

Exploratory Factor Analysis

```

FACTOR
  /VARIABLES VH_Ptprd VH_Hacd4 DH_Ptprd DH_Hacd4 EPM_open_percent EPM_boli EPM_closed_entries
  OF_distance OF_center OF_boli OF_Sup_rears OF_UnSup_rears OF_groomDUR OLM_PR FC_baseline
  FC_immediate FC_context FC_preCS FC_CS
  /MISSING MEANSUB
  /ANALYSIS VH_Ptprd VH_Hacd4 DH_Ptprd DH_Hacd4 EPM_open_percent EPM_boli EPM_closed_entries
  OF_distance OF_center OF_boli OF_Sup_rears OF_UnSup_rears OF_groomDUR OLM_PR FC_baseline
  FC_immediate FC_context FC_preCS FC_CS
  /PRINT INITIAL KMO AIC EXTRACTION ROTATION
  /FORMAT BLANK(.3)
  /PLOT EIGEN
  /CRITERIA FACTORS(5) ITERATE(25)
  /EXTRACTION PAF
  /CRITERIA ITERATE(25) DELTA(0)
  /ROTATION OBLIMIN
  /METHOD=CORRELATION.

```

Zeid et al BxD EFA dataset.sav

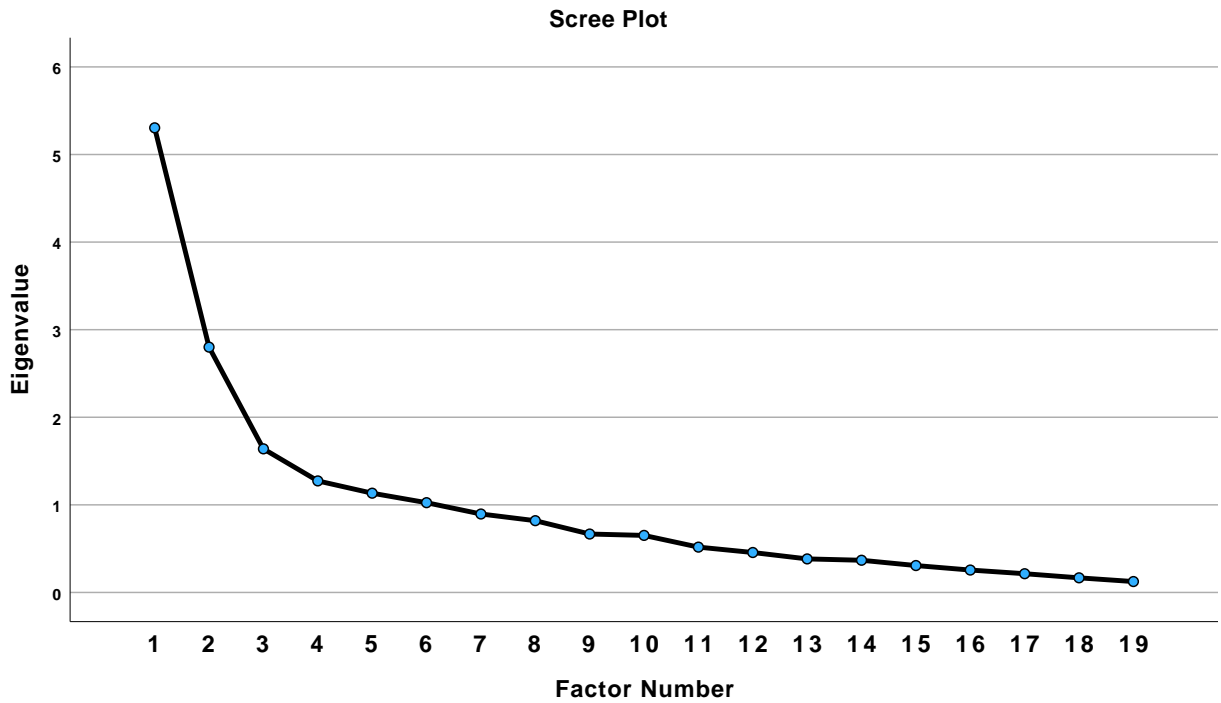
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.723
Bartlett's Test of Sphericity	Approx. Chi-Square
	471.679
	df
	171
	Sig.
	<.001

