.467 -53.58799 24.59152

agea | -.0139222 .0231779 -0.60 0.548 -.05935 .0315056

\_IgenXagea\_2 | -.0255149 .0481538 -0.53 0.596 -.1198947 .0688648

\_IgenXagea\_3 | .4025749 .6850898 0.59 0.557 -.9401764 1.745326

\_cons | 8.219545 1.374009 5.98 0.000 5.526537 10.91255

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0223511 .0204737 .0037119 .1345873

sd(\_cons) | 2.076203 .3678855 1.467048 2.938296

corr(agea,\_cons) | -.9999938 .0043334 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.912844 .1667524 1.612412 2.269255

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 17.94 Prob > chi2 = 0.0005

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 0.92

Prob > chi2 = 0.6309

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 0.65

Prob > chi2 = 0.7209

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 92 8.652174 2.694866 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 47 8.170213 3.05969 3 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 4 5 2.160247 2 7

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 9 6.555556 2.242271 2 9

Score on common factor & marker rs3796529 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -142.98264

Iteration 1: log restricted-likelihood = -142.01312

Iteration 2: log restricted-likelihood = -141.67077

Iteration 3: log restricted-likelihood = -141.59464

Iteration 4: log restricted-likelihood = -141.58018

Iteration 5: log restricted-likelihood = -141.57765

Iteration 6: log restricted-likelihood = -141.57707

Iteration 7: log restricted-likelihood = -141.57693

Iteration 8: log restricted-likelihood = -141.5769

Iteration 9: log restricted-likelihood = -141.5769

Computing standard errors:

Mixed-effects REML regression Number of obs = 117

Group variable: ID Number of groups = 63

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 19.63

Log restricted-likelihood = -141.5769 Prob > chi2 = 0.0032

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1616721 .2773477 0.58 0.560 -.3819194 .7052637

sex | -.3351736 .1829961 -1.83 0.067 -.6938394 .0234921

seizurefree | -.2627895 .2097697 -1.25 0.210 -.6739305 .1483516

gene | .3065209 .6152057 0.50 0.618 -.89926 1.512302

agea | .0046722 .0156862 0.30 0.766 -.0260722 .0354165

gage | -.0130435 .0123713 -1.05 0.292 -.0372909 .0112039

\_cons | .4516624 .4562097 0.99 0.322 -.4424921 1.345817

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0025889 .0064599 .0000195 .3444144

sd(\_cons) | .5216606 .1177497 .3351615 .8119363

corr(agea,\_cons) | -.9999758 .0215353 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6087942 .0570042 .5067207 .7314294

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 9.80 Prob > chi2 = 0.0204

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -141.97634

Iteration 1: log restricted-likelihood = -141.1259

Iteration 2: log restricted-likelihood = -140.79774

Iteration 3: log restricted-likelihood = -140.71534

Iteration 4: log restricted-likelihood = -140.70119

Iteration 5: log restricted-likelihood = -140.69841

Iteration 6: log restricted-likelihood = -140.6978

Iteration 7: log restricted-likelihood = -140.69766

Iteration 8: log restricted-likelihood = -140.69763

Iteration 9: log restricted-likelihood = -140.69762

Computing standard errors:

Mixed-effects REML regression Number of obs = 117

Group variable: ID Number of groups = 63

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 20.16

Log restricted-likelihood = -140.69762 Prob > chi2 = 0.0097

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0840584 .2778604 0.30 0.762 -.460538 .6286548

sex | -.2823 .189478 -1.49 0.136 -.65367 .08907

seizurefree | -.2912182 .2166342 -1.34 0.179 -.7158134 .133377

\_Igene\_2 | .0558897 .2783226 0.20 0.841 -.4896127 .6013921

\_Igene\_3 | -.6598028 6.50715 -0.10 0.919 -13.41358 12.09398

agea | -.0079582 .0072501 -1.10 0.272 -.0221682 .0062518

\_IgenXagea\_2 | -.0170052 .0151053 -1.13 0.260 -.0466111 .0126006

\_IgenXagea\_3 | -.0178206 .2239146 -0.08 0.937 -.456685 .4210439

\_cons | .4410155 .4358491 1.01 0.312 -.4132331 1.295264

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0011314 .0066694 1.09e-08 117.8355

sd(\_cons) | .5188412 .1167492 .3338088 .8064383

corr(agea,\_cons) | -.9999052 . . .

-----------------------------+------------------------------------------------

sd(Residual) | .6034791 .0566606 .5020455 .7254065

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.48 Prob > chi2 = 0.0149

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 0.05

Prob > chi2 = 0.9741

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 1.27

Prob > chi2 = 0.5306

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 79 .1256319 .8077059 -1.719551 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 43 .0285392 .9283463 -1.92953 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 4 -1.31204 .5638124 -1.853677 -.5232435

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs3796529 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 6 -.9839918 .8206139 -2.381441 -.1970214

rs2227901 | Freq. Percent Cum.

------------+-----------------------------------

1 | 108 65.85 65.85

2 | 52 31.71 97.56

3 | 4 2.44 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs2227901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -15.433468

Iteration 1: log restricted-likelihood = -14.64068

Iteration 2: log restricted-likelihood = -14.321382

Iteration 3: log restricted-likelihood = -14.21351

Iteration 4: log restricted-likelihood = -14.172982

Iteration 5: log restricted-likelihood = -14.165299

Iteration 6: log restricted-likelihood = -14.163511

Iteration 7: log restricted-likelihood = -14.163145

Iteration 8: log restricted-likelihood = -14.163076

Iteration 9: log restricted-likelihood = -14.16306

Iteration 10: log restricted-likelihood = -14.163057

Iteration 11: log restricted-likelihood = -14.163055

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 8.18

Log restricted-likelihood = -14.163055 Prob > chi2 = 0.2252

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1624137 .0787245 -2.06 0.039 -.3167109 -.0081165

sex | -.006072 .0559788 -0.11 0.914 -.1157883 .1036444

seizurefree | -.0670473 .0622372 -1.08 0.281 -.1890299 .0549353

gene | .3716213 .1731224 2.15 0.032 .0323077 .7109349

agea | .0082943 .0048609 1.71 0.088 -.0012329 .0178214

gage | -.007171 .0037675 -1.90 0.057 -.0145552 .0002132

\_cons | 5.852277 .1257577 46.54 0.000 5.605796 6.098757

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0027324 .0020285 .0006377 .011708

sd(\_cons) | .1375544 .034762 .083823 .225728

corr(agea,\_cons) | .9999994 .001542 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1843666 .0166515 .1544557 .2200698

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.85 Prob > chi2 = 0.0012

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.604466

Iteration 1: log restricted-likelihood = -16.663969

Iteration 2: log restricted-likelihood = -16.455791

Iteration 3: log restricted-likelihood = -16.368392

Iteration 4: log restricted-likelihood = -16.344486

Iteration 5: log restricted-likelihood = -16.338191

Iteration 6: log restricted-likelihood = -16.336684

Iteration 7: log restricted-likelihood = -16.336347

Iteration 8: log restricted-likelihood = -16.336267

Iteration 9: log restricted-likelihood = -16.336248

Iteration 10: log restricted-likelihood = -16.336243

Iteration 11: log restricted-likelihood = -16.336242

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 7.64

Log restricted-likelihood = -16.336242 Prob > chi2 = 0.4694

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1484099 .0790375 -1.88 0.060 -.3033207 .0065008

sex | -.0097564 .0572182 -0.17 0.865 -.121902 .1023892

seizurefree | -.0523413 .0632356 -0.83 0.408 -.1762807 .0715982

\_Igene\_2 | .1413463 .0756941 1.87 0.062 -.0070115 .2897041

\_Igene\_3 | -2.026175 2.432881 -0.83 0.405 -6.794534 2.742185

agea | .0009517 .0022538 0.42 0.673 -.0034657 .005369

\_IgenXagea\_2 | -.0058153 .0046455 -1.25 0.211 -.0149203 .0032897

\_IgenXagea\_3 | .0677862 .0838482 0.81 0.419 -.0965532 .2321257

\_cons | 5.988494 .1224109 48.92 0.000 5.748573 6.228415

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0027527 .0021054 .0006148 .0123256

sd(\_cons) | .1377957 .0354756 .0831942 .2282327

corr(agea,\_cons) | .9999994 .0015055 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1867922 .0168247 .1565631 .2228579

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.23 Prob > chi2 = 0.0016

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 4.27

Prob > chi2 = 0.1185

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 2.31

Prob > chi2 = 0.3146

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 89 5.783034 .2592314 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 45 5.821778 .2198273 5.49 6.23

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 4 5.775 .2066398 5.58 6.02

Log transformed computerised visual search task (average speed response/processing information) task & marker rs2227901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -21.259627

Iteration 1: log restricted-likelihood = -20.963078

Iteration 2: log restricted-likelihood = -20.885428

Iteration 3: log restricted-likelihood = -20.86593

Iteration 4: log restricted-likelihood = -20.85384 (not concave)

Iteration 5: log restricted-likelihood = -20.853046

Iteration 6: log restricted-likelihood = -20.85289

Iteration 7: log restricted-likelihood = -20.852835

Iteration 8: log restricted-likelihood = -20.852826

Iteration 9: log restricted-likelihood = -20.852822

Iteration 10: log restricted-likelihood = -20.852821

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 25.34

Log restricted-likelihood = -20.852821 Prob > chi2 = 0.0003

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1151505 .104964 -1.10 0.273 -.3208761 .0905751

sex | -.1180921 .0653401 -1.81 0.071 -.2461564 .0099722

seizurefree | -.0062027 .0739189 -0.08 0.933 -.151081 .1386756

gene | -.2436453 .237295 -1.03 0.305 -.7087349 .2214444

agea | .002434 .0058474 0.42 0.677 -.0090266 .0138947

gage | .0046452 .0046759 0.99 0.320 -.0045193 .0138097

\_cons | 2.6446 .1701576 15.54 0.000 2.311098 2.978103

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019581 .0022301 .0002101 .0182518

sd(\_cons) | .243088 .036149 .1816283 .3253446

corr(agea,\_cons) | -.9998314 .0328626 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1756488 .0158125 .147237 .2095431

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 30.01 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -21.414684

Iteration 1: log restricted-likelihood = -21.02386

Iteration 2: log restricted-likelihood = -20.986926

Iteration 3: log restricted-likelihood = -20.979825

Iteration 4: log restricted-likelihood = -20.978786

Iteration 5: log restricted-likelihood = -20.978733

Iteration 6: log restricted-likelihood = -20.978733

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 30.33

Log restricted-likelihood = -20.978733 Prob > chi2 = 0.0002

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1284395 .1023297 -1.26 0.209 -.3290021 .0721231

sex | -.1405703 .0648977 -2.17 0.030 -.2677675 -.0133731

seizurefree | -.0277472 .0728241 -0.38 0.703 -.1704799 .1149855

\_Igene\_2 | -.0744938 .108646 -0.69 0.493 -.287436 .1384484

\_Igene\_3 | 2.183812 2.124356 1.03 0.304 -1.979849 6.347474

agea | .0080325 .0025177 3.19 0.001 .0030979 .0129671

\_IgenXagea\_2 | -.0018005 .0055086 -0.33 0.744 -.0125971 .0089961

\_IgenXagea\_3 | -.0677434 .0730015 -0.93 0.353 -.2108237 .075337

\_cons | 2.577817 .1528424 16.87 0.000 2.278251 2.877382

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0037318 .0100803 .0000187 .7432886

sd(\_cons) | .2386487 .036365 .1770328 .3217098

corr(agea,\_cons) | -.7398725 .9055605 -.9998827 .9947643

-----------------------------+------------------------------------------------

sd(Residual) | .1767971 .0159209 .1481913 .2109247

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 28.71 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.58

Prob > chi2 = 0.4533

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.94

Prob > chi2 = 0.6257

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 95 2.411579 .3157036 1.77 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 44 2.339773 .2689816 1.55 2.98

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 4 2.745 .2418677 2.41 2.95

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs2227901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -473.65208

Iteration 1: log restricted-likelihood = -472.74061

Iteration 2: log restricted-likelihood = -472.42599

Iteration 3: log restricted-likelihood = -472.3487

Iteration 4: log restricted-likelihood = -472.33283

Iteration 5: log restricted-likelihood = -472.32913

Iteration 6: log restricted-likelihood = -472.32835

Iteration 7: log restricted-likelihood = -472.32821

Iteration 8: log restricted-likelihood = -472.32817

Iteration 9: log restricted-likelihood = -472.32817

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.57

Log restricted-likelihood = -472.32817 Prob > chi2 = 0.1025

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.165176 2.441517 1.30 0.195 -1.62011 7.950462

sex | -3.020059 1.681509 -1.80 0.072 -6.315756 .2756379

seizurefree | -.2046409 1.833029 -0.11 0.911 -3.797311 3.388029

gene | .1407238 5.397577 0.03 0.979 -10.43833 10.71978

agea | -.036047 .1467349 -0.25 0.806 -.3236421 .2515481

gage | -.0302631 .114265 -0.26 0.791 -.2542184 .1936922

\_cons | 43.40934 3.902582 11.12 0.000 35.76041 51.05826

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0419837 .0609183 .0024434 .7213966

sd(\_cons) | 4.4996 1.063018 2.831913 7.149371

corr(agea,\_cons) | .9999786 .0113665 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.957763 .5043306 5.04694 7.032962

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.97 Prob > chi2 = 0.0047

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -468.03826

Iteration 1: log restricted-likelihood = -467.13574

Iteration 2: log restricted-likelihood = -466.8226

Iteration 3: log restricted-likelihood = -466.73992

Iteration 4: log restricted-likelihood = -466.72364

Iteration 5: log restricted-likelihood = -466.71991

Iteration 6: log restricted-likelihood = -466.71893

Iteration 7: log restricted-likelihood = -466.71875

Iteration 8: log restricted-likelihood = -466.71872

Iteration 9: log restricted-likelihood = -466.71871

Iteration 10: log restricted-likelihood = -466.71871 (not concave)

Iteration 11: log restricted-likelihood = -466.71871 (not concave)

Iteration 12: log restricted-likelihood = -466.71871 (not concave)

Iteration 13: log restricted-likelihood = -466.71871 (not concave)

Iteration 14: log restricted-likelihood = -466.71871 (not concave)

Iteration 15: log restricted-likelihood = -466.71871 (not concave)

Iteration 16: log restricted-likelihood = -466.71871 (not concave)

Iteration 17: log restricted-likelihood = -466.71871 (not concave)

Iteration 18: log restricted-likelihood = -466.71871 (not concave)

Iteration 19: log restricted-likelihood = -466.71871 (not concave)

Iteration 20: log restricted-likelihood = -466.71871 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 11.75

Log restricted-likelihood = -468.03826 Prob > chi2 = 0.1626

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.257979 2.528285 1.29 0.198 -1.697369 8.213327

sex | -3.078169 1.78332 -1.73 0.084 -6.573413 .4170745

seizurefree | .0521522 1.931251 0.03 0.978 -3.73303 3.837335

\_Igene\_2 | .2633752 2.524113 0.10 0.917 -4.683795 5.210546

\_Igene\_3 | 6.282194 76.56322 0.08 0.935 -143.779 156.3434

agea | -.0738879 .0750321 -0.98 0.325 -.2209481 .0731724

\_IgenXagea\_2 | .0003285 .1570885 0.00 0.998 -.3075593 .3082164

\_IgenXagea\_3 | -.4795306 2.645632 -0.18 0.856 -5.664874 4.705812

\_cons | 42.24062 3.763302 11.22 0.000 34.86468 49.61655

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2233103 . . .

sd(\_cons) | 4.599931 . . .

corr(agea,\_cons) | -.2540177 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.808585 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.85 Prob > chi2 = 0.0126

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.02

Prob > chi2 = 0.9914

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.03

Prob > chi2 = 0.9837

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 101 43.64356 8.234785 23 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 47 44.59574 8.445888 25 62

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 4 32.75 4.99166 29 40

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs2227901 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -327.0261

Iteration 1: log restricted-likelihood = -326.18222

Iteration 2: log restricted-likelihood = -325.84606

Iteration 3: log restricted-likelihood = -325.74663

Iteration 4: log restricted-likelihood = -325.71993

Iteration 5: log restricted-likelihood = -325.7149

Iteration 6: log restricted-likelihood = -325.71379

Iteration 7: log restricted-likelihood = -325.71358

Iteration 8: log restricted-likelihood = -325.71353

Iteration 9: log restricted-likelihood = -325.71352

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 14.47

Log restricted-likelihood = -325.71352 Prob > chi2 = 0.0248

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.459157 .9162636 1.59 0.111 -.3366867 3.255001

sex | -1.1714 .5758695 -2.03 0.042 -2.300084 -.0427167

seizurefree | .0724072 .6324107 0.11 0.909 -1.167095 1.311909

gene | -1.665943 2.031646 -0.82 0.412 -5.647896 2.31601

agea | -.041472 .0511328 -0.81 0.417 -.1416903 .0587464

gage | .0148571 .0402303 0.37 0.712 -.0639929 .093707

\_cons | 8.928424 1.526145 5.85 0.000 5.937234 11.91961

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0195893 .0191681 .0028782 .1333265

sd(\_cons) | 2.070734 .3597135 1.473193 2.910645

corr(agea,\_cons) | -.9999898 .0064342 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.895888 .1607263 1.60565 2.238589

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.48 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -324.42394

Iteration 1: log restricted-likelihood = -323.61504

Iteration 2: log restricted-likelihood = -323.28663

Iteration 3: log restricted-likelihood = -323.18092

Iteration 4: log restricted-likelihood = -323.16529

Iteration 5: log restricted-likelihood = -323.16256

Iteration 6: log restricted-likelihood = -323.1619

Iteration 7: log restricted-likelihood = -323.16175

Iteration 8: log restricted-likelihood = -323.16172

Iteration 9: log restricted-likelihood = -323.16171

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 14.66

Log restricted-likelihood = -323.16171 Prob > chi2 = 0.0661

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.212136 .9162796 1.32 0.186 -.5837387 3.008011

sex | -1.031762 .590867 -1.75 0.081 -2.18984 .1263164

seizurefree | .0701067 .6470699 0.11 0.914 -1.198127 1.33834

\_Igene\_2 | -.6176968 .9397012 -0.66 0.511 -2.459477 1.224084

\_Igene\_3 | -15.36022 20.54389 -0.75 0.455 -55.62551 24.90507

agea | -.0225548 .0223235 -1.01 0.312 -.0663081 .0211985

\_IgenXagea\_2 | -.0118109 .0484436 -0.24 0.807 -.1067586 .0831367

\_IgenXagea\_3 | .447179 .705647 0.63 0.526 -.9358637 1.830222

\_cons | 7.818598 1.347293 5.80 0.000 5.177953 10.45924

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0181242 .0198601 .0021161 .1552341

sd(\_cons) | 2.057999 .3608463 1.459476 2.901974

corr(agea,\_cons) | -.9999942 .0007116 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.909277 .1618417 1.617023 2.254353

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.00 Prob > chi2 = 0.0003

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 0.97

Prob > chi2 = 0.6162

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 0.47

Prob > chi2 = 0.7889

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 101 8.465347 2.715011 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 47 8.170213 3.05969 3 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 4 5 2.160247 2 7

Score on common factor & marker rs2227901 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.39949

Iteration 1: log restricted-likelihood = -150.77228

Iteration 2: log restricted-likelihood = -150.41053

Iteration 3: log restricted-likelihood = -150.30821

Iteration 4: log restricted-likelihood = -150.28723

Iteration 5: log restricted-likelihood = -150.28194

Iteration 6: log restricted-likelihood = -150.28088

Iteration 7: log restricted-likelihood = -150.28068

Iteration 8: log restricted-likelihood = -150.28064

Iteration 9: log restricted-likelihood = -150.28063

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 16.77

Log restricted-likelihood = -150.28063 Prob > chi2 = 0.0102

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2272387 .282085 0.81 0.420 -.3256378 .7801152

sex | -.3649525 .1871386 -1.95 0.051 -.7317374 .0018325

seizurefree | -.1382791 .215666 -0.64 0.521 -.5609766 .2844184

gene | .0928326 .6305477 0.15 0.883 -1.143018 1.328683

agea | -.0051084 .0163077 -0.31 0.754 -.0370708 .026854

gage | -.0067959 .0129111 -0.53 0.599 -.0321013 .0185094

\_cons | .2912009 .4574782 0.64 0.524 -.60544 1.187842

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0010109 .0064819 3.52e-09 290.2424

sd(\_cons) | .5338683 .1139786 .3513227 .8112636

corr(agea,\_cons) | .9992831 .4476261 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6048297 .0559049 .5046099 .7249539

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.12 Prob > chi2 = 0.0044

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -150.37655

Iteration 1: log restricted-likelihood = -149.82029

Iteration 2: log restricted-likelihood = -149.49043

Iteration 3: log restricted-likelihood = -149.39217

Iteration 4: log restricted-likelihood = -149.37009

Iteration 5: log restricted-likelihood = -149.36491

Iteration 6: log restricted-likelihood = -149.36359

Iteration 7: log restricted-likelihood = -149.36329

Iteration 8: log restricted-likelihood = -149.36323

Iteration 9: log restricted-likelihood = -149.36322

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 17.28

Log restricted-likelihood = -149.36322 Prob > chi2 = 0.0273

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1438352 .2816607 0.51 0.610 -.4082096 .69588

sex | -.3016548 .1925178 -1.57 0.117 -.6789827 .0756732

seizurefree | -.1712966 .2212464 -0.77 0.439 -.6049316 .2623384

\_Igene\_2 | .0293836 .2813187 0.10 0.917 -.5219909 .5807582

\_Igene\_3 | -.5576516 7.223419 -0.08 0.938 -14.71529 13.59999

agea | -.0117371 .0074674 -1.57 0.116 -.0263729 .0028988

\_IgenXagea\_2 | -.0093175 .0158264 -0.59 0.556 -.0403367 .0217018

\_IgenXagea\_3 | -.0146986 .2486488 -0.06 0.953 -.5020413 .4726441

\_cons | .2555657 .4423721 0.58 0.563 -.6114677 1.122599

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0025412 .0067538 .0000139 .464855

sd(\_cons) | .5267349 .1143364 .3442111 .806045

corr(agea,\_cons) | .9998596 .0872747 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6021645 .0557596 .5022212 .7219969

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.77 Prob > chi2 = 0.0032

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 0.02

Prob > chi2 = 0.9913

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 0.35

Prob > chi2 = 0.8406

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 85 .0473056 .8530022 -2.381441 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 43 .0285392 .9283463 -1.92953 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2227901 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 4 -1.31204 .5638124 -1.853677 -.5232435

rs1491850 | Freq. Percent Cum.