Communalities

	Initial	Extraction
Ptprd expression in ventral hippocampus (delta CT)	.432	.484
Hacd4 expression in ventral hippocampus (delta CT)	.541	.447
Ptprd expression in dorsal hippocampus (delta CT)	.435	.474
Hacd4 expression in dorsal hippocampus (delta CT)	.568	.460
Elevated plus maze - % time in open arms	.654	.738
Elevated plus maze - fecal boli count	.251	.264
Elevated plus maze - number of closed arm entries	.551	.490
Open field - total distance traveled	.631	.994
Open field - % time in center	.362	.348
Open field - fecal boli count	.353	.364
Open field - supported rears count	.605	.548
Open field - unsupported rears count	.511	.614
Open field - time spent grooming	.417	.294
Object location memory (test) - preference ratio (learning index)	.553	.477
Fear conditioning (train) - % baseline freezing	.476	.364
Fear conditioning (train) - % post-shock freezing	.604	.303
Fear conditioning (test) - % freezing to conditioned context	.752	.764
Fear conditioning (test) - % freezing to pre-cue presentation	.765	.776
Fear conditioning (test) - % freezing to conditioned cue	.663	.721

Extraction Method: Principal Axis Factoring.



Pattern Matrix^a

	Factor				
	1	2	3	4	5
Ptprd expression in ventral hippocampus (delta CT)				.676	
Hacd4 expression in ventral hippocampus (delta CT)		.583			
Ptprd expression in dorsal hippocampus (delta CT)				.725	
Hacd4 expression in dorsal hippocampus (delta CT)		.586			
Elevated plus maze - % time in open arms	-.873				
Elevated plus maze - fecal boli count			.451		
Elevated plus maze - number of closed arm entries	-.617				
Open field - total distance traveled					1.001

Pattern Matrix^a

	Factor				
	1	2	3	4	5
Open field - % time in center					.452
Open field - fecal boli count			.603		
Open field - supported rears count	-.507				.394
Open field - unsupported rears count	-.510		.490		
Open field - time spent grooming					-.386
Object location memory (test) - preference ratio (learning index)	-.478				
Fear conditioning (train) - % baseline freezing	.313				
Fear conditioning (train) - % post-shock freezing				.400	
Fear conditioning (test) - % freezing to conditioned context		-.690			
Fear conditioning (test) - % freezing to pre-cue presentation		-.724			
Fear conditioning (test) - % freezing to conditioned cue		-.807			

Extraction Method: Principal Axis Factoring.
 Rotation Method: Oblimin with Kaiser Normalization. ^a

a. Rotation converged in 17 iterations.

Factor Correlation Matrix

Factor	1	2	3	4	5
1	1.000	-.086	.075	.399	-.316
2	-.086	1.000	.147	-.081	.345
3	.075	.147	1.000	.215	-.101
4	.399	-.081	.215	1.000	-.348
5	-.316	.345	-.101	-.348	1.000

Extraction Method: Principal Axis Factoring.
 Rotation Method: Oblimin with Kaiser Normalization.

Univariate Analysis of Variance (Factor 1 composite ANOVA)

Zeid et al Factor composites.sav

```
UNIANOVA Factor_1_COMPOSITE BY strain sex Cohort  
  /RANDOM=Cohort  
  /METHOD=SSTYPE(3)  
  /INTERCEPT=INCLUDE  
  /CRITERIA=ALPHA(.05)  
  /DESIGN=strain Cohort sex sex*strain.
```

Between-Subjects Factors

		Value Label	N
Strain	1	BXD124	24
	2	BXD56	25
	3	BXD64	20
	4	BXD98	23
	5	C57BL/6	24
	6	DBA/2J	24
Sex	1	Female	66
	2	Male	74
Cohort number	1		23
	2		27
	3		31
	4		24
	5		21
	6		14

Tests of Between-Subjects Effects

Dependent Variable: F1 COMPOSITE = EPM open+EPM closed+OF SRears+OF USRears+OLM PR+baseline FC

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	.394	1	.394	.025	.882
	Error	73.734	4.630	15.926 ^a		
strain	Hypothesis	752.958	5	150.592	23.466	<.001
	Error	789.332	123	6.417 ^b		
Cohort	Hypothesis	75.416	5	15.083	2.350	.045
	Error	789.332	123	6.417 ^b		
sex	Hypothesis	6.461	1	6.461	1.007	.318
	Error	789.332	123	6.417 ^b		
strain * sex	Hypothesis	41.951	5	8.390	1.307	.265
	Error	789.332	123	6.417 ^b		

a. 1.097 MS(Cohort) - .097 MS(Error)

b. MS(Error)

Expected Mean Squares^{a,b}

Source	Variance Component		
	Var(Cohort)	Var(Error)	Quadratic Term
Intercept	20.641	1.000	Intercept, strain, sex, strain * sex
strain	.000	1.000	strain, strain * sex
Cohort	18.811	1.000	
sex	.000	1.000	sex, strain * sex
strain * sex	.000	1.000	strain * sex
Error	.000	1.000	

a. For each source, the expected mean square equals the sum of the coefficients in the cells times the variance components, plus a quadratic term involving effects in the ...

b. Expected Mean Squares are based on the Type III Sums of Squares.

Generalized Linear Models (Factor 2 composite proportional odds ordinal logistic regression; non-parametric analysis)

```

* Generalized Linear Models.
GENLIN Factor_2_COMPOSITE (ORDER=ASCENDING) BY strain sex (ORDER=ASCENDING)
  /MODEL strain sex strain*sex
  DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.

```

Model Information

Dependent Variable	F2 COMPOSITE = Context FC+PreCS FC+CS FC^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	140	98.6%
Excluded	2	1.4%
Total	142	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	540.057	1518	.356
Scaled Deviance	540.057	1518	
Pearson Chi-Square	1402.421	1518	.924
Scaled Pearson Chi-Square	1402.421	1518	
Log Likelihood ^b	-384.279		
Akaike's Information Criterion (AIC)	1068.557		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	1509.804		
Consistent AIC (CAIC)	1659.804		

Dependent Variable: F2 COMPOSITE = Context FC+PreCS FC+CS FC

Model: (Threshold), Strain , Sex, Strain * Sex^a

- Information criteria are in smaller-is-better form.
- The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
151.497	11	<.001

Dependent Variable: F2 COMPOSITE = Context FC+PreCS FC+CS FC

Model: (Threshold), Strain , Sex, Strain * Sex^a

- Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain	104.724	5	<.001
Sex	.023	1	.880
Strain * Sex	20.414	5	.001

Dependent Variable: F2 COMPOSITE = Context FC+PreCS FC+CS FC

Model: (Threshold), Strain , Sex, Strain * Sex

Generalized Linear Models (Factor 3 composite proportional odds ordinal logistic regression; non-parametric analysis)

```
* Generalized Linear Models.
GENLIN Factor_3_COMPOSITE (ORDER=ASCENDING) BY strain sex (ORDER=ASCENDING)
/MODEL strain sex strain*sex
DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
/CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WALD
LIKELIHOOD=FULL
/MISSING CLASSMISSING=EXCLUDE
/PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.
```

Model Information

Dependent Variable	F3 COMPOSITE = EPM boli+OF boli+OF USRears^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	140	98.6%
Excluded	2	1.4%
Total	142	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	456.513	1111	.411
Scaled Deviance	456.513	1111	
Pearson Chi-Square	863.889	1111	.778
Scaled Pearson Chi-Square	863.889	1111	
Log Likelihood ^b	-331.181		
Akaike's Information Criterion (AIC)	888.361		
Finite Sample Corrected AIC (AICC)	1879.284		
Bayesian Information Criterion (BIC)	1220.767		
Consistent AIC (CAIC)	1333.767		