------------+-----------------------------------

1 | 48 29.27 29.27

2 | 88 53.66 82.93

3 | 28 17.07 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs1491850 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -16.992306

Iteration 1: log restricted-likelihood = -16.157664

Iteration 2: log restricted-likelihood = -15.938976

Iteration 3: log restricted-likelihood = -15.838258

Iteration 4: log restricted-likelihood = -15.807522

Iteration 5: log restricted-likelihood = -15.79747

Iteration 6: log restricted-likelihood = -15.794902

Iteration 7: log restricted-likelihood = -15.794452

Iteration 8: log restricted-likelihood = -15.794394

Iteration 9: log restricted-likelihood = -15.79439

Iteration 10: log restricted-likelihood = -15.794389

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 4.99

Log restricted-likelihood = -15.794389 Prob > chi2 = 0.5456

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0882123 .0734524 -1.20 0.230 -.2321765 .0557518

sex | -.0505118 .0558925 -0.90 0.366 -.160059 .0590354

seizurefree | -.0499319 .0626238 -0.80 0.425 -.1726723 .0728085

gene | .1476797 .1300075 1.14 0.256 -.1071303 .4024897

agea | .0052215 .0063051 0.83 0.408 -.0071364 .0175793

gage | -.0024613 .0031005 -0.79 0.427 -.0085382 .0036155

\_cons | 5.817435 .1463637 39.75 0.000 5.530568 6.104303

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0018922 .0019563 .0002494 .0143545

sd(\_cons) | .1496807 .0349231 .0947471 .2364645

corr(agea,\_cons) | .9999983 .00378 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1857634 .0169235 .1553865 .2220787

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.84 Prob > chi2 = 0.0020

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -21.940841

Iteration 1: log restricted-likelihood = -21.021345

Iteration 2: log restricted-likelihood = -20.773638

Iteration 3: log restricted-likelihood = -20.707948

Iteration 4: log restricted-likelihood = -20.688025

Iteration 5: log restricted-likelihood = -20.683227

Iteration 6: log restricted-likelihood = -20.682155

Iteration 7: log restricted-likelihood = -20.681917

Iteration 8: log restricted-likelihood = -20.681877

Iteration 9: log restricted-likelihood = -20.681868

Iteration 10: log restricted-likelihood = -20.681866

Iteration 11: log restricted-likelihood = -20.681865

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 5.57

Log restricted-likelihood = -20.681865 Prob > chi2 = 0.6949

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1012368 .074338 -1.36 0.173 -.2469366 .0444629

sex | -.034529 .05911 -0.58 0.559 -.1503825 .0813245

seizurefree | -.0544168 .0632382 -0.86 0.390 -.1783613 .0695278

\_Igene\_2 | .0813693 .0761668 1.07 0.285 -.0679149 .2306534

\_Igene\_3 | .1059451 .1078097 0.98 0.326 -.105358 .3172483

agea | .0032994 .0041388 0.80 0.425 -.0048125 .0114112

\_IgenXagea\_2 | -.0045 .0047863 -0.94 0.347 -.013881 .0048809

\_IgenXagea\_3 | -.0004654 .0064341 -0.07 0.942 -.013076 .0121453

\_cons | 5.904632 .1281588 46.07 0.000 5.653446 6.155819

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0021081 .0020905 .0003019 .014723

sd(\_cons) | .1485943 .0358912 .0925559 .2385612

corr(agea,\_cons) | .9999996 .0014778 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1867377 .0169411 .1563184 .2230766

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.91 Prob > chi2 = 0.0019

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 1.41

Prob > chi2 = 0.4951

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 1.12

Prob > chi2 = 0.5706

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 39 5.785385 .2552382 5.42 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 75 5.786 .2431271 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 24 5.84125 .238096 5.45 6.32

Log transformed computerised visual search task (average speed response/processing information) task & marker rs1491850 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -19.090692

Iteration 1: log restricted-likelihood = -18.993572

Iteration 2: log restricted-likelihood = -18.989792

Iteration 3: log restricted-likelihood = -18.989771

Iteration 4: log restricted-likelihood = -18.989771

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 30.62

Log restricted-likelihood = -18.989771 Prob > chi2 = 0.0000

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.175217 .0908784 -1.93 0.054 -.3533354 .0029014

sex | -.117089 .060776 -1.93 0.054 -.2362078 .0020298

seizurefree | -.0447766 .0688773 -0.65 0.516 -.1797736 .0902204

gene | .1705822 .1568788 1.09 0.277 -.1368946 .4780591

agea | .0100349 .0072667 1.38 0.167 -.0042077 .0242775

gage | -.0012261 .0034967 -0.35 0.726 -.0080795 .0056273

\_cons | 2.363919 .1784757 13.25 0.000 2.014113 2.713725

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0079009 .0051822 .0021846 .0285746

sd(\_cons) | .224061 .0368601 .1623064 .3093119

corr(agea,\_cons) | -.6520219 .2585678 -.9302675 .1023981

-----------------------------+------------------------------------------------

sd(Residual) | .1762547 .0158255 .1478132 .2101688

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 26.93 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.217032

Iteration 1: log restricted-likelihood = -22.069298

Iteration 2: log restricted-likelihood = -22.0617

Iteration 3: log restricted-likelihood = -22.061565

Iteration 4: log restricted-likelihood = -22.061565

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 35.57

Log restricted-likelihood = -22.061565 Prob > chi2 = 0.0000

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1572618 .091183 -1.72 0.085 -.3359772 .0214537

sex | -.1321876 .0627353 -2.11 0.035 -.2551466 -.0092285

seizurefree | -.043235 .0674662 -0.64 0.522 -.1754663 .0889963

\_Igene\_2 | .2018519 .1010951 2.00 0.046 .0037093 .3999946

\_Igene\_3 | .2648169 .1355905 1.95 0.051 -.0009356 .5305694

agea | .0084556 .0048447 1.75 0.081 -.0010398 .0179511

\_IgenXagea\_2 | .000324 .0056221 0.06 0.954 -.010695 .011343

\_IgenXagea\_3 | -.0047091 .0069851 -0.67 0.500 -.0183996 .0089813

\_cons | 2.447278 .1566763 15.62 0.000 2.140198 2.754358

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0074609 .0053039 .0018521 .0300545

sd(\_cons) | .227921 .0375718 .1649937 .3148483

corr(agea,\_cons) | -.7049646 .2173167 -.9383244 -.0303498

-----------------------------+------------------------------------------------

sd(Residual) | .1766398 .0159064 .1480602 .2107362

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 26.26 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 5.20

Prob > chi2 = 0.0742

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.73

Prob > chi2 = 0.6943

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 39 2.285128 .2358955 1.77 2.97

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 79 2.455063 .3410236 1.55 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 25 2.3984 .2383919 2.05 2.93

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs1491850 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -473.80171

Iteration 1: log restricted-likelihood = -472.83822

Iteration 2: log restricted-likelihood = -472.51309

Iteration 3: log restricted-likelihood = -472.42861

Iteration 4: log restricted-likelihood = -472.41301

Iteration 5: log restricted-likelihood = -472.40932

Iteration 6: log restricted-likelihood = -472.40843

Iteration 7: log restricted-likelihood = -472.40825

Iteration 8: log restricted-likelihood = -472.40822

Iteration 9: log restricted-likelihood = -472.40821 (not concave)

Iteration 10: log restricted-likelihood = -472.40821 (not concave)

Iteration 11: log restricted-likelihood = -472.40821 (not concave)

Iteration 12: log restricted-likelihood = -472.40821 (not concave)

Iteration 13: log restricted-likelihood = -472.40821 (not concave)

Iteration 14: log restricted-likelihood = -472.40821 (not concave)

Iteration 15: log restricted-likelihood = -472.40821 (not concave)

Iteration 16: log restricted-likelihood = -472.40821 (not concave)

Iteration 17: log restricted-likelihood = -472.40821 (not concave)

Iteration 18: log restricted-likelihood = -472.40821 (not concave)

Iteration 19: log restricted-likelihood = -472.40821 (not concave)

Iteration 20: log restricted-likelihood = -472.40821 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 11.59

Log restricted-likelihood = -473.80171 Prob > chi2 = 0.0717

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.361718 2.374026 1.42 0.157 -1.291289 8.014724

sex | -3.79641 1.720917 -2.21 0.027 -7.169346 -.4234747

seizurefree | .1817526 1.925507 0.09 0.925 -3.592172 3.955677

gene | -2.334087 4.17908 -0.56 0.576 -10.52493 5.856759

agea | -.2375329 .1995541 -1.19 0.234 -.6286518 .153586

gage | .0780451 .0988645 0.79 0.430 -.1157258 .271816

\_cons | 42.52459 4.432606 9.59 0.000 33.83684 51.21234

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .213846 . . .

sd(\_cons) | 4.840702 . . .

corr(agea,\_cons) | -.3147304 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.771698 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.74 Prob > chi2 = 0.0132

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -471.20246

Iteration 1: log restricted-likelihood = -470.22853

Iteration 2: log restricted-likelihood = -469.90039

Iteration 3: log restricted-likelihood = -469.84757

Iteration 4: log restricted-likelihood = -469.84093

Iteration 5: log restricted-likelihood = -469.83963

Iteration 6: log restricted-likelihood = -469.83932

Iteration 7: log restricted-likelihood = -469.83925

Iteration 8: log restricted-likelihood = -469.83923

Iteration 9: log restricted-likelihood = -469.83923 (not concave)

Iteration 10: log restricted-likelihood = -469.83923 (not concave)

Iteration 11: log restricted-likelihood = -469.83923 (not concave)

Iteration 12: log restricted-likelihood = -469.83923 (not concave)

Iteration 13: log restricted-likelihood = -469.83923 (not concave)

Iteration 14: log restricted-likelihood = -469.83923 (not concave)

Iteration 15: log restricted-likelihood = -469.83923 (not concave)

Iteration 16: log restricted-likelihood = -469.83923 (not concave)

Iteration 17: log restricted-likelihood = -469.83923 (not concave)

Iteration 18: log restricted-likelihood = -469.83923 (not concave)

Iteration 19: log restricted-likelihood = -469.83923 (not concave)

Iteration 20: log restricted-likelihood = -469.83923 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 12.88

Log restricted-likelihood = -471.20246 Prob > chi2 = 0.1161

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.801366 2.363509 1.61 0.108 -.8310263 8.433758

sex | -4.456658 1.790606 -2.49 0.013 -7.966181 -.9471344

seizurefree | .4261003 1.938824 0.22 0.826 -3.373925 4.226126

\_Igene\_2 | -.7641691 2.414853 -0.32 0.752 -5.497194 3.968856

\_Igene\_3 | 2.204144 3.364624 0.66 0.512 -4.390397 8.798685

agea | -.1793821 .1295802 -1.38 0.166 -.4333546 .0745904

\_IgenXagea\_2 | .1708061 .1536295 1.11 0.266 -.1303023 .4719145

\_IgenXagea\_3 | -.0570643 .2068073 -0.28 0.783 -.4623991 .3482706

\_cons | 42.19514 3.848205 10.96 0.000 34.6528 49.73749

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2167259 . . .

sd(\_cons) | 4.630285 . . .

corr(agea,\_cons) | -.2637909 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.800704 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.45 Prob > chi2 = 0.0151

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.96

Prob > chi2 = 0.6190

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 2.16

Prob > chi2 = 0.3392

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 46 42.67391 7.495345 25 59

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 81 43.7037 8.691151 27 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 25 45.28 9.066973 23 62

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs1491850 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -327.20899

Iteration 1: log restricted-likelihood = -326.42328

Iteration 2: log restricted-likelihood = -326.003

Iteration 3: log restricted-likelihood = -325.90414

Iteration 4: log restricted-likelihood = -325.88452

Iteration 5: log restricted-likelihood = -325.88079

Iteration 6: log restricted-likelihood = -325.87999

Iteration 7: log restricted-likelihood = -325.87982

Iteration 8: log restricted-likelihood = -325.87978

Iteration 9: log restricted-likelihood = -325.87977

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 15.30

Log restricted-likelihood = -325.87977 Prob > chi2 = 0.0181

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.076248 .8775171 1.23 0.220 -.6436537 2.79615

sex | -1.223593 .571138 -2.14 0.032 -2.343003 -.1041836

seizurefree | .0789744 .6329457 0.12 0.901 -1.161576 1.319525

gene | -1.814285 1.394861 -1.30 0.193 -4.548161 .9195918

agea | -.1312695 .0609268 -2.15 0.031 -.2506838 -.0118552

gage | .0515023 .0294933 1.75 0.081 -.0063035 .1093082

\_cons | 8.467418 1.649347 5.13 0.000 5.234758 11.70008

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0229714 .0198206 .0042339 .124634

sd(\_cons) | 2.155138 .370621 1.538485 3.018957

corr(agea,\_cons) | -.9999946 .0007224 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.869733 .1585545 1.583424 2.207812

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 21.32 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -327.57525

Iteration 1: log restricted-likelihood = -326.8212

Iteration 2: log restricted-likelihood = -326.51612

Iteration 3: log restricted-likelihood = -326.4392

Iteration 4: log restricted-likelihood = -326.42275

Iteration 5: log restricted-likelihood = -326.4193

Iteration 6: log restricted-likelihood = -326.4186

Iteration 7: log restricted-likelihood = -326.41848

Iteration 8: log restricted-likelihood = -326.41845

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 15.37

Log restricted-likelihood = -326.41845 Prob > chi2 = 0.0524

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.212524 .8867002 1.37 0.171 -.5253762 2.950425

sex | -1.48671 .6043719 -2.46 0.014 -2.671257 -.3021625

seizurefree | .1781814 .6400232 0.28 0.781 -1.076241 1.432604

\_Igene\_2 | -.5307538 .9411425 -0.56 0.573 -2.375359 1.313852

\_Igene\_3 | .0653819 1.301721 0.05 0.960 -2.485945 2.616709

agea | -.0902587 .0413119 -2.18 0.029 -.1712285 -.009289

\_IgenXagea\_2 | .0835275 .0489894 1.71 0.088 -.0124899 .179545

\_IgenXagea\_3 | .0628822 .0603249 1.04 0.297 -.0553524 .1811169

\_cons | 8.093806 1.436133 5.64 0.000 5.279037 10.90858

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0242877 .0204288 .0046712 .1262832

sd(\_cons) | 2.158402 .3738494 1.537088 3.030861

corr(agea,\_cons) | -.999978 .0045647 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.89627 .160059 1.607136 2.237422

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.80 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 0.46

Prob > chi2 = 0.7949

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 2.92

Prob > chi2 = 0.2321

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 46 7.956522 2.928454 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 81 8.308642 2.723242 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 25 8.8 3.149074 2 15

Score on common factor & marker rs1491850 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.60513

Iteration 1: log restricted-likelihood = -151.12279

Iteration 2: log restricted-likelihood = -150.79425

Iteration 3: log restricted-likelihood = -150.70463

Iteration 4: log restricted-likelihood = -150.66585

Iteration 5: log restricted-likelihood = -150.65918

Iteration 6: log restricted-likelihood = -150.65795

Iteration 7: log restricted-likelihood = -150.65767

Iteration 8: log restricted-likelihood = -150.6576

Iteration 9: log restricted-likelihood = -150.65758

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 16.24

Log restricted-likelihood = -150.65758 Prob > chi2 = 0.0125

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .179203 .2571572 0.70 0.486 -.3248158 .6832219

sex | -.364454 .1865068 -1.95 0.051 -.7300006 .0010925

seizurefree | -.1206606 .2137829 -0.56 0.572 -.5396673 .2983462

gene | -.5643948 .4485282 -1.26 0.208 -1.443494 .3147044

agea | -.0449107 .0216349 -2.08 0.038 -.0873144 -.0025071

gage | .0148562 .0103616 1.43 0.152 -.0054521 .0351645

\_cons | .4455874 .5352186 0.83 0.405 -.6034219 1.494597

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0014611 .0064829 2.44e-07 8.737233

sd(\_cons) | .5543884 .1153696 .3687033 .8335878

corr(agea,\_cons) | .9995662 .2784689 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5917473 .0548168 .4934974 .7095576

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.65 Prob > chi2 = 0.0013

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -153.33061

Iteration 1: log restricted-likelihood = -152.83794

Iteration 2: log restricted-likelihood = -152.5187

Iteration 3: log restricted-likelihood = -152.50059

Iteration 4: log restricted-likelihood = -152.4982

Iteration 5: log restricted-likelihood = -152.49775

Iteration 6: log restricted-likelihood = -152.49765

Iteration 7: log restricted-likelihood = -152.49762

Iteration 8: log restricted-likelihood = -152.49762

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 17.96

Log restricted-likelihood = -152.49762 Prob > chi2 = 0.0215

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2241675 .2522541 0.89 0.374 -.2702414 .7185765

sex | -.4610879 .1938889 -2.38 0.017 -.8411031 -.0810727

seizurefree | -.1061286 .2113732 -0.50 0.616 -.5204125 .3081552

\_Igene\_2 | -.2732107 .2685451 -1.02 0.309 -.7995494 .2531281

\_Igene\_3 | -.005232 .3667793 -0.01 0.989 -.7241062 .7136422

agea | -.0364705 .0145173 -2.51 0.012 -.0649238 -.0080172

\_IgenXagea\_2 | .0301978 .0163589 1.85 0.065 -.0018652 .0622607

\_IgenXagea\_3 | .0107733 .0209319 0.51 0.607 -.0302524 .0517991

\_cons | .3614981 .4597743 0.79 0.432 -.5396429 1.262639

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0027816 .0068025 .000023 .3356886

sd(\_cons) | .5221197 .1172204 .3362544 .8107226

corr(agea,\_cons) | .9999468 .0588076 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6005503 .0552436 .5014745 .7192004

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.33 Prob > chi2 = 0.0025

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 1.41

Prob > chi2 = 0.4952

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 3.84

Prob > chi2 = 0.1466

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 34 .0084826 .804703 -1.92953 1.628641

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 74 -.0187706 .896374 -1.853677 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs1491850 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 24 .0458591 1.04836 -2.381441 2.053248

rs12273363 | Freq. Percent Cum.

------------+-----------------------------------

1 | 90 62.50 62.50

2 | 54 37.50 100.00

------------+-----------------------------------

Total | 144 100.00

(20 missing values generated)

(20 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs12273363 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -18.489474

Iteration 1: log restricted-likelihood = -18.024973

Iteration 2: log restricted-likelihood = -17.904531

Iteration 3: log restricted-likelihood = -17.849474

Iteration 4: log restricted-likelihood = -17.831754

Iteration 5: log restricted-likelihood = -17.829856

Iteration 6: log restricted-likelihood = -17.829422

Iteration 7: log restricted-likelihood = -17.82932

Iteration 8: log restricted-likelihood = -17.829296

Iteration 9: log restricted-likelihood = -17.82929

Iteration 10: log restricted-likelihood = -17.829289

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 2.60

Log restricted-likelihood = -17.829289 Prob > chi2 = 0.8567

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1036718 .0853164 -1.22 0.224 -.2708889 .0635452

sex | -.0115908 .0616807 -0.19 0.851 -.1324827 .1093011

seizurefree | -.0339018 .0688996 -0.49 0.623 -.1689426 .1011389

gene | .0886644 .1630273 0.54 0.587 -.2308633 .4081921

agea | .0020625 .0061715 0.33 0.738 -.0100334 .0141583

gage | -.0015347 .0038667 -0.40 0.691 -.0091132 .0060438

\_cons | 5.894463 .1691458 34.85 0.000 5.562943 6.225982

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0017344 .0021083 .0001601 .0187868

sd(\_cons) | .1491413 .0398682 .0883194 .2518488

corr(agea,\_cons) | .9999887 .0207183 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1945425 .0190277 .1606057 .2356504

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.20 Prob > chi2 = 0.0107

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -18.546432

Iteration 1: log restricted-likelihood = -18.098844

Iteration 2: log restricted-likelihood = -17.94736

Iteration 3: log restricted-likelihood = -17.910876

Iteration 4: log restricted-likelihood = -17.900255

Iteration 5: log restricted-likelihood = -17.89651

Iteration 6: log restricted-likelihood = -17.895549

Iteration 7: log restricted-likelihood = -17.895345

Iteration 8: log restricted-likelihood = -17.895305

Iteration 9: log restricted-likelihood = -17.895296

Iteration 10: log restricted-likelihood = -17.895294

Iteration 11: log restricted-likelihood = -17.895293

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 2.53

Log restricted-likelihood = -17.895293 Prob > chi2 = 0.8654

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1062175 .0842715 -1.26 0.208 -.2713867 .0589517

sex | -.0094997 .0614478 -0.15 0.877 -.1299352 .1109357

seizurefree | -.0364331 .0686383 -0.53 0.596 -.1709617 .0980954

\_Igene\_2 | .0286188 .0717259 0.40 0.690 -.1119613 .169199

agea | -.0002012 .0029438 -0.07 0.946 -.005971 .0055685

\_IgenXagea\_2 | 8.23e-06 .0038823 0.00 0.998 -.007601 .0076174

\_cons | 5.948318 .1341384 44.34 0.000 5.685412 6.211224

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019549 .002123 .0002327 .0164255

sd(\_cons) | .145325 .0395041 .0853013 .2475854

corr(agea,\_cons) | .9999979 .0080116 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1953207 .0190143 .161393 .2363806

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.11 Prob > chi2 = 0.0111

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

chi2( 1) = 0.16

Prob > chi2 = 0.6899

( 1) [y1]\_IgenXagea\_2 = 0

chi2( 1) = 0.00

Prob > chi2 = 0.9983

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 78 5.784103 .2195121 5.42 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 42 5.818809 .2908457 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 18 5.79 .2428507 5.46 6.23

Log transformed computerised visual search task (average speed response/processing information) task & marker rs12273363 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.003662

Iteration 1: log restricted-likelihood = -22.715293

Iteration 2: log restricted-likelihood = -22.622149

Iteration 3: log restricted-likelihood = -22.605034

Iteration 4: log restricted-likelihood = -22.599789

Iteration 5: log restricted-likelihood = -22.599284

Iteration 6: log restricted-likelihood = -22.599229

Iteration 7: log restricted-likelihood = -22.599221

Iteration 8: log restricted-likelihood = -22.59922

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 21.01

Log restricted-likelihood = -22.59922 Prob > chi2 = 0.0018

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.162551 .1158262 -1.40 0.160 -.3895662 .0644643

sex | -.1150016 .0730308 -1.57 0.115 -.2581395 .0281362

seizurefree | -.0126041 .0821343 -0.15 0.878 -.1735843 .1483761

gene | .2469752 .2091495 1.18 0.238 -.1629504 .6569007

agea | .0120869 .0074618 1.62 0.105 -.0025379 .0267117

gage | -.003472 .0045452 -0.76 0.445 -.0123803 .0054364

\_cons | 2.394417 .222734 10.75 0.000 1.957866 2.830968

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0011304 .0023819 .0000182 .0702772

sd(\_cons) | .2405507 .0387454 .17543 .3298446

corr(agea,\_cons) | -.9999585 .0170245 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1800521 .0174907 .1488367 .2178141

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 24.84 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.692529

Iteration 1: log restricted-likelihood = -22.40337

Iteration 2: log restricted-likelihood = -22.303543

Iteration 3: log restricted-likelihood = -22.289537

Iteration 4: log restricted-likelihood = -22.284963

Iteration 5: log restricted-likelihood = -22.28379

Iteration 6: log restricted-likelihood = -22.283424

Iteration 7: log restricted-likelihood = -22.28329

Iteration 8: log restricted-likelihood = -22.283252

Iteration 9: log restricted-likelihood = -22.283244

Iteration 10: log restricted-likelihood = -22.283242

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 21.63

Log restricted-likelihood = -22.283242 Prob > chi2 = 0.0014

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1566649 .1163866 -1.35 0.178 -.3847784 .0714487

sex | -.1180247 .0728128 -1.62 0.105 -.2607352 .0246858

seizurefree | -.010485 .0819353 -0.13 0.898 -.1710752 .1501053

\_Igene\_2 | .1661852 .0966509 1.72 0.086 -.0232471 .3556174

agea | .0095189 .0036531 2.61 0.009 .0023589 .0166788

\_IgenXagea\_2 | -.0050698 .0046299 -1.10 0.274 -.0141441 .0040046

\_cons | 2.521506 .1778144 14.18 0.000 2.172997 2.870016

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0012694 .0020775 .0000513 .0313817

sd(\_cons) | .2417668 .0388903 .1763898 .331375

corr(agea,\_cons) | -.9998553 .2146727 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1794559 .0173956 .1484042 .2170048

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 25.12 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

chi2( 1) = 2.96

Prob > chi2 = 0.0855

( 1) [y2]\_IgenXagea\_2 = 0

chi2( 1) = 1.20

Prob > chi2 = 0.2735

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 78 2.377949 .3012199 1.55 3.05

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 46 2.461087 .3250041 2 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 19 2.333684 .2657319 1.77 2.78

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs12273363 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -413.14565

Iteration 1: log restricted-likelihood = -412.30982

Iteration 2: log restricted-likelihood = -411.9525

Iteration 3: log restricted-likelihood = -411.87834

Iteration 4: log restricted-likelihood = -411.86155

Iteration 5: log restricted-likelihood = -411.85777

Iteration 6: log restricted-likelihood = -411.85679

Iteration 7: log restricted-likelihood = -411.8566

Iteration 8: log restricted-likelihood = -411.85657

Iteration 9: log restricted-likelihood = -411.85657

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.55

Log restricted-likelihood = -411.85657 Prob > chi2 = 0.1031

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.16999 2.817044 0.77 0.441 -3.351314 7.691294

sex | -2.564752 1.89908 -1.35 0.177 -6.286881 1.157377

seizurefree | -.4662981 2.073136 -0.22 0.822 -4.529569 3.596973

gene | -8.154236 5.166866 -1.58 0.115 -18.28111 1.972635

agea | -.3996333 .1886304 -2.12 0.034 -.7693422 -.0299244

gage | .2107292 .1172216 1.80 0.072 -.0190209 .4404793

\_cons | 46.31698 5.31382 8.72 0.000 35.90208 56.73187

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0129705 .069873 3.37e-07 499.3995

sd(\_cons) | 5.338063 1.206973 3.427056 8.314692

corr(agea,\_cons) | .9998169 .1320452 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.856327 .5318641 4.901401 6.997297

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.40 Prob > chi2 = 0.0024

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -413.85693

Iteration 1: log restricted-likelihood = -413.02152

Iteration 2: log restricted-likelihood = -412.69912

Iteration 3: log restricted-likelihood = -412.61183

Iteration 4: log restricted-likelihood = -412.59139

Iteration 5: log restricted-likelihood = -412.58729

Iteration 6: log restricted-likelihood = -412.58636

Iteration 7: log restricted-likelihood = -412.58615

Iteration 8: log restricted-likelihood = -412.5861

Iteration 9: log restricted-likelihood = -412.58609

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 8.67

Log restricted-likelihood = -412.58609 Prob > chi2 = 0.1929

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.203529 2.759442 0.80 0.425 -3.204879 7.611936

sex | -2.589623 1.897445 -1.36 0.172 -6.308548 1.129301

seizurefree | -.4370206 2.067173 -0.21 0.833 -4.488605 3.614563

\_Igene\_2 | -1.220431 2.286624 -0.53 0.594 -5.702132 3.261271

agea | -.1576339 .0906697 -1.74 0.082 -.3353432 .0200754

\_IgenXagea\_2 | .146157 .119065 1.23 0.220 -.087206 .3795201

\_cons | 44.00528 4.182534 10.52 0.000 35.80766 52.20289

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0259527 .071246 .0001195 5.635343

sd(\_cons) | 5.134536 1.189291 3.260926 8.084654

corr(agea,\_cons) | .9999467 .0088812 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.934942 .5373887 4.969848 7.087448

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.75 Prob > chi2 = 0.0033

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

chi2( 1) = 0.28

Prob > chi2 = 0.5935

( 1) [y3]\_IgenXagea\_2 = 0

chi2( 1) = 1.51

Prob > chi2 = 0.2196

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 85 43.43529 7.966368 25 60

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 48 43.89583 9.656306 23 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 19 44 7.195678 29 57

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs12273363 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -284.69506

Iteration 1: log restricted-likelihood = -283.96755

Iteration 2: log restricted-likelihood = -283.61201

Iteration 3: log restricted-likelihood = -283.52592

Iteration 4: log restricted-likelihood = -283.51035

Iteration 5: log restricted-likelihood = -283.50753

Iteration 6: log restricted-likelihood = -283.5069

Iteration 7: log restricted-likelihood = -283.50676

Iteration 8: log restricted-likelihood = -283.50673

Iteration 9: log restricted-likelihood = -283.50673

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 13.93

Log restricted-likelihood = -283.50673 Prob > chi2 = 0.0304

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2246602 1.081367 0.21 0.835 -1.89478 2.3441

sex | -.7700013 .648334 -1.19 0.235 -2.040713 .5007099

seizurefree | -.0701153 .7154168 -0.10 0.922 -1.472306 1.332076

gene | -3.992328 1.911689 -2.09 0.037 -7.739169 -.2454865

agea | -.1887088 .0648845 -2.91 0.004 -.31588 -.0615376

gage | .0983566 .0401841 2.45 0.014 .0195972 .1771159

\_cons | 10.32424 1.995574 5.17 0.000 6.412987 14.23549

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0179081 .0216533 .0016743 .1915439

sd(\_cons) | 2.225036 .3989088 1.565784 3.161856

corr(agea,\_cons) | -.9999945 .0006366 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.821557 .1660571 1.52351 2.177911

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 21.79 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -286.10978

Iteration 1: log restricted-likelihood = -285.34111

Iteration 2: log restricted-likelihood = -285.01655

Iteration 3: log restricted-likelihood = -284.91697

Iteration 4: log restricted-likelihood = -284.89608

Iteration 5: log restricted-likelihood = -284.8925

Iteration 6: log restricted-likelihood = -284.89166

Iteration 7: log restricted-likelihood = -284.89149

Iteration 8: log restricted-likelihood = -284.89146

Iteration 9: log restricted-likelihood = -284.89145

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 11.00

Log restricted-likelihood = -284.89145 Prob > chi2 = 0.0884

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2610785 1.073236 0.24 0.808 -1.842426 2.364583

sex | -.7979051 .6473198 -1.23 0.218 -2.066629 .4708184

seizurefree | -.0537008 .7136285 -0.08 0.940 -1.452387 1.344985

\_Igene\_2 | -.6882099 .8926356 -0.77 0.441 -2.437744 1.061324

agea | -.077387 .0313551 -2.47 0.014 -.1388419 -.0159321

\_IgenXagea\_2 | .071721 .0407843 1.76 0.079 -.0082148 .1516568

\_cons | 9.020113 1.575993 5.72 0.000 5.931225 12.109

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0169247 .0217256 .0013673 .2094946

sd(\_cons) | 2.180129 .3956211 1.527627 3.111337

corr(agea,\_cons) | -.9999871 .0082757 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.869776 .1692564 1.565802 2.232762

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.17 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

chi2( 1) = 0.59

Prob > chi2 = 0.4407

( 1) [y4]\_IgenXagea\_2 = 0

chi2( 1) = 3.09

Prob > chi2 = 0.0787

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 85 8.117647 2.880194 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 48 8.25 3.042256 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 19 9.105263 2.131633 6 14

Score on common factor & marker rs12273363 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -131.83609

Iteration 1: log restricted-likelihood = -131.2863

Iteration 2: log restricted-likelihood = -130.92473

Iteration 3: log restricted-likelihood = -130.81952

Iteration 4: log restricted-likelihood = -130.7882

Iteration 5: log restricted-likelihood = -130.78188

Iteration 6: log restricted-likelihood = -130.78042

Iteration 7: log restricted-likelihood = -130.78009

Iteration 8: log restricted-likelihood = -130.78001

Iteration 9: log restricted-likelihood = -130.77999

Iteration 10: log restricted-likelihood = -130.77999

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 15.16

Log restricted-likelihood = -130.77999 Prob > chi2 = 0.0190

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0054653 .3137407 0.02 0.986 -.6094553 .6203858

sex | -.2476218 .2132136 -1.16 0.245 -.6655127 .1702692

seizurefree | -.2123478 .2466615 -0.86 0.389 -.6957955 .2711

gene | -1.082869 .5902805 -1.83 0.067 -2.239797 .0740595

agea | -.0585435 .021766 -2.69 0.007 -.1012041 -.0158829

gage | .0271404 .0133424 2.03 0.042 .0009897 .053291

\_cons | .8254441 .6357553 1.30 0.194 -.4206134 2.071502

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .001087 .0072999 2.09e-09 565.8201

sd(\_cons) | .605057 .1277228 .40005 .9151207

corr(agea,\_cons) | .9998645 .1627034 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5778228 .0579438 .4747189 .7033197

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 16.89 Prob > chi2 = 0.0007

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-2 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -132.82118

Iteration 1: log restricted-likelihood = -132.28458

Iteration 2: log restricted-likelihood = -131.93451

Iteration 3: log restricted-likelihood = -131.83404

Iteration 4: log restricted-likelihood = -131.80238

Iteration 5: log restricted-likelihood = -131.79613

Iteration 6: log restricted-likelihood = -131.79467

Iteration 7: log restricted-likelihood = -131.79434

Iteration 8: log restricted-likelihood = -131.79426

Iteration 9: log restricted-likelihood = -131.79424

Iteration 10: log restricted-likelihood = -131.79423

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 12.77

Log restricted-likelihood = -131.79423 Prob > chi2 = 0.0468

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0119401 .3081902 0.04 0.969 -.5921017 .6159818

sex | -.2523862 .2127144 -1.19 0.235 -.6692987 .1645263

seizurefree | -.2018572 .246604 -0.82 0.413 -.6851922 .2814777

\_Igene\_2 | -.1857922 .262052 -0.71 0.478 -.6994048 .3278203

agea | -.0271899 .0105749 -2.57 0.010 -.0479164 -.0064634

\_IgenXagea\_2 | .0185386 .0134875 1.37 0.169 -.0078964 .0449736

\_cons | .4864699 .5006904 0.97 0.331 -.4948653 1.467805

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .002245 .0073884 3.55e-06 1.420953

sd(\_cons) | .5824972 .1255296 .3818192 .8886482

corr(agea,\_cons) | .9999663 .0397515 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5916348 .0588793 .4867908 .7190598

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.77 Prob > chi2 = 0.0013

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

chi2( 1) = 0.50

Prob > chi2 = 0.4783

( 1) [y10]\_IgenXagea\_2 = 0

chi2( 1) = 1.89

Prob > chi2 = 0.1693

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 73 -.0159663 .8601055 -1.92953 1.731921

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 41 .0062461 1.030278 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs12273363 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 18 .0505249 .7511397 -1.497013 1.503227

rs2030324 | Freq. Percent Cum.

------------+-----------------------------------

1 | 50 32.05 32.05

2 | 74 47.44 79.49

3 | 32 20.51 100.00

------------+-----------------------------------

Total | 156 100.00

(8 missing values generated)

(8 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs2030324 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -12.572536

Iteration 1: log restricted-likelihood = -12.016775

Iteration 2: log restricted-likelihood = -11.743069

Iteration 3: log restricted-likelihood = -11.682974

Iteration 4: log restricted-likelihood = -11.674309

Iteration 5: log restricted-likelihood = -11.67247

Iteration 6: log restricted-likelihood = -11.672006

Iteration 7: log restricted-likelihood = -11.671893

Iteration 8: log restricted-likelihood = -11.671864

Iteration 9: log restricted-likelihood = -11.671859

Iteration 10: log restricted-likelihood = -11.671858

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 65

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 4.87

Log restricted-likelihood = -11.671858 Prob > chi2 = 0.5603

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.092971 .0738013 -1.26 0.208 -.2376188 .0516769

sex | -.0460156 .0582935 -0.79 0.430 -.1602688 .0682377

seizurefree | -.0446741 .0626104 -0.71 0.476 -.1673882 .07804

gene | .0830885 .1287253 0.65 0.519 -.1692085 .3353854

agea | .0057443 .0059715 0.96 0.336 -.0059597 .0174482

gage | -.0031846 .0031644 -1.01 0.314 -.0093868 .0030176

\_cons | 5.983822 .1521613 39.33 0.000 5.685592 6.282053

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019865 .0019441 .0002918 .0135244

sd(\_cons) | .1570914 .0326252 .1045617 .2360111

corr(agea,\_cons) | .9999969 .0061903 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1727839 .0162296 .1437308 .2077097

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 17.81 Prob > chi2 = 0.0005

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.74753

Iteration 1: log restricted-likelihood = -17.147832

Iteration 2: log restricted-likelihood = -16.878551

Iteration 3: log restricted-likelihood = -16.811942

Iteration 4: log restricted-likelihood = -16.804852

Iteration 5: log restricted-likelihood = -16.80385

Iteration 6: log restricted-likelihood = -16.803614

Iteration 7: log restricted-likelihood = -16.803557

Iteration 8: log restricted-likelihood = -16.803544

Iteration 9: log restricted-likelihood = -16.803541

Iteration 10: log restricted-likelihood = -16.803541

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 65

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 4.37

Log restricted-likelihood = -16.803541 Prob > chi2 = 0.8220

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0906579 .0751268 -1.21 0.228 -.2379037 .0565879

sex | -.0390563 .0652745 -0.60 0.550 -.1669919 .0888794

seizurefree | -.0483073 .0661214 -0.73 0.465 -.177903 .0812883

\_Igene\_2 | .010989 .0830597 0.13 0.895 -.1518049 .173783

\_Igene\_3 | -.0526448 .1018712 -0.52 0.605 -.2523086 .147019

agea | .0017001 .0037145 0.46 0.647 -.0055801 .0089803

\_IgenXagea\_2 | -.0020932 .0046645 -0.45 0.654 -.0112353 .007049

\_IgenXagea\_3 | -.0035618 .0071267 -0.50 0.617 -.0175298 .0104062

\_cons | 5.963928 .1338993 44.54 0.000 5.701491 6.226366

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0018863 .0020562 .0002227 .0159763

sd(\_cons) | .161043 .0340626 .1063903 .2437708

corr(agea,\_cons) | .9999986 .0041676 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .174042 .0162577 .1449242 .20901

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.20 Prob > chi2 = 0.0004

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 0.46

Prob > chi2 = 0.7938

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.34

Prob > chi2 = 0.8453

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 44 5.816591 .2707436 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 63 5.800159 .2140432 5.43 6.22

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 24 5.742917 .2442999 5.42 6.25

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 7 5.8 .3563706 5.49 6.54

Log transformed computerised visual search task (average speed response/processing information) task & marker rs2030324 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.990339

Iteration 1: log restricted-likelihood = -22.536405

Iteration 2: log restricted-likelihood = -22.33333

Iteration 3: log restricted-likelihood = -22.308056

Iteration 4: log restricted-likelihood = -22.300526

Iteration 5: log restricted-likelihood = -22.298381

Iteration 6: log restricted-likelihood = -22.297902

Iteration 7: log restricted-likelihood = -22.29779

Iteration 8: log restricted-likelihood = -22.297762

Iteration 9: log restricted-likelihood = -22.297757

Iteration 10: log restricted-likelihood = -22.297756

Computing standard errors:

Mixed-effects REML regression Number of obs = 127

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 25.87

Log restricted-likelihood = -22.297756 Prob > chi2 = 0.0002

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.149197 .0966461 -1.54 0.123 -.3386199 .0402259

sex | -.1213328 .0663716 -1.83 0.068 -.2514187 .0087531

seizurefree | -.0093238 .0727034 -0.13 0.898 -.1518198 .1331722

gene | -.1348735 .1582962 -0.85 0.394 -.4451284 .1753814

agea | .0021859 .0066438 0.33 0.742 -.0108357 .0152075

gage | .0032846 .0035671 0.92 0.357 -.0037068 .010276

\_cons | 2.636148 .1941941 13.57 0.000 2.255535 3.016762

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019073 .0019662 .0002529 .0143859

sd(\_cons) | .2428229 .0369487 .1802055 .3271983

corr(agea,\_cons) | -.9999942 .0041337 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1778578 .016229 .1487316 .2126877

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 28.48 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -25.086337

Iteration 1: log restricted-likelihood = -24.630942

Iteration 2: log restricted-likelihood = -24.479373

Iteration 3: log restricted-likelihood = -24.45297

Iteration 4: log restricted-likelihood = -24.446368

Iteration 5: log restricted-likelihood = -24.444743

Iteration 6: log restricted-likelihood = -24.444548

Iteration 7: log restricted-likelihood = -24.444509

Iteration 8: log restricted-likelihood = -24.444501

Iteration 9: log restricted-likelihood = -24.444499

Computing standard errors:

Mixed-effects REML regression Number of obs = 127

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 32.58

Log restricted-likelihood = -24.444499 Prob > chi2 = 0.0001

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1547991 .0944641 -1.64 0.101 -.3399455 .0303472

sex | -.1183644 .068981 -1.72 0.086 -.2535647 .016836

seizurefree | -.0100699 .0719406 -0.14 0.889 -.1510709 .1309311

\_Igene\_2 | .0971238 .1052368 0.92 0.356 -.1091366 .3033842

\_Igene\_3 | -.0357376 .1327477 -0.27 0.788 -.2959182 .224443

agea | .0063139 .0038745 1.63 0.103 -.0012801 .0139078

\_IgenXagea\_2 | .0024586 .0049273 0.50 0.618 -.0071987 .0121158

\_IgenXagea\_3 | -.0003012 .0080265 -0.04 0.970 -.0160328 .0154304

\_cons | 2.538175 .1638729 15.49 0.000 2.21699 2.85936

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0021489 .0019565 .0003608 .0127996

sd(\_cons) | .2373231 .0368686 .1750266 .3217924

corr(agea,\_cons) | -.9999893 .007064 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1779468 .0161357 .1489724 .2125566