Dependent Variable: F3 COMPOSITE = EPM boli+OF boli+OF USRears

Model: (Threshold), Strain , Sex, Strain * Sex^a

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
140.107	11	<.001

Dependent Variable: F3 COMPOSITE =

EPM boli+OF boli+OF USRears

Model: (Threshold), Strain , Sex,

Strain * Sex^a

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain	61.412	5	<.001
Sex	31.427	1	<.001
Strain * Sex	45.310	5	<.001

Dependent Variable: F3 COMPOSITE = EPM boli+OF boli+OF USRears

Model: (Threshold), Strain , Sex, Strain * Sex

Generalized Linear Models (MALES, Factor 3 composite proportiona l odds ordinal logistic regression; non-parametric analysis)

```
* Generalized Linear Models.
GENLIN M_Factor3_COMPOSITE (ORDER=ASCENDING) BY M_strain (ORDER=ASCENDING)
  /MODEL M_strain
DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.
```

Zeid et al Factor3 composite ANOVA MALES SPSS data file.sav

Model Information

Dependent Variable	Factor 3 composite (males only)^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	74	97.4%
Excluded	2	2.6%
Total	76	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	176.641	325	.544
Scaled Deviance	176.641	325	
Pearson Chi-Square	257.997	325	.794
Scaled Pearson Chi-Square	257.997	325	
Log Likelihood ^b	-147.041		
Akaike's Information Criterion (AIC)	436.081		
Finite Sample Corrected AIC (AICC)	5548.081		
Bayesian Information Criterion (BIC)	599.670		
Consistent AIC (CAIC)	670.670		

Dependent Variable: Factor 3 composite (males only)
 Model: (Threshold), Strain (Males only)^a

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
75.974	5	<.001

Dependent Variable: Factor 3 composite (males only)
 Model: (Threshold), Strain (Males only)^a

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain (Males only)	50.288	5	<.001

Dependent Variable: Factor 3 composite (males only)
 Model: (Threshold), Strain (Males only)

Generalized Linear Models (FEMALES, Factor 3 composite proportional odds ordinal logistic regression; non-parametric analysis)

* Generalized Linear Models.

```

GENLIN F_Factor3_COMPOSITE (ORDER=ASCENDING) BY F_strain (ORDER=ASCENDING)
  /MODEL F_strain
  DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.

```

Model Information

Dependent Variable	Factor 3 composite (females only)^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	66	100.0%
Excluded	0	0.0%
Total	66	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	157.686	220	.717
Scaled Deviance	157.686	220	
Pearson Chi-Square	214.973	220	.977
Scaled Pearson Chi-Square	214.973	220	
Log Likelihood ^b	-123.047		
Akaike's Information Criterion (AIC)	346.094		
Finite Sample Corrected AIC (AICC)	686.094		
Bayesian Information Criterion (BIC)	455.577		
Consistent AIC (CAIC)	505.577		

Dependent Variable: Factor 3 composite (females only)
 Model: (Threshold), Strain (Females only)^a

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
39.310	5	<.001

Dependent Variable: Factor 3 composite (females only)
 Model: (Threshold), Strain (Females only)^a

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain (Females only)	32.965	5	<.001

Dependent Variable: Factor 3 composite (females only)
 Model: (Threshold), Strain (Females only)

Generalized Linear Models (Factor 5 composite proportional odds ordinal logistic regression; non-parametric analysis)

```
* Generalized Linear Models.
GENLIN Factor_5_COMPOSITE (ORDER=ASCENDING) BY strain sex (ORDER=ASCENDING)
  /MODEL strain sex strain*sex
  DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.
```