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 27.04 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.50

Prob > chi2 = 0.4723

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.29

Prob > chi2 = 0.8635

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 45 2.342889 .2614177 1.89 2.93

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 67 2.472388 .3511975 1.55 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 26 2.311538 .2318912 1.77 2.72

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 5 2.37 .163095 2.14 2.51

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs2030324 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -454.51013

Iteration 1: log restricted-likelihood = -453.68714

Iteration 2: log restricted-likelihood = -453.41499

Iteration 3: log restricted-likelihood = -453.34907

Iteration 4: log restricted-likelihood = -453.33433

Iteration 5: log restricted-likelihood = -453.33072

Iteration 6: log restricted-likelihood = -453.32983

Iteration 7: log restricted-likelihood = -453.32965

Iteration 8: log restricted-likelihood = -453.32962

Iteration 9: log restricted-likelihood = -453.32961

Computing standard errors:

Mixed-effects REML regression Number of obs = 134

Group variable: ID Number of groups = 67

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 9.40

Log restricted-likelihood = -453.32961 Prob > chi2 = 0.1525

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.980086 2.181638 1.37 0.172 -1.295847 7.256019

sex | -3.189535 1.742999 -1.83 0.067 -6.605749 .2266802

seizurefree | -.3915784 1.850279 -0.21 0.832 -4.018059 3.234902

gene | -3.79961 3.84997 -0.99 0.324 -11.34541 3.746193

agea | -.2153691 .1827797 -1.18 0.239 -.5736108 .1428726

gage | .0761512 .0963044 0.79 0.429 -.1126019 .2649043

\_cons | 45.77381 4.587007 9.98 0.000 36.78344 54.76418

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0820823 .0672676 .0164694 .4090923

sd(\_cons) | 4.292799 1.083111 2.618032 7.038922

corr(agea,\_cons) | .9999948 .0050268 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.93641 .5130336 5.011431 7.032116

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.01 Prob > chi2 = 0.0018

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -451.71843

Iteration 1: log restricted-likelihood = -450.92027

Iteration 2: log restricted-likelihood = -450.62501

Iteration 3: log restricted-likelihood = -450.53478

Iteration 4: log restricted-likelihood = -450.50794

Iteration 5: log restricted-likelihood = -450.50158

Iteration 6: log restricted-likelihood = -450.49992

Iteration 7: log restricted-likelihood = -450.49955

Iteration 8: log restricted-likelihood = -450.49947

Iteration 9: log restricted-likelihood = -450.49946

Iteration 10: log restricted-likelihood = -450.49946

Iteration 11: log restricted-likelihood = -450.49946 (not concave)

Iteration 12: log restricted-likelihood = -450.49946 (not concave)

Iteration 13: log restricted-likelihood = -450.49946 (not concave)

Iteration 14: log restricted-likelihood = -450.49946 (not concave)

Iteration 15: log restricted-likelihood = -450.49946 (not concave)

Iteration 16: log restricted-likelihood = -450.49946 (not concave)

Iteration 17: log restricted-likelihood = -450.49946 (not concave)

Iteration 18: log restricted-likelihood = -450.49946 (not concave)

Iteration 19: log restricted-likelihood = -450.49946 (not concave)

Iteration 20: log restricted-likelihood = -450.49946 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 134

Group variable: ID Number of groups = 67

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 12.00

Log restricted-likelihood = -451.71843 Prob > chi2 = 0.1513

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.86335 2.335357 1.65 0.098 -.7138655 8.440566

sex | -4.728503 1.960257 -2.41 0.016 -8.570536 -.8864698

seizurefree | .782483 2.036167 0.38 0.701 -3.208331 4.773297

\_Igene\_2 | -4.285652 2.638552 -1.62 0.104 -9.45712 .8858153

\_Igene\_3 | -1.902635 3.102388 -0.61 0.540 -7.983204 4.177933

agea | -.1667459 .1273762 -1.31 0.191 -.4163986 .0829068

\_IgenXagea\_2 | .1286411 .1583287 0.81 0.417 -.1816775 .4389596

\_IgenXagea\_3 | .0739976 .2295424 0.32 0.747 -.3758972 .5238925

\_cons | 44.2337 4.118416 10.74 0.000 36.16175 52.30565

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2359078 . . .

sd(\_cons) | 4.451579 . . .

corr(agea,\_cons) | -.190045 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.828134 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.18 Prob > chi2 = 0.0068

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 2.72

Prob > chi2 = 0.2571

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.66

Prob > chi2 = 0.7188

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 46 44.82609 8.852631 23 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 69 42.78261 8.375155 27 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 30 44.1 8.46229 25 59

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 7 42.57143 5.02849 37 52

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs2030324 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -313.84473

Iteration 1: log restricted-likelihood = -313.26906

Iteration 2: log restricted-likelihood = -313.02154

Iteration 3: log restricted-likelihood = -312.95325

Iteration 4: log restricted-likelihood = -312.93477

Iteration 5: log restricted-likelihood = -312.93092

Iteration 6: log restricted-likelihood = -312.93002

Iteration 7: log restricted-likelihood = -312.92985

Iteration 8: log restricted-likelihood = -312.92981

Iteration 9: log restricted-likelihood = -312.9298

Computing standard errors:

Mixed-effects REML regression Number of obs = 134

Group variable: ID Number of groups = 67

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 13.95

Log restricted-likelihood = -312.9298 Prob > chi2 = 0.0302

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.070824 .845698 1.27 0.205 -.5867141 2.728361

sex | -1.190959 .5954912 -2.00 0.046 -2.3581 -.0238174

seizurefree | -.1152658 .6381342 -0.18 0.857 -1.365986 1.135454

gene | -1.098243 1.378287 -0.80 0.426 -3.799635 1.603149

agea | -.0456557 .0595808 -0.77 0.444 -.1624319 .0711204

gage | .0062684 .0315195 0.20 0.842 -.0555086 .0680454

\_cons | 9.719653 1.728685 5.62 0.000 6.331492 13.10781

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0123475 .0196315 .0005473 .2785598

sd(\_cons) | 1.990338 .3499596 1.410135 2.809266

corr(agea,\_cons) | -.9999696 .0072012 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.905719 .1656033 1.607279 2.259575

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 17.89 Prob > chi2 = 0.0005

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -313.25766

Iteration 1: log restricted-likelihood = -312.76255

Iteration 2: log restricted-likelihood = -312.53691

Iteration 3: log restricted-likelihood = -312.48604

Iteration 4: log restricted-likelihood = -312.47629

Iteration 5: log restricted-likelihood = -312.4753

Iteration 6: log restricted-likelihood = -312.47521

Iteration 7: log restricted-likelihood = -312.4752

Computing standard errors:

Mixed-effects REML regression Number of obs = 134

Group variable: ID Number of groups = 67

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 16.04

Log restricted-likelihood = -312.4752 Prob > chi2 = 0.0418

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.127035 .8551869 1.32 0.188 -.5491002 2.803171

sex | -1.459505 .6306492 -2.31 0.021 -2.695555 -.2234549

seizurefree | .1011805 .6587659 0.15 0.878 -1.189977 1.392338

\_Igene\_2 | -1.401011 .9602113 -1.46 0.145 -3.282991 .4809682

\_Igene\_3 | -1.148996 1.163278 -0.99 0.323 -3.428979 1.130987

agea | -.0440183 .0358723 -1.23 0.220 -.1143267 .0262901

\_IgenXagea\_2 | .0294028 .0451857 0.65 0.515 -.0591596 .1179653

\_IgenXagea\_3 | -.0600314 .0710358 -0.85 0.398 -.1992591 .0791963

\_cons | 8.868075 1.476007 6.01 0.000 5.975154 11.761

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0165856 .020903 .0014026 .1961154

sd(\_cons) | 2.037676 .4117443 1.371313 3.027845

corr(agea,\_cons) | -.9999672 .0006131 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.910023 .1651432 1.612288 2.26274

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.27 Prob > chi2 = 0.0004

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 2.21

Prob > chi2 = 0.3306

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 1.72

Prob > chi2 = 0.4236

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 46 8.782609 3.003058 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 69 8.15942 2.784533 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 30 7.633333 2.882568 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 7 9 2.081666 6 12

Score on common factor & marker rs2030324 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -148.49037

Iteration 1: log restricted-likelihood = -148.01562

Iteration 2: log restricted-likelihood = -147.74297

Iteration 3: log restricted-likelihood = -147.73718 (not concave)

Iteration 4: log restricted-likelihood = -147.72035

Iteration 5: log restricted-likelihood = -147.675

Iteration 6: log restricted-likelihood = -147.67207

Iteration 7: log restricted-likelihood = -147.67149

Iteration 8: log restricted-likelihood = -147.67136

Iteration 9: log restricted-likelihood = -147.67133

Iteration 10: log restricted-likelihood = -147.67132

Computing standard errors:

Mixed-effects REML regression Number of obs = 118

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 13.17

Log restricted-likelihood = -147.67132 Prob > chi2 = 0.0405

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1993229 .2548579 0.78 0.434 -.3001894 .6988352

sex | -.3413699 .1941703 -1.76 0.079 -.7219366 .0391968

seizurefree | -.1381451 .2156715 -0.64 0.522 -.5608535 .2845633

gene | -.1618259 .4448621 -0.36 0.716 -1.03374 .7100878

agea | -.01902 .0199573 -0.95 0.341 -.0581356 .0200955

gage | .0018964 .0107154 0.18 0.860 -.0191053 .0228981

\_cons | .3571708 .5156856 0.69 0.489 -.6535544 1.367896

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0043416 .0067787 .0002035 .0926126

sd(\_cons) | .5242553 .1141195 .3421795 .8032148

corr(agea,\_cons) | .9999613 .0339446 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6043094 .0569032 .5024678 .7267927

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.86 Prob > chi2 = 0.0019

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -149.02849

Iteration 1: log restricted-likelihood = -148.68388

Iteration 2: log restricted-likelihood = -148.46262

Iteration 3: log restricted-likelihood = -148.4252

Iteration 4: log restricted-likelihood = -148.42225

Iteration 5: log restricted-likelihood = -148.42157

Iteration 6: log restricted-likelihood = -148.42144

Iteration 7: log restricted-likelihood = -148.42142

Iteration 8: log restricted-likelihood = -148.42141

Computing standard errors:

Mixed-effects REML regression Number of obs = 118

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 17.57

Log restricted-likelihood = -148.42141 Prob > chi2 = 0.0247

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1871541 .2503054 0.75 0.455 -.3034355 .6777436

sex | -.5091623 .2108427 -2.41 0.016 -.9224064 -.0959181

seizurefree | -.0689675 .2151786 -0.32 0.749 -.4907097 .3527747

\_Igene\_2 | -.4394209 .2722848 -1.61 0.107 -.9730893 .0942475

\_Igene\_3 | .0500102 .3515478 0.14 0.887 -.6390108 .7390312

agea | -.0216781 .0117939 -1.84 0.066 -.0447937 .0014375

\_IgenXagea\_2 | .0132233 .0148472 0.89 0.373 -.0158768 .0423233

\_IgenXagea\_3 | -.0226145 .0238716 -0.95 0.343 -.069402 .0241729

\_cons | .4519502 .4508668 1.00 0.316 -.4317324 1.335633

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0038353 .0065248 .0001367 .1076238

sd(\_cons) | .5069389 .1157857 .323996 .7931796

corr(agea,\_cons) | .9999279 .0671248 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6087572 .0573606 .5061032 .7322328

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.86 Prob > chi2 = 0.0049

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 3.55

Prob > chi2 = 0.1691

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 2.50

Prob > chi2 = 0.2859

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 44 .0500956 .9963041 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 62 -.0830007 .8663198 -1.853677 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 21 .1248848 .8494206 -1.92953 1.628641

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs2030324 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 5 .0638505 .6327071 -.7564884 .8547574

rs11030108 | Freq. Percent Cum.

------------+-----------------------------------

1 | 76 47.50 47.50

2 | 62 38.75 86.25

3 | 22 13.75 100.00

------------+-----------------------------------

Total | 160 100.00

(4 missing values generated)

(4 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs11030108 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -18.477482

Iteration 1: log restricted-likelihood = -17.919517

Iteration 2: log restricted-likelihood = -17.743458

Iteration 3: log restricted-likelihood = -17.703011

Iteration 4: log restricted-likelihood = -17.674342

Iteration 5: log restricted-likelihood = -17.670155

Iteration 6: log restricted-likelihood = -17.669191

Iteration 7: log restricted-likelihood = -17.66899

Iteration 8: log restricted-likelihood = -17.668941

Iteration 9: log restricted-likelihood = -17.668929

Iteration 10: log restricted-likelihood = -17.668927

Iteration 11: log restricted-likelihood = -17.668927

Computing standard errors:

Mixed-effects REML regression Number of obs = 124

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.39

Log restricted-likelihood = -17.668927 Prob > chi2 = 0.7582

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0667711 .0768067 -0.87 0.385 -.2173095 .0837672

sex | -.0406565 .0571099 -0.71 0.477 -.1525899 .0712769

seizurefree | -.0133524 .0645593 -0.21 0.836 -.1398864 .1131816

gene | .0508132 .1159676 0.44 0.661 -.176479 .2781055

agea | .001468 .0053174 0.28 0.782 -.008954 .01189

gage | -.0004325 .0028456 -0.15 0.879 -.0060096 .0051447

\_cons | 5.836593 .1584523 36.84 0.000 5.526032 6.147154

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0014704 .0022117 .0000771 .0280389

sd(\_cons) | .1553782 .0384216 .0956988 .2522746

corr(agea,\_cons) | .9999974 .0092361 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1896881 .017645 .1580739 .227625

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.14 Prob > chi2 = 0.0043

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.68915

Iteration 1: log restricted-likelihood = -22.20056

Iteration 2: log restricted-likelihood = -22.072083

Iteration 3: log restricted-likelihood = -22.020881

Iteration 4: log restricted-likelihood = -22.0043

Iteration 5: log restricted-likelihood = -21.998237

Iteration 6: log restricted-likelihood = -21.996797

Iteration 7: log restricted-likelihood = -21.996411

Iteration 8: log restricted-likelihood = -21.99634

Iteration 9: log restricted-likelihood = -21.996324

Iteration 10: log restricted-likelihood = -21.99632

Iteration 11: log restricted-likelihood = -21.996319

Computing standard errors:

Mixed-effects REML regression Number of obs = 124

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 4.87

Log restricted-likelihood = -21.996319 Prob > chi2 = 0.7713

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.084953 .0783634 -1.08 0.278 -.2385425 .0686364

sex | -.0448018 .0575899 -0.78 0.437 -.157676 .0680724

seizurefree | -.0111332 .0655344 -0.17 0.865 -.1395782 .1173119

\_Igene\_2 | -.0354226 .071843 -0.49 0.622 -.1762323 .105387

\_Igene\_3 | .0789382 .0952882 0.83 0.407 -.1078233 .2656997

agea | -.0004404 .0032481 -0.14 0.892 -.0068066 .0059257

\_IgenXagea\_2 | .0018356 .0042318 0.43 0.664 -.0064586 .0101298

\_IgenXagea\_3 | .0014769 .0063367 0.23 0.816 -.0109428 .0138967

\_cons | 5.924607 .1387168 42.71 0.000 5.652727 6.196487

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0020072 .0022569 .0002216 .018184

sd(\_cons) | .1495375 .0382611 .0905647 .2469115

corr(agea,\_cons) | .9999939 .0142743 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .190452 .0176875 .1587571 .2284745

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.17 Prob > chi2 = 0.0043

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 1.30

Prob > chi2 = 0.5219

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.20

Prob > chi2 = 0.9042

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 64 5.776094 .2287344 5.42 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 49 5.781633 .2398728 5.43 6.32

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 21 5.892381 .2984109 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 4 5.765 .2170253 5.57 6.02

Log transformed computerised visual search task (average speed response/processing information) task & marker rs11030108 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.185929

Iteration 1: log restricted-likelihood = -22.887117

Iteration 2: log restricted-likelihood = -22.798708

Iteration 3: log restricted-likelihood = -22.785006

Iteration 4: log restricted-likelihood = -22.782926

Iteration 5: log restricted-likelihood = -22.782104

Iteration 6: log restricted-likelihood = -22.781945

Iteration 7: log restricted-likelihood = -22.781892

Iteration 8: log restricted-likelihood = -22.781887

Iteration 9: log restricted-likelihood = -22.781887

Computing standard errors:

Mixed-effects REML regression Number of obs = 127

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 23.67

Log restricted-likelihood = -22.781887 Prob > chi2 = 0.0006

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1669286 .0981227 -1.70 0.089 -.3592456 .0253885

sex | -.0965193 .0663893 -1.45 0.146 -.2266401 .0336014

seizurefree | -.0218849 .0761049 -0.29 0.774 -.1710477 .1272779

gene | -.0045266 .1496178 -0.03 0.976 -.2977721 .2887189

agea | .0083956 .0064956 1.29 0.196 -.0043355 .0211267

gage | -.0004427 .0034281 -0.13 0.897 -.0071616 .0062762

\_cons | 2.613545 .2012606 12.99 0.000 2.219082 3.008008

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0018835 .0262295 2.64e-15 1.34e+09

sd(\_cons) | .2427153 .03849 .1778742 .3311932

corr(agea,\_cons) | -.8436604 9.177176 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1764976 .0161584 .1475065 .2111866

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.25 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -27.115373

Iteration 1: log restricted-likelihood = -26.87222

Iteration 2: log restricted-likelihood = -26.823059

Iteration 3: log restricted-likelihood = -26.819322

Iteration 4: log restricted-likelihood = -26.819247

Iteration 5: log restricted-likelihood = -26.819246

Computing standard errors:

Mixed-effects REML regression Number of obs = 127

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 23.68

Log restricted-likelihood = -26.819246 Prob > chi2 = 0.0026

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1523542 .1011984 -1.51 0.132 -.3506994 .045991

sex | -.0906632 .0673391 -1.35 0.178 -.2226453 .041319

seizurefree | -.0198782 .0773281 -0.26 0.797 -.1714386 .1316822

\_Igene\_2 | .0586741 .0981886 0.60 0.550 -.1337721 .2511202

\_Igene\_3 | -.0414908 .1324707 -0.31 0.754 -.3011286 .218147

agea | .0089317 .0040616 2.20 0.028 .0009711 .0168923

\_IgenXagea\_2 | -.0018172 .0051021 -0.36 0.722 -.0118172 .0081827

\_IgenXagea\_3 | -.002805 .008042 -0.35 0.727 -.018567 .012957

\_cons | 2.54607 .1767106 14.41 0.000 2.199723 2.892416

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0048884 .0089372 .0001358 .175941

sd(\_cons) | .2412913 .0382157 .1769002 .3291205

corr(agea,\_cons) | -.5027034 .3458063 -.8976304 .3399637

-----------------------------+------------------------------------------------

sd(Residual) | .1760671 .0160305 .1472917 .2104642

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.92 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 0.65

Prob > chi2 = 0.7242

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.19

Prob > chi2 = 0.9100

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 65 2.387231 .3075483 1.55 3.05

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 53 2.435849 .3249878 1.89 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 21 2.325714 .2693802 2 2.98

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 4 2.48 .170098 2.35 2.73

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs11030108 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -460.2773

Iteration 1: log restricted-likelihood = -459.46961

Iteration 2: log restricted-likelihood = -459.18603

Iteration 3: log restricted-likelihood = -459.10325

Iteration 4: log restricted-likelihood = -459.0978

Iteration 5: log restricted-likelihood = -459.09654

Iteration 6: log restricted-likelihood = -459.09623

Iteration 7: log restricted-likelihood = -459.09615

Iteration 8: log restricted-likelihood = -459.09614

Computing standard errors:

Mixed-effects REML regression Number of obs = 136

Group variable: ID Number of groups = 68

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.48

Log restricted-likelihood = -459.09614 Prob > chi2 = 0.1059

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.122921 2.231053 1.40 0.162 -1.249864 7.495705

sex | -2.839741 1.667874 -1.70 0.089 -6.108715 .4292318

seizurefree | -.1265717 1.838606 -0.07 0.945 -3.730174 3.47703

gene | -.7341644 3.377331 -0.22 0.828 -7.353612 5.885283

agea | -.1703712 .1562132 -1.09 0.275 -.4765434 .135801

gage | .0552866 .08313 0.67 0.506 -.1076451 .2182183

\_cons | 40.82537 4.433566 9.21 0.000 32.13574 49.515

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0531439 .0611024 .0055819 .50597

sd(\_cons) | 4.431588 1.068265 2.762939 7.107999

corr(agea,\_cons) | .9999757 .0148354 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.934815 .5094026 5.015867 7.022121

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.54 Prob > chi2 = 0.0036

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -458.1416

Iteration 1: log restricted-likelihood = -457.46472

Iteration 2: log restricted-likelihood = -457.22411

Iteration 3: log restricted-likelihood = -457.15614

Iteration 4: log restricted-likelihood = -457.13853

Iteration 5: log restricted-likelihood = -457.13383

Iteration 6: log restricted-likelihood = -457.13286

Iteration 7: log restricted-likelihood = -457.13266

Iteration 8: log restricted-likelihood = -457.13262

Iteration 9: log restricted-likelihood = -457.13261

Iteration 10: log restricted-likelihood = -457.1326 (not concave)