Zeid et al Factor composites.sav

Model Information

Dependent Variable	F5 COMPOSITE =OF SRears+OF dist+OF center+OF grooming^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	140	98.6%
Excluded	2	1.4%
Total	142	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	645.371	1518	.425
Scaled Deviance	645.371	1518	
Pearson Chi-Square	1451.661	1518	.956
Scaled Pearson Chi-Square	1451.661	1518	
Log Likelihood ^b	-436.936		
Akaike's Information Criterion (AIC)	1173.871		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	1615.118		
Consistent AIC (CAIC)	1765.118		

Dependent Variable: F5 COMPOSITE =OF SRears+OF dist+OF center+OF grooming

Model: (Threshold), Strain , Sex, Strain * Sex^a

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
46.183	11	<.001

Dependent Variable: F5 COMPOSITE =OF SRears+OF dist+OF center+OF grooming

Model: (Threshold), Strain , Sex, Strain * Sex^a

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain	38.626	5	<.001
Sex	.019	1	.891
Strain * Sex	2.389	5	.793

Dependent Variable: F5 COMPOSITE =OF SRears+OF dist+OF center+OF grooming

Model: (Threshold), Strain , Sex, Strain * Sex

Generalized Linear Models (Freezing to conditioned context, proportional odds ordinal logistic regression; non-parametric analysis)

```
* Generalized Linear Models.
GENLIN FC_context (ORDER=ASCENDING) BY strain sex Cohort (ORDER=ASCENDING)
  /MODEL strain sex strain*sex
  DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.
```

Zeid et al contextFC and OLM ANOVA datafile.sav

Model Information

Dependent Variable	% Freezing to conditioned context^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	137	96.5%
Excluded	5	3.5%
Total	142	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	898.348	5974	.150
Scaled Deviance	898.348	5974	
Pearson Chi-Square	5750.841	5974	.963
Scaled Pearson Chi-Square	5750.841	5974	
Log Likelihood ^b	-520.035		
Akaike's Information Criterion (AIC)	1328.070		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	1748.547		
Consistent AIC (CAIC)	1892.547		

Dependent Variable: % Freezing to conditioned context
 Model: (Threshold), Strain , Sex, Strain * Sex^a

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
106.829	11	<.001

Dependent Variable: % Freezing to conditioned context
 Model: (Threshold), Strain , Sex, Strain * Sex^a

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Type III		
	Wald Chi-Square	df	Sig.
Strain	72.529	5	<.001
Sex	.505	1	.477
Strain * Sex	13.716	5	.018

Dependent Variable: % Freezing to conditioned context
 Model: (Threshold), Strain , Sex, Strain * Sex

Generalized Linear Models (OLM preference ratio, proportional odds ordinal logistic regression; non-parametric analysis)

```

* Generalized Linear Models.
GENLIN OLM_PR (ORDER=ASCENDING) BY strain sex Cohort (ORDER=ASCENDING)
  /MODEL strain sex strain*sex
  DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
  /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.

```

Zeid et al contextFC and OLM ANOVA datafile.sav

Model Information

Dependent Variable	Object location memory preference ratio (learning index)^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	136	95.8%
Excluded	6	4.2%
Total	142	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	956.563	5974	.160
Scaled Deviance	956.563	5974	
Pearson Chi-Square	6194.627	5974	1.037
Scaled Pearson Chi-Square	6194.627	5974	
Log Likelihood ^b	-548.331		
Akaike's Information Criterion (AIC)	1384.662		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	1804.084		
Consistent AIC (CAIC)	1948.084		

Dependent Variable: Object location memory preference ratio (learning index)

Model: (Threshold), Strain , Sex, Strain * Sex

- Information criteria are in smaller-is-better form.
- The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
43.373	11	<.001

Dependent Variable: Object location memory preference ratio (learning index)

Model: (Threshold), Strain , Sex, Strain * Sex

- Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Type III		
	Wald Chi-Square	df	Sig.
Strain	32.789	5	<.001
Sex	.824	1	.364
Strain * Sex	12.321	5	.031