Iteration 11: log restricted-likelihood = -457.1326 (not concave)

Iteration 12: log restricted-likelihood = -457.1326 (not concave)

Iteration 13: log restricted-likelihood = -457.1326 (not concave)

Iteration 14: log restricted-likelihood = -457.1326 (not concave)

Iteration 15: log restricted-likelihood = -457.1326 (not concave)

Iteration 16: log restricted-likelihood = -457.1326 (not concave)

Iteration 17: log restricted-likelihood = -457.1326 (not concave)

Iteration 18: log restricted-likelihood = -457.1326 (not concave)

Iteration 19: log restricted-likelihood = -457.1326 (not concave)

Iteration 20: log restricted-likelihood = -457.1326 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 136

Group variable: ID Number of groups = 68

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 11.42

Log restricted-likelihood = -458.1416 Prob > chi2 = 0.1789

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.585851 2.422278 1.48 0.139 -1.161727 8.333429

sex | -3.819037 1.75781 -2.17 0.030 -7.264282 -.3737913

seizurefree | .5173385 1.974604 0.26 0.793 -3.352815 4.387492

\_Igene\_2 | -.34396 2.276717 -0.15 0.880 -4.806244 4.118324

\_Igene\_3 | 3.520416 3.175769 1.11 0.268 -2.703978 9.744809

agea | -.0970178 .1067159 -0.91 0.363 -.3061771 .1121415

\_IgenXagea\_2 | .026081 .1436031 0.18 0.856 -.2553759 .3075378

\_IgenXagea\_3 | -.0164642 .2197096 -0.07 0.940 -.4470871 .4141586

\_cons | 41.45876 4.075119 10.17 0.000 33.47168 49.44585

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2377232 . . .

sd(\_cons) | 4.568346 . . .

corr(agea,\_cons) | -.2760001 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.82265 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.83 Prob > chi2 = 0.0080

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 1.47

Prob > chi2 = 0.4800

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.05

Prob > chi2 = 0.9751

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 71 43.14085 8.039715 25 60

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 55 43.63636 8.901443 23 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 22 46.31818 8.283008 31 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 4 38.25 6.291529 29 43

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs11030108 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -319.72616

Iteration 1: log restricted-likelihood = -319.13966

Iteration 2: log restricted-likelihood = -318.87284

Iteration 3: log restricted-likelihood = -318.7903

Iteration 4: log restricted-likelihood = -318.77247

Iteration 5: log restricted-likelihood = -318.76844

Iteration 6: log restricted-likelihood = -318.76762

Iteration 7: log restricted-likelihood = -318.76742

Iteration 8: log restricted-likelihood = -318.76738

Iteration 9: log restricted-likelihood = -318.76737

Computing standard errors:

Mixed-effects REML regression Number of obs = 136

Group variable: ID Number of groups = 68

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 12.06

Log restricted-likelihood = -318.76737 Prob > chi2 = 0.0607

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.111257 .8642669 1.29 0.199 -.5826752 2.805189

sex | -.9524111 .5866222 -1.62 0.104 -2.102169 .1973472

seizurefree | .2535347 .6575669 0.39 0.700 -1.035273 1.542342

gene | -.5754911 1.29665 -0.44 0.657 -3.116879 1.965896

agea | -.0793945 .0556397 -1.43 0.154 -.1884464 .0296573

gage | .028987 .0295829 0.98 0.327 -.0289945 .0869684

\_cons | 7.116657 1.707844 4.17 0.000 3.769345 10.46397

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0122993 .0195349 .0005469 .2765915

sd(\_cons) | 2.026204 .3543852 1.43816 2.854692

corr(agea,\_cons) | -.9999587 .0287835 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.911205 .164695 1.614197 2.262863

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.79 Prob > chi2 = 0.0003

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -319.57861

Iteration 1: log restricted-likelihood = -319.08954

Iteration 2: log restricted-likelihood = -318.85589

Iteration 3: log restricted-likelihood = -318.7797

Iteration 4: log restricted-likelihood = -318.75889

Iteration 5: log restricted-likelihood = -318.75376

Iteration 6: log restricted-likelihood = -318.75244

Iteration 7: log restricted-likelihood = -318.75217

Iteration 8: log restricted-likelihood = -318.75211

Iteration 9: log restricted-likelihood = -318.7521

Computing standard errors:

Mixed-effects REML regression Number of obs = 136

Group variable: ID Number of groups = 68

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 12.43

Log restricted-likelihood = -318.7521 Prob > chi2 = 0.1330

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .8975183 .8855538 1.01 0.311 -.8381353 2.633172

sex | -1.025662 .5927113 -1.73 0.084 -2.187355 .136031

seizurefree | .3530674 .6691549 0.53 0.598 -.9584521 1.664587

\_Igene\_2 | -.3044588 .8455539 -0.36 0.719 -1.961714 1.352797

\_Igene\_3 | 1.486239 1.142546 1.30 0.193 -.7531094 3.725587

agea | -.0512696 .034101 -1.50 0.133 -.1181063 .0155672

\_IgenXagea\_2 | .0412567 .0431938 0.96 0.339 -.0434015 .125915

\_IgenXagea\_3 | -.0017535 .0669882 -0.03 0.979 -.133048 .129541

\_cons | 7.724385 1.487437 5.19 0.000 4.809062 10.63971

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .009493 .0200999 .0001497 .6021195

sd(\_cons) | 1.996452 .3574972 1.405521 2.835831

corr(agea,\_cons) | -.9998023 .0736568 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.924493 .1651604 1.626544 2.277018

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.25 Prob > chi2 = 0.0004

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 2.33

Prob > chi2 = 0.3123

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 1.03

Prob > chi2 = 0.5981

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 71 8.084507 2.887146 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 55 8.254545 2.920034 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 22 9.363636 2.573592 5 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 4 6.25 .5 6 7

Score on common factor & marker rs11030108 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -147.86343

Iteration 1: log restricted-likelihood = -147.40211

Iteration 2: log restricted-likelihood = -147.13473

Iteration 3: log restricted-likelihood = -147.05271

Iteration 4: log restricted-likelihood = -147.03597

Iteration 5: log restricted-likelihood = -147.03489

Iteration 6: log restricted-likelihood = -147.03463

Iteration 7: log restricted-likelihood = -147.03457

Iteration 8: log restricted-likelihood = -147.03456

Computing standard errors:

Mixed-effects REML regression Number of obs = 118

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 13.85

Log restricted-likelihood = -147.03456 Prob > chi2 = 0.0313

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1918662 .2589157 0.74 0.459 -.3155993 .6993316

sex | -.3068184 .18868 -1.63 0.104 -.6766243 .0629875

seizurefree | -.1201295 .2216461 -0.54 0.588 -.5545479 .3142888

gene | -.2401953 .3918211 -0.61 0.540 -1.008151 .5277599

agea | -.0310574 .0181074 -1.72 0.086 -.0665473 .0044326

gage | .009397 .0095184 0.99 0.324 -.0092586 .0280527

\_cons | .0869453 .5573513 0.16 0.876 -1.005443 1.179334

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0034682 .0066258 .000082 .1466496

sd(\_cons) | .5304909 .1138222 .3483727 .8078148

corr(agea,\_cons) | .9999209 .0585591 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6002829 .0564762 .4991979 .7218371

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.74 Prob > chi2 = 0.0021

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -150.23779

Iteration 1: log restricted-likelihood = -149.91113

Iteration 2: log restricted-likelihood = -149.70488

Iteration 3: log restricted-likelihood = -149.66613

Iteration 4: log restricted-likelihood = -149.66183

Iteration 5: log restricted-likelihood = -149.66058

Iteration 6: log restricted-likelihood = -149.66027

Iteration 7: log restricted-likelihood = -149.66019

Iteration 8: log restricted-likelihood = -149.66017

Iteration 9: log restricted-likelihood = -149.66017

Computing standard errors:

Mixed-effects REML regression Number of obs = 118

Group variable: ID Number of groups = 64

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 13.35

Log restricted-likelihood = -149.66017 Prob > chi2 = 0.1004

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1478058 .2700869 0.55 0.584 -.3815548 .6771664

sex | -.3358771 .1919951 -1.75 0.080 -.7121806 .0404263

seizurefree | -.1014169 .2257787 -0.45 0.653 -.543935 .3411011

\_Igene\_2 | -.0772083 .249449 -0.31 0.757 -.5661194 .4117028

\_Igene\_3 | .2617102 .3281265 0.80 0.425 -.381406 .9048264

agea | -.0203546 .0112714 -1.81 0.071 -.0424461 .0017368

\_IgenXagea\_2 | .0093947 .0141944 0.66 0.508 -.0184259 .0372152

\_IgenXagea\_3 | .003774 .021293 0.18 0.859 -.0379595 .0455076

\_cons | .1963393 .4976582 0.39 0.693 -.7790528 1.171731

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0041074 .0066581 .0001713 .0984873

sd(\_cons) | .5287296 .1150552 .3451488 .809955

corr(agea,\_cons) | .9999706 .040552 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .606054 .0569276 .5041463 .7285612

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.67 Prob > chi2 = 0.0021

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 1.01

Prob > chi2 = 0.6046

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 0.44

Prob > chi2 = 0.8030

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 59 -.0417026 .8802097 -1.92953 1.731921

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 48 .0087143 .9345088 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 21 .2349927 .8726944 -1.46173 1.949504

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030108 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 4 -.7231693 .5193415 -1.497013 -.3830514

rs6265 | Freq. Percent Cum.

------------+-----------------------------------

1 | 106 64.63 64.63

2 | 54 32.93 97.56

3 | 4 2.44 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs6265 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.157931

Iteration 1: log restricted-likelihood = -16.261262

Iteration 2: log restricted-likelihood = -15.938961

Iteration 3: log restricted-likelihood = -15.906994

Iteration 4: log restricted-likelihood = -15.900358

Iteration 5: log restricted-likelihood = -15.898511

Iteration 6: log restricted-likelihood = -15.898075

Iteration 7: log restricted-likelihood = -15.897973

Iteration 8: log restricted-likelihood = -15.897948

Iteration 9: log restricted-likelihood = -15.897942

Iteration 10: log restricted-likelihood = -15.897941

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.83

Log restricted-likelihood = -15.897941 Prob > chi2 = 0.6994

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0982341 .0757487 -1.30 0.195 -.2466988 .0502307

sex | -.0417854 .055426 -0.75 0.451 -.1504184 .0668476

seizurefree | -.0561072 .0657896 -0.85 0.394 -.1850525 .0728381

gene | .0592331 .149285 0.40 0.692 -.23336 .3518263

agea | .0005922 .0053678 0.11 0.912 -.0099286 .0111129

gage | -.0001432 .003656 -0.04 0.969 -.0073089 .0070224

\_cons | 5.897342 .1328679 44.39 0.000 5.636926 6.157759

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0016372 .0019835 .0001524 .017593

sd(\_cons) | .1525257 .0351217 .0971268 .2395229

corr(agea,\_cons) | .9999979 .0045319 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1869254 .0169718 .156453 .2233329

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.50 Prob > chi2 = 0.0023

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -19.947224

Iteration 1: log restricted-likelihood = -19.168159 (not concave)

Iteration 2: log restricted-likelihood = -18.845425

Iteration 3: log restricted-likelihood = -18.797428

Iteration 4: log restricted-likelihood = -18.784726

Iteration 5: log restricted-likelihood = -18.781968

Iteration 6: log restricted-likelihood = -18.781349

Iteration 7: log restricted-likelihood = -18.781205

Iteration 8: log restricted-likelihood = -18.78117

Iteration 9: log restricted-likelihood = -18.781162

Iteration 10: log restricted-likelihood = -18.78116

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 4.90

Log restricted-likelihood = -18.78116 Prob > chi2 = 0.7684

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0908947 .0822052 -1.11 0.269 -.2520139 .0702246

sex | -.0471791 .0585521 -0.81 0.420 -.1619392 .0675809

seizurefree | -.0513212 .06667 -0.77 0.441 -.1819919 .0793496

\_Igene\_2 | .007307 .0703994 0.10 0.917 -.1306733 .1452874

\_Igene\_3 | .26528 .2872402 0.92 0.356 -.2977005 .8282605

agea | -.000221 .0024795 -0.09 0.929 -.0050808 .0046387

\_IgenXagea\_2 | .0017874 .0038945 0.46 0.646 -.0058458 .0094205

\_IgenXagea\_3 | -.0044982 .0255937 -0.18 0.860 -.054661 .0456646

\_cons | 5.955401 .1288417 46.22 0.000 5.702876 6.207926

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0015029 .0020003 .0001107 .0204106

sd(\_cons) | .1564884 .035779 .0999692 .2449617

corr(agea,\_cons) | .9999958 .0073766 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1867031 .0169095 .156336 .2229687

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.88 Prob > chi2 = 0.0019

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 0.85

Prob > chi2 = 0.6523

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.24

Prob > chi2 = 0.8875

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 88 5.793977 .2632098 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 46 5.783696 .2125021 5.45 6.32

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 4 5.9625 .111168 5.8 6.05

Log transformed computerised visual search task (average speed response/processing information) task & marker rs6265 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -20.295535

Iteration 1: log restricted-likelihood = -20.135664

Iteration 2: log restricted-likelihood = -20.123788

Iteration 3: log restricted-likelihood = -20.123689

Iteration 4: log restricted-likelihood = -20.123688

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 26.23

Log restricted-likelihood = -20.123688 Prob > chi2 = 0.0002

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1810784 .0962512 -1.88 0.060 -.3697273 .0075704

sex | -.1053385 .0623357 -1.69 0.091 -.2275142 .0168372

seizurefree | -.0632034 .0745748 -0.85 0.397 -.2093673 .0829605

gene | -.0166582 .1906708 -0.09 0.930 -.3903661 .3570497

agea | .0038613 .0063959 0.60 0.546 -.0086744 .016397

gage | .0027144 .0042723 0.64 0.525 -.0056592 .011088

\_cons | 2.545784 .1697971 14.99 0.000 2.212988 2.87858

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0066988 .0065674 .0009806 .045762

sd(\_cons) | .2368353 .0373307 .1738911 .3225637

corr(agea,\_cons) | -.6327068 .2539563 -.9179642 .0839002

-----------------------------+------------------------------------------------

sd(Residual) | .1757276 .0158085 .1473213 .2096111

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.08 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.162517

Iteration 1: log restricted-likelihood = -22.96797

Iteration 2: log restricted-likelihood = -22.948414

Iteration 3: log restricted-likelihood = -22.947632

Iteration 4: log restricted-likelihood = -22.947623

Iteration 5: log restricted-likelihood = -22.947623

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 26.81

Log restricted-likelihood = -22.947623 Prob > chi2 = 0.0008

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1669773 .1055619 -1.58 0.114 -.3738749 .0399203

sex | -.1139475 .0660346 -1.73 0.084 -.2433728 .0154779

seizurefree | -.0565474 .0757658 -0.75 0.455 -.2050457 .0919509

\_Igene\_2 | .0272905 .0944683 0.29 0.773 -.157864 .212445

\_Igene\_3 | .4141537 .3491804 1.19 0.236 -.2702272 1.098535

agea | .0067098 .0029977 2.24 0.025 .0008345 .0125851

\_IgenXagea\_2 | .0031365 .004575 0.69 0.493 -.0058304 .0121034

\_IgenXagea\_3 | -.0133439 .0291086 -0.46 0.647 -.0703956 .0437078

\_cons | 2.596682 .1609062 16.14 0.000 2.281312 2.912053

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .005948 .0076804 .0004734 .0747289

sd(\_cons) | .2378031 .0381782 .1736045 .3257421

corr(agea,\_cons) | -.6053317 .2632932 -.9080015 .1125011

-----------------------------+------------------------------------------------

sd(Residual) | .1761259 .0158316 .1476761 .2100565

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 28.93 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.45

Prob > chi2 = 0.4847

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.68

Prob > chi2 = 0.7125

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 91 2.391978 .2899319 1.77 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 48 2.396667 .3394259 1.55 3.05

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 4 2.58 .2500666 2.39 2.93

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs6265 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -473.57022

Iteration 1: log restricted-likelihood = -472.88198

Iteration 2: log restricted-likelihood = -472.62171

Iteration 3: log restricted-likelihood = -472.52634

Iteration 4: log restricted-likelihood = -472.50556

Iteration 5: log restricted-likelihood = -472.50084

Iteration 6: log restricted-likelihood = -472.49964

Iteration 7: log restricted-likelihood = -472.49935

Iteration 8: log restricted-likelihood = -472.49928

Iteration 9: log restricted-likelihood = -472.49927

Iteration 10: log restricted-likelihood = -472.49926 (not concave)

Iteration 11: log restricted-likelihood = -472.49926 (not concave)

Iteration 12: log restricted-likelihood = -472.49926 (not concave)

Iteration 13: log restricted-likelihood = -472.49926 (not concave)

Iteration 14: log restricted-likelihood = -472.49926 (not concave)

Iteration 15: log restricted-likelihood = -472.49926 (not concave)

Iteration 16: log restricted-likelihood = -472.49926 (not concave)

Iteration 17: log restricted-likelihood = -472.49926 (not concave)

Iteration 18: log restricted-likelihood = -472.49926 (not concave)

Iteration 19: log restricted-likelihood = -472.49926 (not concave)

Iteration 20: log restricted-likelihood = -472.49926 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 11.60

Log restricted-likelihood = -473.57022 Prob > chi2 = 0.0715

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.976051 2.387428 1.67 0.096 -.7032219 8.655324

sex | -3.544118 1.680595 -2.11 0.035 -6.838025 -.2502119

seizurefree | .7734833 1.971125 0.39 0.695 -3.08985 4.636817

gene | 1.028427 4.997245 0.21 0.837 -8.765994 10.82285

agea | -.0089581 .1771671 -0.05 0.960 -.3561992 .3382829

gage | -.0565808 .121168 -0.47 0.641 -.2940657 .1809042

\_cons | 41.94887 4.072592 10.30 0.000 33.96674 49.93101

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2270446 . . .

sd(\_cons) | 4.650731 . . .

corr(agea,\_cons) | -.3507586 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.832651 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 11.43 Prob > chi2 = 0.0096

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -469.3966

Iteration 1: log restricted-likelihood = -468.71546

Iteration 2: log restricted-likelihood = -468.47025

Iteration 3: log restricted-likelihood = -468.38165

Iteration 4: log restricted-likelihood = -468.36295

Iteration 5: log restricted-likelihood = -468.35832

Iteration 6: log restricted-likelihood = -468.35711

Iteration 7: log restricted-likelihood = -468.35681

Iteration 8: log restricted-likelihood = -468.35674

Iteration 9: log restricted-likelihood = -468.35673

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 11.26

Log restricted-likelihood = -468.35673 Prob > chi2 = 0.1873

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.148974 2.390339 0.90 0.369 -2.536004 6.833953

sex | -2.151968 1.707181 -1.26 0.207 -5.497981 1.194046

seizurefree | -.0294082 1.918932 -0.02 0.988 -3.790447 3.73163

\_Igene\_2 | .5094534 2.052445 0.25 0.804 -3.513264 4.532171

\_Igene\_3 | -5.022507 8.536524 -0.59 0.556 -21.75379 11.70877

agea | -.0447698 .0726147 -0.62 0.538 -.187092 .0975524

\_IgenXagea\_2 | -.1451067 .1159514 -1.25 0.211 -.3723673 .0821539

\_IgenXagea\_3 | .4570717 .7686406 0.59 0.552 -1.049436 1.96358

\_cons | 43.01097 3.647456 11.79 0.000 35.86208 50.15985

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0629109 .0604732 .0095611 .413947

sd(\_cons) | 4.358055 1.078398 2.683264 7.078188

corr(agea,\_cons) | .9999767 .0151736 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.931614 .5006999 5.027143 6.998816

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.72 Prob > chi2 = 0.0021

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.43

Prob > chi2 = 0.8080

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 1.89

Prob > chi2 = 0.3883

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 100 43.78 8.082379 25 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 48 43.33333 9.223774 23 62

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 4 44.25 7.762087 35 54

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs6265 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -328.47541

Iteration 1: log restricted-likelihood = -327.89353

Iteration 2: log restricted-likelihood = -327.5632

Iteration 3: log restricted-likelihood = -327.46801

Iteration 4: log restricted-likelihood = -327.46003

Iteration 5: log restricted-likelihood = -327.4588

Iteration 6: log restricted-likelihood = -327.45858

Iteration 7: log restricted-likelihood = -327.45853

Iteration 8: log restricted-likelihood = -327.45851

Iteration 9: log restricted-likelihood = -327.45851

Iteration 10: log restricted-likelihood = -327.45851 (not concave)

Iteration 11: log restricted-likelihood = -327.45851 (not concave)

Iteration 12: log restricted-likelihood = -327.45851 (not concave)

Iteration 13: log restricted-likelihood = -327.45851 (not concave)

Iteration 14: log restricted-likelihood = -327.45851 (not concave)

Iteration 15: log restricted-likelihood = -327.45851 (not concave)

Iteration 16: log restricted-likelihood = -327.45851 (not concave)

Iteration 17: log restricted-likelihood = -327.45851 (not concave)

Iteration 18: log restricted-likelihood = -327.45851 (not concave)