Dependent Variable: Object location memory preference ratio (learning index)

Model: (Threshold), Strain , Sex, Strain * Sex

OLM preference ratio ANOVA, MALES

```
UNIANOVA OLM_PR_M BY strain_M
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /CRITERIA=ALPHA(0.05)
  /DESIGN=strain_M.
```

Zeid et al OLM ANOVA MALES.sav

Between-Subjects Factors

		Value Label	N
Strain (Males only)	1	BXD124	10
	2	BXD56	13
	3	BXD64	14
	4	BXD98	12
	5	C57BL/6	11
	6	DBA/2J	12

Tests of Between-Subjects Effects

Dependent Variable: Object location memory preference ratio (learning index, males only)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5544.364 ^a	5	1108.873	4.878	<.001
Intercept	168471.631	1	168471.631	741.156	<.001
strain_M	5544.364	5	1108.873	4.878	<.001
Error	15002.417	66	227.309		
Total	189069.079	72			
Corrected Total	20546.781	71			

a. R Squared = .270 (Adjusted R Squared = .215)

Generalized Linear Models (FEMALES, OLM preference ratio, proportional odds ordinal logistic regression; non-parametric analysis)

```

* Generalized Linear Models.
GENLIN OLM_PR_F (ORDER=ASCENDING) BY strain_F (ORDER=ASCENDING)
  /MODEL strain_F
DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
/CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WAL
D
  LIKELIHOOD=FULL
  /MISSING CLASSMISSING=EXCLUDE
  /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY.

```

Zeid et al OLM ANOVA FEMALES.sav

Model Information

Dependent Variable	Object location memory preference ratio (learning index, females only)^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	64	97.0%
Excluded	2	3.0%
Total	66	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	202.648	310	.654
Scaled Deviance	202.648	310	
Pearson Chi-Square	300.067	310	.968
Scaled Pearson Chi-Square	300.067	310	
Log Likelihood ^b	-152.747		
Akaike's Information Criterion (AIC)	441.494		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	588.298		
Consistent AIC (CAIC)	656.298		

Dependent Variable: Object location memory preference ratio (learning index, females only)

Model: (Threshold), Strain (females only)

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
23.418	5	<.001

Dependent Variable: Object location memory preference ratio (learning index, females only)

Model: (Threshold), Strain (females only)

- a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Wald Chi-Square	Type III	
		df	Sig.
Strain (females only)	20.700	5	<.001

Dependent Variable: Object location memory preference ratio (learning index, females only)

Model: (Threshold), Strain (females only)

Hacd4 dorsal hippocampus expression ANOVA

```
UNIANOVA DH_Hacd4 BY Strain Sex
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Strain Sex Strain*Sex.
```

Zeid et al gene expression data file.sav

Between-Subjects Factors

		Value Label	N
Strain	1	BXD124	12
	2	BXD56	11
	3	BXD64	11
	4	BXD98	12
	5	C57BL/6J	12
	6	DBA/2J	12
Sex	1	Female	35
	2	Male	35

Tests of Between-Subjects Effects

Dependent Variable: Dorsal hippocampus Hacd4 expression (delta CT)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.463^a	11	.406	2.967	.003
Intercept	3693.710	1	3693.710	27014.117	<.001
Strain	3.698	5	.740	5.409	<.001
Sex	.028	1	.028	.202	.655
Strain * Sex	.540	5	.108	.790	.561
Error	7.930	58	.137		
Total	3737.818	70			
Corrected Total	12.393	69			

a. R Squared = .360 (Adjusted R Squared = .239)

Ptprd dorsal hippocampus expression ANOVA

```
UNIANOVA DH_Ptprd BY Strain Sex
```



```

/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Strain Sex Strain*Sex.