Iteration 19: log restricted-likelihood = -327.45851 (not concave)

Iteration 20: log restricted-likelihood = -327.45851 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.90

Log restricted-likelihood = -328.47541 Prob > chi2 = 0.0914

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.398147 .8934593 1.56 0.118 -.3530006 3.149296

sex | -1.186352 .5947507 -1.99 0.046 -2.352042 -.0206622

seizurefree | .2176884 .6974252 0.31 0.755 -1.14924 1.584617

gene | -.4566645 1.846789 -0.25 0.805 -4.076305 3.162976

agea | -.0436373 .0623688 -0.70 0.484 -.1658779 .0786033

gage | .0077335 .0426043 0.18 0.856 -.0757693 .0912363

\_cons | 7.704078 1.538929 5.01 0.000 4.687832 10.72032

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0838425 . . .

sd(\_cons) | 2.060396 . . .

corr(agea,\_cons) | -.5981154 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.864967 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 18.05 Prob > chi2 = 0.0004

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -325.84634

Iteration 1: log restricted-likelihood = -325.26527

Iteration 2: log restricted-likelihood = -325.0223

Iteration 3: log restricted-likelihood = -324.9336

Iteration 4: log restricted-likelihood = -324.9179

Iteration 5: log restricted-likelihood = -324.91365

Iteration 6: log restricted-likelihood = -324.91267

Iteration 7: log restricted-likelihood = -324.91246

Iteration 8: log restricted-likelihood = -324.91242

Iteration 9: log restricted-likelihood = -324.9124

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 12.04

Log restricted-likelihood = -324.9124 Prob > chi2 = 0.1493

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .3980121 .927989 0.43 0.668 -1.420813 2.216837

sex | -.6539264 .6059062 -1.08 0.280 -1.841481 .533628

seizurefree | .0674445 .6812815 0.10 0.921 -1.267843 1.402732

\_Igene\_2 | .2714576 .8182246 0.33 0.740 -1.332233 1.875148

\_Igene\_3 | -2.093654 3.216203 -0.65 0.515 -8.397295 4.209987

agea | -.0272914 .0254602 -1.07 0.284 -.0771925 .0226097

\_IgenXagea\_2 | -.0391119 .0400832 -0.98 0.329 -.1176736 .0394498

\_IgenXagea\_3 | .3123557 .2753424 1.13 0.257 -.2273054 .8520168

\_cons | 8.393176 1.388355 6.05 0.000 5.67205 11.1143

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0058153 .0205049 5.80e-06 5.833679

sd(\_cons) | 1.965904 .3635435 1.368216 2.824686

corr(agea,\_cons) | -.9997885 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.898235 .1605755 1.608219 2.240551

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.31 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 0.56

Prob > chi2 = 0.7541

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 2.20

Prob > chi2 = 0.3334

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 100 8.26 2.725191 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 48 8.229167 3.102776 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 4 9.5 3.41565 5 13

Score on common factor & marker rs6265 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.62957

Iteration 1: log restricted-likelihood = -151.28526

Iteration 2: log restricted-likelihood = -151.05851

Iteration 3: log restricted-likelihood = -151.05341

Iteration 4: log restricted-likelihood = -151.0093 (not concave)

Iteration 5: log restricted-likelihood = -151.00023 (not concave)

Iteration 6: log restricted-likelihood = -150.99998 (not concave)

Iteration 7: log restricted-likelihood = -150.99992 (not concave)

Iteration 8: log restricted-likelihood = -150.99992 (not concave)

Iteration 9: log restricted-likelihood = -150.99991 (not concave)

Iteration 10: log restricted-likelihood = -150.99991 (not concave)

Iteration 11: log restricted-likelihood = -150.99991 (not concave)

Iteration 12: log restricted-likelihood = -150.99991 (not concave)

Iteration 13: log restricted-likelihood = -150.99991 (not concave)

Iteration 14: log restricted-likelihood = -150.99991 (not concave)

Iteration 15: log restricted-likelihood = -150.99991 (not concave)

Iteration 16: log restricted-likelihood = -150.99991 (not concave)

Iteration 17: log restricted-likelihood = -150.99991 (not concave)

Iteration 18: log restricted-likelihood = -150.99991 (not concave)

Iteration 19: log restricted-likelihood = -150.99991 (not concave)

Iteration 20: log restricted-likelihood = -150.99991 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 16.72

Log restricted-likelihood = -151.62957 Prob > chi2 = 0.0104

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .3345539 .2624062 1.27 0.202 -.1797528 .8488606

sex | -.4346668 .1845393 -2.36 0.019 -.7963571 -.0729764

seizurefree | -.0194111 .2297353 -0.08 0.933 -.469684 .4308618

gene | -.1565729 .5565084 -0.28 0.778 -1.247309 .9341636

agea | -.016073 .0203882 -0.79 0.430 -.0560332 .0238872

gage | -.0005291 .013618 -0.04 0.969 -.0272198 .0261616

\_cons | .2253474 .4843911 0.47 0.642 -.7240416 1.174736

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0277178 . . .

sd(\_cons) | .5104039 . . .

corr(agea,\_cons) | -.4562989 . . .

-----------------------------+------------------------------------------------

sd(Residual) | .5901634 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 12.74 Prob > chi2 = 0.0052

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.43166

Iteration 1: log restricted-likelihood = -151.04071

Iteration 2: log restricted-likelihood = -150.81711

Iteration 3: log restricted-likelihood = -150.79323

Iteration 4: log restricted-likelihood = -150.79061

Iteration 5: log restricted-likelihood = -150.78996

Iteration 6: log restricted-likelihood = -150.7898

Iteration 7: log restricted-likelihood = -150.78978

Iteration 8: log restricted-likelihood = -150.78977

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 16.60

Log restricted-likelihood = -150.78977 Prob > chi2 = 0.0345

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0549765 .2669973 0.21 0.837 -.4683285 .5782815

sex | -.2138165 .1902576 -1.12 0.261 -.5867146 .1590816

seizurefree | -.0950605 .2234656 -0.43 0.671 -.533045 .342924

\_Igene\_2 | -.0049394 .2255735 -0.02 0.983 -.4470553 .4371764

\_Igene\_3 | -.9412267 .9208219 -1.02 0.307 -2.746004 .8635509

agea | -.0122624 .008306 -1.48 0.140 -.0285419 .004017

\_IgenXagea\_2 | -.0158613 .0126305 -1.26 0.209 -.0406166 .008894

\_IgenXagea\_3 | .0914815 .0823681 1.11 0.267 -.069957 .2529201

\_cons | .2702892 .4324114 0.63 0.532 -.5772215 1.1178

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0051217 .0066412 .0004034 .0650347

sd(\_cons) | .498057 .1160445 .3154669 .7863289

corr(agea,\_cons) | .9999503 .045395 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6016118 .0556991 .5017755 .721312

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.43 Prob > chi2 = 0.0024

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 1.05

Prob > chi2 = 0.5924

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 2.79

Prob > chi2 = 0.2479

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 82 .0640618 .8107044 -1.92953 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 46 -.1147617 1.034725 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs6265 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 4 .0064933 1.003706 -1.267154 1.179959

rs7124442 | Freq. Percent Cum.

------------+-----------------------------------

1 | 76 46.34 46.34

2 | 62 37.80 84.15

3 | 26 15.85 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs7124442 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.726784

Iteration 1: log restricted-likelihood = -17.081852

Iteration 2: log restricted-likelihood = -16.927826

Iteration 3: log restricted-likelihood = -16.836297

Iteration 4: log restricted-likelihood = -16.804988

Iteration 5: log restricted-likelihood = -16.796328

Iteration 6: log restricted-likelihood = -16.794193

Iteration 7: log restricted-likelihood = -16.793785

Iteration 8: log restricted-likelihood = -16.793691

Iteration 9: log restricted-likelihood = -16.793669

Iteration 10: log restricted-likelihood = -16.793663

Iteration 11: log restricted-likelihood = -16.793662

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.28

Log restricted-likelihood = -16.793662 Prob > chi2 = 0.7728

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0677257 .0776801 -0.87 0.383 -.2199758 .0845245

sex | -.0449458 .0564013 -0.80 0.426 -.1554903 .0655987

seizurefree | -.025476 .0629731 -0.40 0.686 -.148901 .097949

gene | .0790236 .1120085 0.71 0.480 -.1405091 .2985563

agea | .002936 .0051707 0.57 0.570 -.0071984 .0130705

gage | -.001372 .0026822 -0.51 0.609 -.006629 .003885

\_cons | 5.847206 .1585722 36.87 0.000 5.536411 6.158002

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0010933 .0021158 .0000246 .0485369

sd(\_cons) | .1609061 .0377251 .101626 .2547654

corr(agea,\_cons) | .9999888 .0210443 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1863644 .0170067 .1558428 .2228637

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.52 Prob > chi2 = 0.0023

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.357598

Iteration 1: log restricted-likelihood = -21.753568

Iteration 2: log restricted-likelihood = -21.509351 (not concave)

Iteration 3: log restricted-likelihood = -21.487899

Iteration 4: log restricted-likelihood = -21.470969

numerical derivatives are approximate

nearby values are missing

Iteration 5: log restricted-likelihood = -21.469515

Iteration 6: log restricted-likelihood = -21.469508 (backed up)

Iteration 7: log restricted-likelihood = -21.469251

Iteration 8: log restricted-likelihood = -21.469193

Iteration 9: log restricted-likelihood = -21.46918

Iteration 10: log restricted-likelihood = -21.469176

Iteration 11: log restricted-likelihood = -21.469175

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 4.10

Log restricted-likelihood = -21.469175 Prob > chi2 = 0.8483

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.086638 .0789305 -1.10 0.272 -.241339 .068063

sex | -.0527755 .05739 -0.92 0.358 -.1652579 .0597069

seizurefree | -.0204169 .0644998 -0.32 0.752 -.1468342 .1060003

\_Igene\_2 | -.0333201 .0743857 -0.45 0.654 -.1791134 .1124733

\_Igene\_3 | .078103 .0935294 0.84 0.404 -.1052113 .2614174

agea | -.0002879 .0032472 -0.09 0.929 -.0066522 .0060765

\_IgenXagea\_2 | .0020349 .0041683 0.49 0.625 -.0061349 .0102047

\_IgenXagea\_3 | -.0014521 .0057981 -0.25 0.802 -.0128162 .0099119

\_cons | 5.935973 .139259 42.63 0.000 5.66303 6.208915

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0014849 .0022293 .0000783 .0281602

sd(\_cons) | .1569603 .0380224 .0976322 .2523403

corr(agea,\_cons) | .9999977 .007447 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1874509 .0170621 .1568231 .2240605

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.43 Prob > chi2 = 0.0024

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 1.28

Prob > chi2 = 0.5278

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.43

Prob > chi2 = 0.8080

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 64 5.776094 .2287344 5.42 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 49 5.789592 .2412032 5.43 6.32

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 25 5.8564 .2892069 5.4 6.73

Log transformed computerised visual search task (average speed response/processing information) task & marker rs7124442 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -22.259214

Iteration 1: log restricted-likelihood = -21.892253

Iteration 2: log restricted-likelihood = -21.752958

Iteration 3: log restricted-likelihood = -21.727119

Iteration 4: log restricted-likelihood = -21.719423

Iteration 5: log restricted-likelihood = -21.715561

Iteration 6: log restricted-likelihood = -21.714941

Iteration 7: log restricted-likelihood = -21.714821

Iteration 8: log restricted-likelihood = -21.714801

Iteration 9: log restricted-likelihood = -21.714796

Iteration 10: log restricted-likelihood = -21.714795

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 25.08

Log restricted-likelihood = -21.714795 Prob > chi2 = 0.0003

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1702464 .097273 -1.75 0.080 -.3608981 .0204052

sex | -.0975652 .0637093 -1.53 0.126 -.2224332 .0273028

seizurefree | -.0310008 .0717651 -0.43 0.666 -.1716579 .1096562

gene | -.0150312 .1410845 -0.11 0.915 -.2915518 .2614893

agea | .0083716 .0061644 1.36 0.174 -.0037104 .0204535

gage | -.0004696 .0031489 -0.15 0.881 -.0066414 .0057022

\_cons | 2.644036 .1973833 13.40 0.000 2.257172 3.0309

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019693 .001902 .0002966 .0130748

sd(\_cons) | .242665 .0363279 .1809584 .3254135

corr(agea,\_cons) | -.9999924 .0160485 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1762502 .0158883 .1477056 .210311

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.56 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -25.744175

Iteration 1: log restricted-likelihood = -25.462898

Iteration 2: log restricted-likelihood = -25.400587

Iteration 3: log restricted-likelihood = -25.392537

Iteration 4: log restricted-likelihood = -25.391192

Iteration 5: log restricted-likelihood = -25.391147

Iteration 6: log restricted-likelihood = -25.391147

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 26.89

Log restricted-likelihood = -25.391147 Prob > chi2 = 0.0007

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1543383 .0983211 -1.57 0.116 -.3470441 .0383674

sex | -.0840959 .0644691 -1.30 0.192 -.210453 .0422612

seizurefree | -.023141 .0730129 -0.32 0.751 -.1662436 .1199616

\_Igene\_2 | .0828349 .0978029 0.85 0.397 -.1088552 .274525

\_Igene\_3 | -.0776561 .1231536 -0.63 0.528 -.3190328 .1637205

agea | .008885 .0039248 2.26 0.024 .0011926 .0165774

\_IgenXagea\_2 | -.0025586 .0048692 -0.53 0.599 -.012102 .0069848

\_IgenXagea\_3 | -.0017643 .0069064 -0.26 0.798 -.0153007 .011772

\_cons | 2.548793 .1708755 14.92 0.000 2.213883 2.883703

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0040881 .009896 .0000356 .4699085

sd(\_cons) | .2374604 .038154 .1733103 .3253555

corr(agea,\_cons) | -.5821878 .5494197 -.9798879 .7457028

-----------------------------+------------------------------------------------

sd(Residual) | .175801 .0157846 .147433 .2096274

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.24 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.69

Prob > chi2 = 0.4293

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.28

Prob > chi2 = 0.8691

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 65 2.387231 .3075483 1.55 3.05

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 53 2.457736 .3142858 1.89 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 25 2.304 .2658634 1.89 2.98

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs7124442 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -473.64523

Iteration 1: log restricted-likelihood = -472.83716

Iteration 2: log restricted-likelihood = -472.54202

Iteration 3: log restricted-likelihood = -472.47613

Iteration 4: log restricted-likelihood = -472.4701

Iteration 5: log restricted-likelihood = -472.46898

Iteration 6: log restricted-likelihood = -472.46873

Iteration 7: log restricted-likelihood = -472.46866

Iteration 8: log restricted-likelihood = -472.46865

Iteration 9: log restricted-likelihood = -472.46865 (not concave)

Iteration 10: log restricted-likelihood = -472.46865 (not concave)

Iteration 11: log restricted-likelihood = -472.46865 (not concave)

Iteration 12: log restricted-likelihood = -472.46865 (not concave)

Iteration 13: log restricted-likelihood = -472.46865 (not concave)

Iteration 14: log restricted-likelihood = -472.46865 (not concave)

Iteration 15: log restricted-likelihood = -472.46865 (not concave)

Iteration 16: log restricted-likelihood = -472.46865 (not concave)

Iteration 17: log restricted-likelihood = -472.46865 (not concave)

Iteration 18: log restricted-likelihood = -472.46865 (not concave)

Iteration 19: log restricted-likelihood = -472.46865 (not concave)

Iteration 20: log restricted-likelihood = -472.46865 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 12.68

Log restricted-likelihood = -473.64523 Prob > chi2 = 0.0484

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.862085 2.365312 1.63 0.103 -.7738414 8.498011

sex | -3.758695 1.697808 -2.21 0.027 -7.086337 -.4310527

seizurefree | .5208907 1.872994 0.28 0.781 -3.15011 4.191891

gene | -1.39362 3.688736 -0.38 0.706 -8.623409 5.83617

agea | -.1999446 .1682861 -1.19 0.235 -.5297793 .1298901

gage | .0659624 .0886281 0.74 0.457 -.1077455 .2396703

\_cons | 40.55568 4.633003 8.75 0.000 31.47516 49.6362

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2175301 . . .

sd(\_cons) | 4.728972 . . .

corr(agea,\_cons) | -.3280557 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.78271 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 10.94 Prob > chi2 = 0.0121

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -471.74729

Iteration 1: log restricted-likelihood = -471.03311

Iteration 2: log restricted-likelihood = -470.76951

Iteration 3: log restricted-likelihood = -470.70462

Iteration 4: log restricted-likelihood = -470.69816

Iteration 5: log restricted-likelihood = -470.69676

Iteration 6: log restricted-likelihood = -470.69641

Iteration 7: log restricted-likelihood = -470.69634

Iteration 8: log restricted-likelihood = -470.69632

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 11.76

Log restricted-likelihood = -470.69632 Prob > chi2 = 0.1620

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.261466 2.317451 1.41 0.159 -1.280654 7.803586

sex | -3.360177 1.675977 -2.00 0.045 -6.645031 -.0753233

seizurefree | .1096497 1.851462 0.06 0.953 -3.519149 3.738449

\_Igene\_2 | .0148968 2.160711 0.01 0.994 -4.220019 4.249812

\_Igene\_3 | 2.726709 2.776413 0.98 0.326 -2.71496 8.168379

agea | -.0921382 .0959805 -0.96 0.337 -.2802564 .0959801

\_IgenXagea\_2 | .0170083 .1231789 0.14 0.890 -.2244178 .2584344

\_IgenXagea\_3 | .0283219 .1705485 0.17 0.868 -.305947 .3625909

\_cons | 41.69138 3.92694 10.62 0.000 33.99472 49.38804

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .044711 .0589779 .0033698 .5932356

sd(\_cons) | 4.529285 1.068021 2.853076 7.190282

corr(agea,\_cons) | .9999474 .0302583 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.948645 .5026469 5.040731 7.020089

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 13.61 Prob > chi2 = 0.0035

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 1.06

Prob > chi2 = 0.5873

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.04

Prob > chi2 = 0.9825

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 71 43.14085 8.039715 25 60

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 55 43.45455 9.097859 23 63

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 26 45.46154 7.885332 31 65

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs7124442 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -327.80297

Iteration 1: log restricted-likelihood = -327.20215

Iteration 2: log restricted-likelihood = -326.9356

Iteration 3: log restricted-likelihood = -326.85171

Iteration 4: log restricted-likelihood = -326.83338

Iteration 5: log restricted-likelihood = -326.82966

Iteration 6: log restricted-likelihood = -326.82878

Iteration 7: log restricted-likelihood = -326.82856

Iteration 8: log restricted-likelihood = -326.82852

Iteration 9: log restricted-likelihood = -326.82851

Iteration 10: log restricted-likelihood = -326.82851 (not concave)

Iteration 11: log restricted-likelihood = -326.82851 (not concave)

Iteration 12: log restricted-likelihood = -326.82851 (not concave)

Iteration 13: log restricted-likelihood = -326.82851 (not concave)

Iteration 14: log restricted-likelihood = -326.82851 (not concave)

Iteration 15: log restricted-likelihood = -326.82851 (not concave)

Iteration 16: log restricted-likelihood = -326.82851 (not concave)

Iteration 17: log restricted-likelihood = -326.82851 (not concave)

Iteration 18: log restricted-likelihood = -326.82851 (not concave)

Iteration 19: log restricted-likelihood = -326.82851 (not concave)

Iteration 20: log restricted-likelihood = -326.82851 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 13.90

Log restricted-likelihood = -327.80297 Prob > chi2 = 0.0308

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.473839 .8681542 1.70 0.090 -.2277115 3.175391

sex | -1.257156 .5881229 -2.14 0.033 -2.409856 -.1044562

seizurefree | .2844459 .6529794 0.44 0.663 -.9953701 1.564262

gene | -.3730462 1.345745 -0.28 0.782 -3.010659 2.264566

agea | -.0704062 .0586525 -1.20 0.230 -.1853631 .0445506

gage | .0220812 .0309356 0.71 0.475 -.0385515 .082714

\_cons | 6.795734 1.705644 3.98 0.000 3.452733 10.13874

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0806899 . . .

sd(\_cons) | 2.032474 . . .

corr(agea,\_cons) | -.6001906 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 1.855102 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 17.91 Prob > chi2 = 0.0005

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -327.69515

Iteration 1: log restricted-likelihood = -327.16187

Iteration 2: log restricted-likelihood = -326.905

Iteration 3: log restricted-likelihood = -326.81522

Iteration 4: log restricted-likelihood = -326.79403

Iteration 5: log restricted-likelihood = -326.78928

Iteration 6: log restricted-likelihood = -326.78812

Iteration 7: log restricted-likelihood = -326.78788

Iteration 8: log restricted-likelihood = -326.78783

Iteration 9: log restricted-likelihood = -326.78781

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 13.74

Log restricted-likelihood = -326.78781 Prob > chi2 = 0.0889

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.030808 .8813787 1.17 0.242 -.696663 2.758278

sex | -1.169035 .5786418 -2.02 0.043 -2.303152 -.0349181

seizurefree | .3125404 .6450751 0.48 0.628 -.9517836 1.576864

\_Igene\_2 | -.2924554 .8663213 -0.34 0.736 -1.990414 1.405503

\_Igene\_3 | 1.377081 1.098372 1.25 0.210 -.7756878 3.52985

agea | -.0485475 .0337789 -1.44 0.151 -.1147529 .0176579

\_IgenXagea\_2 | .0391097 .0424744 0.92 0.357 -.0441386 .1223581

\_IgenXagea\_3 | -.013575 .0599299 -0.23 0.821 -.1310354 .1038854

\_cons | 7.622623 1.474966 5.17 0.000 4.731743 10.5135

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0141103 .0191182 .0009914 .2008334

sd(\_cons) | 2.041259 .3559564 1.450324 2.872972

corr(agea,\_cons) | -.9999427 .0318705 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.89829 .1605134 1.608376 2.240461

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.56 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 2.20

Prob > chi2 = 0.3325

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 1.20

Prob > chi2 = 0.5479

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 71 8.084507 2.887146 2 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 55 8.218182 2.923031 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 26 8.961538 2.599704 5 14

Score on common factor & marker rs7124442 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.89761

Iteration 1: log restricted-likelihood = -151.41063

Iteration 2: log restricted-likelihood = -151.0952

Iteration 3: log restricted-likelihood = -151.07099

Iteration 4: log restricted-likelihood = -151.0599

Iteration 5: log restricted-likelihood = -151.05795

Iteration 6: log restricted-likelihood = -151.05748

Iteration 7: log restricted-likelihood = -151.05736

Iteration 8: log restricted-likelihood = -151.05733

Iteration 9: log restricted-likelihood = -151.05733

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 15.91

Log restricted-likelihood = -151.05733 Prob > chi2 = 0.0142

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2221774 .2597769 0.86 0.392 -.286976 .7313309

sex | -.3460028 .184668 -1.87 0.061 -.7079453 .0159398

seizurefree | -.0890126 .2132876 -0.42 0.676 -.5070485 .3290233

gene | -.2180519 .375709 -0.58 0.562 -.954428 .5183242

agea | -.0301147 .0174869 -1.72 0.085 -.0643884 .0041591

gage | .0083895 .0089016 0.94 0.346 -.0090574 .0258364

\_cons | .0527808 .5518319 0.10 0.924 -1.02879 1.134351

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0021461 .0063122 6.73e-06 .684224

sd(\_cons) | .5382047 .112751 .3569648 .8114648

corr(agea,\_cons) | .9998984 .1028106 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5965688 .055139 .4977218 .7150468

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.90 Prob > chi2 = 0.0019

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -154.53705

Iteration 1: log restricted-likelihood = -154.14128

Iteration 2: log restricted-likelihood = -153.8844

Iteration 3: log restricted-likelihood = -153.85769

Iteration 4: log restricted-likelihood = -153.855

Iteration 5: log restricted-likelihood = -153.85447

Iteration 6: log restricted-likelihood = -153.85437

Iteration 7: log restricted-likelihood = -153.85435

Iteration 8: log restricted-likelihood = -153.85434

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 15.24

Log restricted-likelihood = -153.85434 Prob > chi2 = 0.0546

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .1994936 .2684962 0.74 0.457 -.3267493 .7257366

sex | -.3738461 .1891545 -1.98 0.048 -.7445822 -.0031101

seizurefree | -.0817204 .2188358 -0.37 0.709 -.5106306 .3471899

\_Igene\_2 | -.0662292 .2554902 -0.26 0.795 -.5669807 .4345224

\_Igene\_3 | .2194922 .3177688 0.69 0.490 -.4033232 .8423077

agea | -.0196517 .0111723 -1.76 0.079 -.041549 .0022456

\_IgenXagea\_2 | .0075626 .0138729 0.55 0.586 -.0196278 .0347529

\_IgenXagea\_3 | .0045996 .0192388 0.24 0.811 -.0331078 .042307

\_cons | .1244797 .4922205 0.25 0.800 -.8402549 1.089214

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0026147 .0063938 .0000217 .3154407

sd(\_cons) | .5389937 .1139589 .3561353 .8157412

corr(agea,\_cons) | .9999056 .0814233 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6020408 .0555358 .5024653 .7213495

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.87 Prob > chi2 = 0.0019

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 0.77

Prob > chi2 = 0.6821

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 0.30

Prob > chi2 = 0.8609

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 59 -.0417026 .8802097 -1.92953 1.731921

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 48 -.0182884 .9590685 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs7124442 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 25 .133532 .8328832 -1.46173 1.949504

rs4923463 | Freq. Percent Cum.

------------+-----------------------------------

1 | 104 63.41 63.41

2 | 54 32.93 96.34

3 | 6 3.66 100.00

------------+-----------------------------------

Total | 164 100.00

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs4923463 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -17.304268

Iteration 1: log restricted-likelihood = -16.414972

Iteration 2: log restricted-likelihood = -16.263849

Iteration 3: log restricted-likelihood = -16.099966

Iteration 4: log restricted-likelihood = -16.049663

Iteration 5: log restricted-likelihood = -16.040801

Iteration 6: log restricted-likelihood = -16.038875

Iteration 7: log restricted-likelihood = -16.038526

Iteration 8: log restricted-likelihood = -16.03845

Iteration 9: log restricted-likelihood = -16.038431

Iteration 10: log restricted-likelihood = -16.038427

Iteration 11: log restricted-likelihood = -16.038426

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 3.77

Log restricted-likelihood = -16.038426 Prob > chi2 = 0.7075

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0913524 .0741892 -1.23 0.218 -.2367606 .0540558

sex | -.0399391 .0559863 -0.71 0.476 -.1496702 .069792

seizurefree | -.056057 .0662793 -0.85 0.398 -.185962 .0738481

gene | .1028904 .1500044 0.69 0.493 -.1911128 .3968937

agea | .0025868 .0054301 0.48 0.634 -.008056 .0132296

gage | -.0015932 .0036946 -0.43 0.666 -.0088346 .0056481

\_cons | 5.886268 .1323058 44.49 0.000 5.626953 6.145583

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0019145 .0020223 .0002415 .0151771

sd(\_cons) | .150768 .0351696 .0954442 .2381601

corr(agea,\_cons) | .9999988 .0029603 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1864205 .0169317 .1560211 .222743

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.07 Prob > chi2 = 0.0018

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -20.967614

Iteration 1: log restricted-likelihood = -20.058097

Iteration 2: log restricted-likelihood = -19.761651

Iteration 3: log restricted-likelihood = -19.713297

Iteration 4: log restricted-likelihood = -19.708806

Iteration 5: log restricted-likelihood = -19.707804

Iteration 6: log restricted-likelihood = -19.707555

Iteration 7: log restricted-likelihood = -19.707506

Iteration 8: log restricted-likelihood = -19.707498

Iteration 9: log restricted-likelihood = -19.707496

Computing standard errors:

Mixed-effects REML regression Number of obs = 128

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 3.41

Log restricted-likelihood = -19.707496 Prob > chi2 = 0.9057

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0925943 .0824563 -1.12 0.261 -.2542057 .0690172

sex | -.0417209 .0607212 -0.69 0.492 -.1607323 .0772905

seizurefree | -.0516578 .06799 -0.76 0.447 -.1849157 .0816

\_Igene\_2 | .0346192 .0741502 0.47 0.641 -.1107124 .1799509

\_Igene\_3 | .0735533 .2532677 0.29 0.771 -.4228423 .569949

agea | .0003272 .0025176 0.13 0.897 -.0046072 .0052615

\_IgenXagea\_2 | .0000442 .0040014 0.01 0.991 -.0077985 .0078868

\_IgenXagea\_3 | .0028413 .0252382 0.11 0.910 -.0466246 .0523073

\_cons | 5.948756 .1293717 45.98 0.000 5.695192 6.20232

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0016857 .0020606 .0001536 .0185037

sd(\_cons) | .1573142 .0361053 .1003248 .2466764

corr(agea,\_cons) | .999995 .0070339 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1869776 .0169427 .1565522 .2233161

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.50 Prob > chi2 = 0.0014

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 0.29

Prob > chi2 = 0.8656

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 0.01

Prob > chi2 = 0.9936

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 87 5.795287 .2647018 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 45 5.788667 .2112582 5.45 6.32

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 6 5.848333 .2031174 5.54 6.05

Log transformed computerised visual search task (average speed response/processing information) task & marker rs4923463 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -20.351883

Iteration 1: log restricted-likelihood = -20.148856

Iteration 2: log restricted-likelihood = -20.123845

Iteration 3: log restricted-likelihood = -20.121951

Iteration 4: log restricted-likelihood = -20.121902

Iteration 5: log restricted-likelihood = -20.121902

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 26.85

Log restricted-likelihood = -20.121902 Prob > chi2 = 0.0002

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1736711 .0944308 -1.84 0.066 -.358752 .0114097

sex | -.1119015 .062829 -1.78 0.075 -.2350441 .0112412

seizurefree | -.0577751 .0736316 -0.78 0.433 -.2020904 .0865403

gene | .043105 .184257 0.23 0.815 -.3180321 .4042422

agea | .0057627 .0062498 0.92 0.356 -.0064867 .0180121

gage | .0012659 .0041593 0.30 0.761 -.0068861 .0094179

\_cons | 2.511498 .1686879 14.89 0.000 2.180876 2.84212

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0056886 .0077394 .0003953 .0818618

sd(\_cons) | .2356003 .0366789 .1736435 .3196636

corr(agea,\_cons) | -.6142889 .2563904 -.9091916 .091028

-----------------------------+------------------------------------------------

sd(Residual) | .1759194 .0158376 .1474626 .2098676

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 28.68 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -23.605212

Iteration 1: log restricted-likelihood = -23.373578

Iteration 2: log restricted-likelihood = -23.33534

Iteration 3: log restricted-likelihood = -23.330161

Iteration 4: log restricted-likelihood = -23.329434

Iteration 5: log restricted-likelihood = -23.329421

Iteration 6: log restricted-likelihood = -23.329421

Computing standard errors:

Mixed-effects REML regression Number of obs = 131

Group variable: ID Number of groups = 68

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 26.65

Log restricted-likelihood = -23.329421 Prob > chi2 = 0.0008

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1609089 .1056613 -1.52 0.128 -.3680013 .0461834

sex | -.1211026 .0678678 -1.78 0.074 -.2541211 .0119159

seizurefree | -.0545581 .07539 -0.72 0.469 -.2023197 .0932035

\_Igene\_2 | .0613246 .0991019 0.62 0.536 -.1329116 .2555608

\_Igene\_3 | .3077882 .3027919 1.02 0.309 -.285673 .9012495

agea | .0073261 .0029591 2.48 0.013 .0015263 .0131259

\_IgenXagea\_2 | .0012784 .0046023 0.28 0.781 -.007742 .0102987

\_IgenXagea\_3 | -.0093123 .0283437 -0.33 0.742 -.0648649 .0462403

\_cons | 2.579242 .1607346 16.05 0.000 2.264208 2.894276

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .004761 .0100647 .0000756 .3000088

sd(\_cons) | .2404568 .0380607 .1763213 .3279211

corr(agea,\_cons) | -.6206957 .3773313 -.9586671 .4437642

-----------------------------+------------------------------------------------

sd(Residual) | .176116 .0158409 .1476511 .2100685

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 29.29 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 1.34

Prob > chi2 = 0.5106

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.18

Prob > chi2 = 0.9138

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 90 2.375333 .3029228 1.77 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 47 2.428298 .3204706 1.55 3.05

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 6 2.52 .2163331 2.36 2.93

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs4923463 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -473.88641

Iteration 1: log restricted-likelihood = -473.13668

Iteration 2: log restricted-likelihood = -472.8528

Iteration 3: log restricted-likelihood = -472.76176

Iteration 4: log restricted-likelihood = -472.73118

Iteration 5: log restricted-likelihood = -472.72345

Iteration 6: log restricted-likelihood = -472.72158

Iteration 7: log restricted-likelihood = -472.72121

Iteration 8: log restricted-likelihood = -472.72112

Iteration 9: log restricted-likelihood = -472.7211

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 9.65

Log restricted-likelihood = -472.7211 Prob > chi2 = 0.1404

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.062918 2.233819 1.37 0.170 -1.315286 7.441123

sex | -2.885579 1.650275 -1.75 0.080 -6.120059 .3489016

seizurefree | .1047705 1.921938 0.05 0.957 -3.66216 3.871701

gene | -1.054403 4.501985 -0.23 0.815 -9.878131 7.769324

agea | -.1055977 .1604193 -0.66 0.510 -.4200138 .2088184

gage | .0171134 .109414 0.16 0.876 -.1973341 .2315609

\_cons | 43.00664 3.864635 11.13 0.000 35.4321 50.58118

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0494184 .0597268 .0046252 .5280143

sd(\_cons) | 4.491677 1.074692 2.810266 7.179092

corr(agea,\_cons) | .9999339 .0275936 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.940012 .5027889 5.031968 7.011917

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.12 Prob > chi2 = 0.0028

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -470.44612

Iteration 1: log restricted-likelihood = -469.67065

Iteration 2: log restricted-likelihood = -469.39198

Iteration 3: log restricted-likelihood = -469.2903

Iteration 4: log restricted-likelihood = -469.27334

Iteration 5: log restricted-likelihood = -469.26921

Iteration 6: log restricted-likelihood = -469.26813

Iteration 7: log restricted-likelihood = -469.26788

Iteration 8: log restricted-likelihood = -469.26783

Iteration 9: log restricted-likelihood = -469.26782

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 9.67

Log restricted-likelihood = -469.26782 Prob > chi2 = 0.2893

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.345602 2.411837 0.97 0.331 -2.381513 7.072716

sex | -2.312944 1.769729 -1.31 0.191 -5.781549 1.15566

seizurefree | -.2060734 1.96176 -0.11 0.916 -4.051052 3.638906

\_Igene\_2 | .3906557 2.18369 0.18 0.858 -3.889298 4.67061

\_Igene\_3 | -3.812874 7.557843 -0.50 0.614 -18.62597 11.00023

agea | -.0678356 .0737965 -0.92 0.358 -.212474 .0768028

\_IgenXagea\_2 | -.0692602 .118861 -0.58 0.560 -.3022234 .1637031

\_IgenXagea\_3 | .3491388 .7584377 0.46 0.645 -1.137372 1.835649

\_cons | 43.08132 3.684326 11.69 0.000 35.86018 50.30247

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0614854 .0624574 .0083968 .4502257

sd(\_cons) | 4.447493 1.089307 2.751907 7.187814

corr(agea,\_cons) | .999987 .0095404 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.944524 .501571 5.038447 7.013543

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.97 Prob > chi2 = 0.0018

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 0.30

Prob > chi2 = 0.8628

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 0.53

Prob > chi2 = 0.7664

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 99 43.75758 8.082598 25 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 47 43.48936 9.303745 23 62

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 6 43.16667 7.305249 35 54

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs4923463 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -328.31002

Iteration 1: log restricted-likelihood = -327.71934

Iteration 2: log restricted-likelihood = -327.37971

Iteration 3: log restricted-likelihood = -327.28571

Iteration 4: log restricted-likelihood = -327.26238

Iteration 5: log restricted-likelihood = -327.25786

Iteration 6: log restricted-likelihood = -327.25677

Iteration 7: log restricted-likelihood = -327.25651

Iteration 8: log restricted-likelihood = -327.25646

Iteration 9: log restricted-likelihood = -327.25645

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.50

Log restricted-likelihood = -327.25645 Prob > chi2 = 0.1051

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 1.047306 .8736107 1.20 0.231 -.6649399 2.759551

sex | -1.082983 .5839756 -1.85 0.064 -2.227554 .0615884

seizurefree | .0710028 .6724726 0.11 0.916 -1.247019 1.389025

gene | -.7931501 1.669291 -0.48 0.635 -4.064901 2.478601

agea | -.0643639 .0551379 -1.17 0.243 -.1724322 .0437045

gage | .0238686 .0374106 0.64 0.523 -.0494547 .097192

\_cons | 7.967453 1.517696 5.25 0.000 4.992824 10.94208

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0150039 .0194492 .0011825 .1903711

sd(\_cons) | 2.094395 .3764734 1.472491 2.978959

corr(agea,\_cons) | -.9999756 .0009792 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.889719 .1604955 1.599941 2.231981

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.65 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -326.87977

Iteration 1: log restricted-likelihood = -326.23878

Iteration 2: log restricted-likelihood = -325.86565

Iteration 3: log restricted-likelihood = -325.81376

Iteration 4: log restricted-likelihood = -325.81006

Iteration 5: log restricted-likelihood = -325.80964

Iteration 6: log restricted-likelihood = -325.80958

Iteration 7: log restricted-likelihood = -325.80956

Computing standard errors:

Mixed-effects REML regression Number of obs = 140

Group variable: ID Number of groups = 70

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 10.64

Log restricted-likelihood = -325.80956 Prob > chi2 = 0.2229

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .5814241 .9419681 0.62 0.537 -1.2648 2.427648

sex | -.8045045 .6240733 -1.29 0.197 -2.027666 .4186568

seizurefree | -.0261848 .6838482 -0.04 0.969 -1.366503 1.314133

\_Igene\_2 | .2672613 .8758437 0.31 0.760 -1.449361 1.983883

\_Igene\_3 | -1.306221 2.812383 -0.46 0.642 -6.81839 4.205948

agea | -.033975 .02566 -1.32 0.185 -.0842677 .0163177

\_IgenXagea\_2 | -.0126518 .0412294 -0.31 0.759 -.0934599 .0681563

\_IgenXagea\_3 | .2358161 .2681564 0.88 0.379 -.2897607 .761393

\_cons | 8.307861 1.406761 5.91 0.000 5.55066 11.06506

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0093742 .0209449 .0001175 .7477885

sd(\_cons) | 2.02431 .3734011 1.410152 2.905952

corr(agea,\_cons) | -.9999226 .0484173 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.905776 .1613494 1.614382 2.249766

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 19.63 Prob > chi2 = 0.0002

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 0.33

Prob > chi2 = 0.8498

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 0.85

Prob > chi2 = 0.6546

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 99 8.222222 2.712614 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 47 8.319149 3.121499 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 6 9 3.34664 5 13

Score on common factor & marker rs4923463 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -151.82611

Iteration 1: log restricted-likelihood = -151.47209

Iteration 2: log restricted-likelihood = -151.16547

Iteration 3: log restricted-likelihood = -151.1483

Iteration 4: log restricted-likelihood = -151.14399

Iteration 5: log restricted-likelihood = -151.14302

Iteration 6: log restricted-likelihood = -151.1428

Iteration 7: log restricted-likelihood = -151.14274

Iteration 8: log restricted-likelihood = -151.14273

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 14.06

Log restricted-likelihood = -151.14273 Prob > chi2 = 0.0290

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .2090211 .2542877 0.82 0.411 -.2893737 .7074158

sex | -.3383812 .1860812 -1.82 0.069 -.7030936 .0263313

seizurefree | -.0747952 .2248883 -0.33 0.739 -.5155681 .3659777

gene | -.2965662 .502637 -0.59 0.555 -1.281717 .6885842

agea | -.0231992 .0181105 -1.28 0.200 -.0586951 .0122967

gage | .0056314 .0121114 0.46 0.642 -.0181066 .0293694

\_cons | .2900688 .465978 0.62 0.534 -.6232314 1.203369

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0029216 .0063351 .0000417 .2048143

sd(\_cons) | .5342146 .1142458 .3513015 .8123658

corr(agea,\_cons) | .9998163 .1260435 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .599487 .0555842 .4998696 .718957

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.06 Prob > chi2 = 0.0018

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -152.71554

Iteration 1: log restricted-likelihood = -152.28971

Iteration 2: log restricted-likelihood = -151.95221 (not concave)

Iteration 3: log restricted-likelihood = -151.94826

Iteration 4: log restricted-likelihood = -151.94807

Iteration 5: log restricted-likelihood = -151.94805

Iteration 6: log restricted-likelihood = -151.94805

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 66

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 14.27

Log restricted-likelihood = -151.94805 Prob > chi2 = 0.0749

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0689732 .2706696 0.25 0.799 -.4615296 .5994759

sex | -.2355322 .1980515 -1.19 0.234 -.623706 .1526415

seizurefree | -.1244182 .2281712 -0.55 0.586 -.5716255 .3227891

\_Igene\_2 | -.0191165 .2405295 -0.08 0.937 -.4905455 .4523126

\_Igene\_3 | -.7259923 .8182315 -0.89 0.375 -2.329697 .8777121

agea | -.0150545 .0084415 -1.78 0.075 -.0315994 .0014905

\_IgenXagea\_2 | -.0070625 .0129802 -0.54 0.586 -.0325032 .0183782

\_IgenXagea\_3 | .0749597 .0815689 0.92 0.358 -.0849125 .2348319

\_cons | .2964518 .4374926 0.68 0.498 -.561018 1.153922

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0051324 .0068277 .0003784 .0696113

sd(\_cons) | .5095862 .117964 .3237227 .802162

corr(agea,\_cons) | .9999784 .0235163 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .6035098 .0557539 .5035563 .7233035

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.28 Prob > chi2 = 0.0016

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 0.79

Prob > chi2 = 0.6743

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 1.11

Prob > chi2 = 0.5734

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 81 .0624969 .8129256 -1.92953 2.042192

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 45 -.1012787 1.03865 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs4923463 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 6 -.0841176 .919313 -1.267154 1.179959

rs11030094 | Freq. Percent Cum.