```

Between-Subjects Factors

		Value Label	N
Strain	1	BXD124	12
	2	BXD56	11
	3	BXD64	11
	4	BXD98	12
	5	C57BL/6J	12
	6	DBA/2J	12
Sex	1	Female	35
	2	Male	35

Tests of Between-Subjects Effects

Dependent Variable: Dorsal hippocampus Ptprd expression (delta CT)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.238^a	11	.113	2.197	.027
Intercept	106.275	1	106.275	2073.809	<.001
Strain	1.033	5	.207	4.033	.003
Sex	.000	1	.000	.006	.940
Strain * Sex	.233	5	.047	.909	.481
Error	2.972	58	.051		
Total	111.937	70			
Corrected Total	4.211	69			

a. R Squared = .294 (Adjusted R Squared = .160)

Generalized Linear Models (Hacd4 ventral hippocampus expression, proportional odds ordinal logistic regression; non-parametric analysis)

* Generalized Linear Models.

```

GENLIN VH_Hacd4 (ORDER=ASCENDING) BY Strain Sex (ORDER=ASCENDING)
/MODEL Strain*Sex Strain Sex
DISTRIBUTION=MULTINOMIAL LINK=CUMLOGIT
/CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 MAXSTEPHALVING=5
PCONVERGE=1E-006(Absolute) SINGULAR=1E-012 ANALYSISTYPE=3(WALD) CILEVEL=95 CITYPE=WALD
LIKELIHOOD=FULL
/MISSING CLASSMISSING=EXCLUDE

```

Model Information

Dependent Variable	Ventral hippocampus Hacd4 expression (delta CT) ^a
Probability Distribution	Multinomial
Link Function	Cumulative logit

a. The procedure applies the cumulative link function to the dependent variable values in ascending order.

Case Processing Summary

	N	Percent
Included	71	100.0%
Excluded	0	0.0%
Total	71	100.0%

Goodness of Fit^a

	Value	df	Value/df
Deviance	286.426	759	.377
Scaled Deviance	286.426	759	
Pearson Chi-Square	957.944	759	1.262
Scaled Pearson Chi-Square	957.944	759	
Log Likelihood ^b	-192.371		
Akaike's Information Criterion (AIC)	546.741		
Finite Sample Corrected AIC (AICC)	.		
Bayesian Information Criterion (BIC)	730.018		
Consistent AIC (CAIC)	811.018		

Dependent Variable: Ventral hippocampus Hacd4 expression (delta CT)

Model: (Threshold), Strain * Sex, Strain, Sex

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Omnibus Test^a

Likelihood Ratio Chi-Square	df	Sig.
65.933	11	<.001

Dependent Variable: Ventral hippocampus Hacd4 expression (delta CT)

Model: (Threshold), Strain * Sex, Strain, Sex

a. Compares the fitted model against the thresholds-only model.

Tests of Model Effects

Source	Type III		
	Wald Chi-Square	df	Sig.
Strain * Sex	4.390	5	.495
Strain	41.328	5	<.001
Sex	14.529	1	<.001

Dependent Variable: Ventral hippocampus Hacd4 expression (delta CT)

Model: (Threshold), Strain * Sex, Strain, Sex

Ptprd ventral hippocampus expression ANOVA

```
UNIANOVA VH_Ptprd BY Strain Sex
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/CRITERIA=ALPHA(0.05)
/DESIGN=Strain Sex Strain*Sex.
```

Between-Subjects Factors

		Value Label	N
Strain	1	BXD124	12
	2	BXD56	12
	3	BXD64	11
	4	BXD98	12
	5	C57BL/6J	12
	6	DBA/2J	12
Sex	1	Female	35
	2	Male	36

Tests of Between-Subjects Effects

Dependent Variable: Ventral hippocampus Ptprd expression (delta CT)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.107 ^a	11	.101	2.108	.034
Intercept	110.227	1	110.227	2309.600	<.001
Strain	.917	5	.183	3.842	.004
Sex	.005	1	.005	.106	.746
Strain * Sex	.195	5	.039	.817	.542
Error	2.816	59	.048		
Total	115.341	71			
Corrected Total	3.923	70			

a. R Squared = .282 (Adjusted R Squared = .148)