------------+-----------------------------------

1 | 56 38.89 38.89

2 | 66 45.83 84.72

3 | 22 15.28 100.00

------------+-----------------------------------

Total | 144 100.00

(20 missing values generated)

(20 missing values generated)

Log transformed Visual Reaction Task non-dominant (visual reaction time) & marker rs11030094 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -16.892951

Iteration 1: log restricted-likelihood = -16.367347

Iteration 2: log restricted-likelihood = -16.252022

Iteration 3: log restricted-likelihood = -16.192188

Iteration 4: log restricted-likelihood = -16.168783

Iteration 5: log restricted-likelihood = -16.16188

Iteration 6: log restricted-likelihood = -16.15973

Iteration 7: log restricted-likelihood = -16.159178

Iteration 8: log restricted-likelihood = -16.159045

Iteration 9: log restricted-likelihood = -16.159017

Iteration 10: log restricted-likelihood = -16.159012

Iteration 11: log restricted-likelihood = -16.159011

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 7.31

Log restricted-likelihood = -16.159011 Prob > chi2 = 0.2934

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1111217 .0841237 -1.32 0.187 -.2760011 .0537578

sex | -.0132067 .0618395 -0.21 0.831 -.1344099 .1079964

seizurefree | -.0469071 .0655063 -0.72 0.474 -.1752971 .0814828

gene | .212051 .1380666 1.54 0.125 -.0585546 .4826565

agea | .0109562 .0060216 1.82 0.069 -.0008459 .0227583

gage | -.0064821 .0033332 -1.94 0.052 -.0130152 .0000509

\_cons | 5.934144 .1447433 41.00 0.000 5.650452 6.217836

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0022728 .0020688 .0003817 .013532

sd(\_cons) | .1336392 .0386981 .0757617 .2357315

corr(agea,\_cons) | .9999943 .0098825 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .193363 .0190428 .1594208 .2345318

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 9.57 Prob > chi2 = 0.0226

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -21.672379

Iteration 1: log restricted-likelihood = -21.049579

Iteration 2: log restricted-likelihood = -20.945262

Iteration 3: log restricted-likelihood = -20.864804

Iteration 4: log restricted-likelihood = -20.842529

Iteration 5: log restricted-likelihood = -20.83642

Iteration 6: log restricted-likelihood = -20.835362

Iteration 7: log restricted-likelihood = -20.835169

Iteration 8: log restricted-likelihood = -20.835154

Iteration 9: log restricted-likelihood = -20.83515

Iteration 10: log restricted-likelihood = -20.83515

Computing standard errors:

Mixed-effects REML regression Number of obs = 111

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 7.62

Log restricted-likelihood = -20.83515 Prob > chi2 = 0.4717

------------------------------------------------------------------------------

y1 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.0988935 .083732 -1.18 0.238 -.2630051 .0652182

sex | .0073251 .0683349 0.11 0.915 -.1266089 .141259

seizurefree | -.0532377 .069346 -0.77 0.443 -.1891533 .0826778

\_Igene\_2 | .0753619 .0805878 0.94 0.350 -.0825872 .2333111

\_Igene\_3 | -.0099222 .1161294 -0.09 0.932 -.2375317 .2176873

agea | .0042753 .0034984 1.22 0.222 -.0025814 .0111319

\_IgenXagea\_2 | -.0058069 .0043595 -1.33 0.183 -.0143514 .0027375

\_IgenXagea\_3 | -.0104264 .0084962 -1.23 0.220 -.0270785 .0062258

\_cons | 5.91442 .1301485 45.44 0.000 5.659334 6.169507

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0024966 .0023552 .0003929 .0158619

sd(\_cons) | .1304215 .0416636 .0697316 .2439318

corr(agea,\_cons) | .999999 .002794 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1958791 .0191806 .1616732 .237322

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 9.26 Prob > chi2 = 0.0260

Note: LR test is conservative and provided only for reference

( 1) [y1]\_Igene\_2 = 0

( 2) [y1]\_Igene\_3 = 0

chi2( 2) = 1.13

Prob > chi2 = 0.5685

( 1) [y1]\_IgenXagea\_2 = 0

( 2) [y1]\_IgenXagea\_3 = 0

chi2( 2) = 2.66

Prob > chi2 = 0.2642

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 48 5.814583 .2660504 5.4 6.73

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 55 5.814545 .2372045 5.43 6.54

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 17 5.685294 .1940399 5.42 6.11

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y1 | 18 5.79 .2428507 5.46 6.23

Log transformed computerised visual search task (average speed response/processing information) task & marker rs11030094 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -24.603834

Iteration 1: log restricted-likelihood = -24.233744

Iteration 2: log restricted-likelihood = -24.051213

Iteration 3: log restricted-likelihood = -24.026665

Iteration 4: log restricted-likelihood = -24.018944

Iteration 5: log restricted-likelihood = -24.017101

Iteration 6: log restricted-likelihood = -24.016671

Iteration 7: log restricted-likelihood = -24.016562

Iteration 8: log restricted-likelihood = -24.01654

Iteration 9: log restricted-likelihood = -24.016535

Iteration 10: log restricted-likelihood = -24.016534

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(6) = 17.94

Log restricted-likelihood = -24.016534 Prob > chi2 = 0.0064

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.149655 .1264373 -1.18 0.237 -.3974676 .0981575

sex | -.1085427 .0769243 -1.41 0.158 -.2593115 .0422261

seizurefree | -.0332406 .0834726 -0.40 0.690 -.1968438 .1303626

gene | -.092753 .183895 -0.50 0.614 -.4531806 .2676747

agea | .0044444 .0072108 0.62 0.538 -.0096886 .0185774

gage | .0016447 .0040815 0.40 0.687 -.006355 .0096444

\_cons | 2.6671 .203673 13.10 0.000 2.267909 3.066292

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .001646 .0021984 .0001201 .0225589

sd(\_cons) | .2547797 .0405802 .1864615 .3481292

corr(agea,\_cons) | -.9999915 .002537 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1789827 .0173599 .1479965 .2164565

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 27.43 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -26.449498

Iteration 1: log restricted-likelihood = -26.143663

Iteration 2: log restricted-likelihood = -26.023791

Iteration 3: log restricted-likelihood = -26.00261

Iteration 4: log restricted-likelihood = -25.9949

Iteration 5: log restricted-likelihood = -25.993505

Iteration 6: log restricted-likelihood = -25.993438

Iteration 7: log restricted-likelihood = -25.993426

Iteration 8: log restricted-likelihood = -25.993423

Iteration 9: log restricted-likelihood = -25.993422

Computing standard errors:

Mixed-effects REML regression Number of obs = 113

Group variable: ID Number of groups = 59

Obs per group: min = 1

avg = 1.9

max = 2

Wald chi2(8) = 24.23

Log restricted-likelihood = -25.993422 Prob > chi2 = 0.0021

------------------------------------------------------------------------------

y2 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.1422252 .1191094 -1.19 0.232 -.3756753 .0912249

sex | -.0584141 .0802716 -0.73 0.467 -.2157434 .0989153

seizurefree | -.048861 .0862717 -0.57 0.571 -.2179504 .1202283

\_Igene\_2 | .156753 .1083019 1.45 0.148 -.0555149 .3690208

\_Igene\_3 | -.1201117 .1601625 -0.75 0.453 -.4340245 .193801

agea | .0092303 .0040689 2.27 0.023 .0012553 .0172052

\_IgenXagea\_2 | -.0037218 .0051957 -0.72 0.474 -.0139052 .0064617

\_IgenXagea\_3 | .0024698 .0104743 0.24 0.814 -.0180594 .0229991

\_cons | 2.506114 .1762283 14.22 0.000 2.160713 2.851515

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0006813 .0021319 1.48e-06 .3138472

sd(\_cons) | .2355752 .04291 .1648478 .3366478

corr(agea,\_cons) | -.9999367 .0030004 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .1787151 .017274 .1478723 .215991

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 24.74 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference

( 1) [y2]\_Igene\_2 = 0

( 2) [y2]\_Igene\_3 = 0

chi2( 2) = 4.29

Prob > chi2 = 0.1171

( 1) [y2]\_IgenXagea\_2 = 0

( 2) [y2]\_IgenXagea\_3 = 0

chi2( 2) = 0.69

Prob > chi2 = 0.7090

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 49 2.391429 .290079 1.89 2.98

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 57 2.469649 .335708 1.55 3.3

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 18 2.263333 .2404408 1.78 2.55

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y2 | 19 2.333684 .2657319 1.77 2.78

Score on Rey Auditory Verbal Learning Task - Immediate recall (Memory) & marker rs11030094 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -414.04984

Iteration 1: log restricted-likelihood = -413.29731

Iteration 2: log restricted-likelihood = -413.03195

Iteration 3: log restricted-likelihood = -412.95232

Iteration 4: log restricted-likelihood = -412.93848

Iteration 5: log restricted-likelihood = -412.93504

Iteration 6: log restricted-likelihood = -412.93422

Iteration 7: log restricted-likelihood = -412.93404

Iteration 8: log restricted-likelihood = -412.93401

Iteration 9: log restricted-likelihood = -412.93401

Iteration 10: log restricted-likelihood = -412.93401 (not concave)

Iteration 11: log restricted-likelihood = -412.93401 (not concave)

Iteration 12: log restricted-likelihood = -412.93401 (not concave)

Iteration 13: log restricted-likelihood = -412.93401 (not concave)

Iteration 14: log restricted-likelihood = -412.93401 (not concave)

Iteration 15: log restricted-likelihood = -412.93401 (not concave)

Iteration 16: log restricted-likelihood = -412.93401 (not concave)

Iteration 17: log restricted-likelihood = -412.93401 (not concave)

Iteration 18: log restricted-likelihood = -412.93401 (not concave)

Iteration 19: log restricted-likelihood = -412.93401 (not concave)

Iteration 20: log restricted-likelihood = -412.93401 (not concave)

convergence not achieved

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 8.53

Log restricted-likelihood = -414.04984 Prob > chi2 = 0.2017

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 3.514626 2.850798 1.23 0.218 -2.072837 9.102088

sex | -3.641275 2.06092 -1.77 0.077 -7.680604 .3980535

seizurefree | -.2947841 2.179925 -0.14 0.892 -4.567359 3.977791

gene | -6.443182 4.753073 -1.36 0.175 -15.75903 2.87267

agea | -.3501927 .2162384 -1.62 0.105 -.7740122 .0736268

gage | .1531152 .1174764 1.30 0.192 -.0771344 .3833647

\_cons | 45.79479 4.922575 9.30 0.000 36.14672 55.44286

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .2357737 . . .

sd(\_cons) | 4.68162 . . .

corr(agea,\_cons) | -.0894274 . . .

-----------------------------+------------------------------------------------

sd(Residual) | 5.736721 . . .

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 14.18 Prob > chi2 = 0.0027

Note: LR test is conservative and provided only for reference

Warning: convergence not achieved; estimates are based on iterated EM

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -409.51886

Iteration 1: log restricted-likelihood = -408.86108

Iteration 2: log restricted-likelihood = -408.54902

Iteration 3: log restricted-likelihood = -408.46644

Iteration 4: log restricted-likelihood = -408.44245

Iteration 5: log restricted-likelihood = -408.43679

Iteration 6: log restricted-likelihood = -408.43534

Iteration 7: log restricted-likelihood = -408.43499

Iteration 8: log restricted-likelihood = -408.4349

Iteration 9: log restricted-likelihood = -408.43488

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 13.43

Log restricted-likelihood = -408.43488 Prob > chi2 = 0.0978

------------------------------------------------------------------------------

y3 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | 2.443078 2.464716 0.99 0.322 -2.387677 7.273832

sex | -4.442287 2.05972 -2.16 0.031 -8.479264 -.4053106

seizurefree | .4582311 2.146259 0.21 0.831 -3.748359 4.664821

\_Igene\_2 | -5.812259 2.436905 -2.39 0.017 -10.5885 -1.036014

\_Igene\_3 | -1.660809 3.338769 -0.50 0.619 -8.204676 4.883058

agea | -.1984556 .1095248 -1.81 0.070 -.4131203 .0162092

\_IgenXagea\_2 | .1528878 .1361328 1.12 0.261 -.1139277 .4197033

\_IgenXagea\_3 | .1444872 .2579774 0.56 0.575 -.3611392 .6501136

\_cons | 46.52517 3.856373 12.06 0.000 38.96682 54.08353

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0966834 .0653897 .0256839 .3639515

sd(\_cons) | 4.148686 1.138772 2.422503 7.104881

corr(agea,\_cons) | .9999887 .0066635 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 5.902299 .5315139 4.947306 7.041637

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.42 Prob > chi2 = 0.0015

Note: LR test is conservative and provided only for reference

( 1) [y3]\_Igene\_2 = 0

( 2) [y3]\_Igene\_3 = 0

chi2( 2) = 6.05

Prob > chi2 = 0.0486

( 1) [y3]\_IgenXagea\_2 = 0

( 2) [y3]\_IgenXagea\_3 = 0

chi2( 2) = 1.35

Prob > chi2 = 0.5098

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 50 44.76 9.671249 23 65

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 62 41.67742 7.52433 25 60

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 21 46.52381 7.769292 34 59

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y3 | 19 44 7.195678 29 57

Score on Rey Auditory Verbal Learning Task - Delayed recall (Memory) & marker rs11030094 accounting for epylepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -286.29372

Iteration 1: log restricted-likelihood = -285.75513

Iteration 2: log restricted-likelihood = -285.51811

Iteration 3: log restricted-likelihood = -285.44446

Iteration 4: log restricted-likelihood = -285.41837

Iteration 5: log restricted-likelihood = -285.41283

Iteration 6: log restricted-likelihood = -285.41216 (not concave)

Iteration 7: log restricted-likelihood = -285.41213

Iteration 8: log restricted-likelihood = -285.41202

Iteration 9: log restricted-likelihood = -285.412

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(6) = 10.56

Log restricted-likelihood = -285.412 Prob > chi2 = 0.1028

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .829734 1.085338 0.76 0.445 -1.29749 2.956958

sex | -1.174038 .6805604 -1.73 0.085 -2.507912 .1598358

seizurefree | -.193335 .7254715 -0.27 0.790 -1.615233 1.228563

gene | -1.864849 1.573521 -1.19 0.236 -4.948893 1.219195

agea | -.0837718 .0641032 -1.31 0.191 -.2094116 .0418681

gage | .0258354 .0354842 0.73 0.467 -.0437125 .0953832

\_cons | 10.27355 1.800154 5.71 0.000 6.74531 13.80178

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0104238 .0208517 .0002067 .5257343

sd(\_cons) | 2.131509 .3752793 1.509462 3.0099

corr(agea,\_cons) | -.9998232 .0335551 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.857343 .1698313 1.552602 2.221898

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.36 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -286.31011

Iteration 1: log restricted-likelihood = -285.76911

Iteration 2: log restricted-likelihood = -285.5225

Iteration 3: log restricted-likelihood = -285.44517

Iteration 4: log restricted-likelihood = -285.41942

Iteration 5: log restricted-likelihood = -285.41392

Iteration 6: log restricted-likelihood = -285.41328

Iteration 7: log restricted-likelihood = -285.41314

Iteration 8: log restricted-likelihood = -285.41312

Iteration 9: log restricted-likelihood = -285.41311

Computing standard errors:

Mixed-effects REML regression Number of obs = 122

Group variable: ID Number of groups = 61

Obs per group: min = 2

avg = 2.0

max = 2

Wald chi2(8) = 10.52

Log restricted-likelihood = -285.41311 Prob > chi2 = 0.2307

------------------------------------------------------------------------------

y4 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .6538899 1.102019 0.59 0.553 -1.506029 2.813808

sex | -1.319793 .7216652 -1.83 0.067 -2.734231 .0946445

seizurefree | .030296 .7759887 0.04 0.969 -1.490614 1.551206

\_Igene\_2 | -1.29879 1.018149 -1.28 0.202 -3.294325 .6967452

\_Igene\_3 | -1.210886 1.417493 -0.85 0.393 -3.98912 1.567348

agea | -.0516224 .0372141 -1.39 0.165 -.1245606 .0213159

\_IgenXagea\_2 | .0235926 .0465935 0.51 0.613 -.0677289 .1149141

\_IgenXagea\_3 | -.0353318 .0918278 -0.38 0.700 -.215311 .1446475

\_cons | 9.257149 1.606333 5.76 0.000 6.108793 12.4055

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .011512 .0209701 .000324 .4089689

sd(\_cons) | 2.163288 .413444 1.487422 3.14626

corr(agea,\_cons) | -.9999535 .0017068 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | 1.871857 .1696912 1.56714 2.235823

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 20.53 Prob > chi2 = 0.0001

Note: LR test is conservative and provided only for reference

( 1) [y4]\_Igene\_2 = 0

( 2) [y4]\_Igene\_3 = 0

chi2( 2) = 1.73

Prob > chi2 = 0.4215

( 1) [y4]\_IgenXagea\_2 = 0

( 2) [y4]\_IgenXagea\_3 = 0

chi2( 2) = 0.54

Prob > chi2 = 0.7623

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 50 8.64 3.102073 2 15

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 62 7.854839 2.74517 2 13

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 21 7.952381 3.024503 3 14

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y4 | 19 9.105263 2.131633 6 14

Score on common factor & marker rs11030094 accounting for epilepsy type age and sex

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -133.63501

Iteration 1: log restricted-likelihood = -133.18532

Iteration 2: log restricted-likelihood = -132.90402

Iteration 3: log restricted-likelihood = -132.83485

Iteration 4: log restricted-likelihood = -132.81737

Iteration 5: log restricted-likelihood = -132.81637

Iteration 6: log restricted-likelihood = -132.81632

Iteration 7: log restricted-likelihood = -132.81631

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(6) = 10.63

Log restricted-likelihood = -132.81631 Prob > chi2 = 0.1004

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | .0471236 .3134362 0.15 0.880 -.5672001 .6614473

sex | -.2572581 .2228645 -1.15 0.248 -.6940646 .1795483

seizurefree | -.1652392 .2454148 -0.67 0.501 -.6462434 .315765

gene | -.3271656 .5120934 -0.64 0.523 -1.33085 .676519

agea | -.0329423 .0215684 -1.53 0.127 -.0752156 .009331

gage | .0089366 .0121729 0.73 0.463 -.0149218 .032795

\_cons | .4462934 .5291374 0.84 0.399 -.590797 1.483384

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0061502 .0071347 .0006331 .0597504

sd(\_cons) | .5573151 .1196605 .3658813 .8489094

corr(agea,\_cons) | .9999889 .0119028 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5881295 .0591398 .4829252 .7162524

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 17.34 Prob > chi2 = 0.0006

Note: LR test is conservative and provided only for reference

i.gene \_Igene\_1-3 (naturally coded; \_Igene\_1 omitted)

i.gene\*agea \_IgenXagea\_# (coded as above)

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log restricted-likelihood = -131.95878

Iteration 1: log restricted-likelihood = -131.72156

Iteration 2: log restricted-likelihood = -131.57633

Iteration 3: log restricted-likelihood = -131.57034

Iteration 4: log restricted-likelihood = -131.56914

Iteration 5: log restricted-likelihood = -131.5686

Iteration 6: log restricted-likelihood = -131.56846

Iteration 7: log restricted-likelihood = -131.56843

Iteration 8: log restricted-likelihood = -131.56842

Computing standard errors:

Mixed-effects REML regression Number of obs = 105

Group variable: ID Number of groups = 57

Obs per group: min = 1

avg = 1.8

max = 2

Wald chi2(8) = 19.01

Log restricted-likelihood = -131.56842 Prob > chi2 = 0.0148

------------------------------------------------------------------------------

y10 | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

type | -.121238 .2844589 -0.43 0.670 -.6787672 .4362911

sex | -.491169 .2322897 -2.11 0.034 -.9464484 -.0358896

seizurefree | -.0501364 .2406187 -0.21 0.835 -.5217405 .4214677

\_Igene\_2 | -.5472197 .2679087 -2.04 0.041 -1.072311 -.0221284

\_Igene\_3 | .468055 .4107096 1.14 0.254 -.336921 1.273031

agea | -.0308544 .0117505 -2.63 0.009 -.0538849 -.0078239

\_IgenXagea\_2 | .0194133 .0149401 1.30 0.194 -.0098688 .0486954

\_IgenXagea\_3 | -.0261091 .0300433 -0.87 0.385 -.0849929 .0327747

\_cons | .8214193 .4534289 1.81 0.070 -.0672851 1.710124

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

ID: Unstructured |

sd(agea) | .0088539 .00661 .0020495 .0382484

sd(\_cons) | .4721374 .1199627 .2869403 .7768646

corr(agea,\_cons) | .9998877 .0810628 -1 1

-----------------------------+------------------------------------------------

sd(Residual) | .5920125 .0592616 .4865461 .7203404

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 15.55 Prob > chi2 = 0.0014

Note: LR test is conservative and provided only for reference

( 1) [y10]\_Igene\_2 = 0

( 2) [y10]\_Igene\_3 = 0

chi2( 2) = 8.19

Prob > chi2 = 0.0166

( 1) [y10]\_IgenXagea\_2 = 0

( 2) [y10]\_IgenXagea\_3 = 0

chi2( 2) = 3.03

Prob > chi2 = 0.2194

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 1

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 48 .015592 1.070928 -2.381441 2.053248

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 2

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 51 -.1600314 .7740527 -1.92953 1.731921

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = 3

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 15 .4335825 .743743 -.9866189 1.628641

----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

-> rs11030094 = .

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

y10 | 18 .0505249 .7511397 -1.497013 1.503227

.

. log c

log: M:\Studies\Alix\Sanad\_longitudinal\_new2.log.smcl

log type: smcl

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