Analyses for: Dimensions of adversity through which poverty impacts neural processing of threat-related information in youth

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# Age 3 income (log transformed) and early adolescent mental health

summary(lm(CDI\_TOT ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = CDI\_TOT ~ SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -7.492 -3.271 -1.512 2.021 18.473   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 14.6085 8.7898 1.662 0.098328 .   
## SEX -1.6376 0.7695 -2.128 0.034733 \*   
## S3AGE -0.6336 0.7504 -0.844 0.399612   
## logITN\_age3 -1.8200 0.4985 -3.651 0.000346 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 5.082 on 173 degrees of freedom  
## Multiple R-squared: 0.0983, Adjusted R-squared: 0.08266   
## F-statistic: 6.286 on 3 and 173 DF, p-value: 0.0004501

summary(lm(SCARED\_TOT ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = SCARED\_TOT ~ SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -15.627 -7.753 -2.311 5.681 38.523   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) 27.0697 18.2050 1.487 0.139  
## SEX -0.9979 1.5937 -0.626 0.532  
## S3AGE -0.7252 1.5542 -0.467 0.641  
## logITN\_age3 -0.8261 1.0324 -0.800 0.425  
##   
## Residual standard error: 10.53 on 173 degrees of freedom  
## Multiple R-squared: 0.00704, Adjusted R-squared: -0.01018   
## F-statistic: 0.4089 on 3 and 173 DF, p-value: 0.7468

summary(zeroinfl(PTSD\_SEV\_COMBINED ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## zeroinfl(formula = PTSD\_SEV\_COMBINED ~ SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Pearson residuals:  
## Min 1Q Median 3Q Max   
## -1.7010 -0.6934 -0.5463 0.1741 7.3232   
##   
## Count model coefficients (poisson with log link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 3.23324 0.87423 3.698 0.000217 \*\*\*  
## SEX -0.07498 0.07316 -1.025 0.305398   
## S3AGE -0.04991 0.07533 -0.663 0.507573   
## logITN\_age3 -0.24233 0.03797 -6.383 1.74e-10 \*\*\*  
##   
## Zero-inflation model coefficients (binomial with logit link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -0.65241 3.77890 -0.173 0.862930   
## SEX 0.32012 0.32863 0.974 0.330012   
## S3AGE 0.03312 0.32294 0.103 0.918305   
## logITN\_age3 0.78242 0.22188 3.526 0.000421 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1   
##   
## Number of iterations in BFGS optimization: 1   
## Log-likelihood: -467.5 on 8 Df

# Age 3 income (log transformed) and adolescent adversity

summary(lm(FINAL\_THREAT ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = FINAL\_THREAT ~ SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.3536 -0.3858 -0.1839 0.2585 4.8698   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.50763 1.17309 1.285 0.200   
## SEX -0.17848 0.10269 -1.738 0.084 .   
## S3AGE -0.09316 0.10015 -0.930 0.354   
## logITN\_age3 -0.33056 0.06653 -4.969 1.61e-06 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.6783 on 173 degrees of freedom  
## Multiple R-squared: 0.1431, Adjusted R-squared: 0.1283   
## F-statistic: 9.632 on 3 and 173 DF, p-value: 6.491e-06

summary(lm(FINAL\_DEPRIVATION ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = FINAL\_DEPRIVATION ~ SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.2456 -0.4776 -0.1169 0.3849 2.1982   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.06728 1.08808 0.981 0.328   
## SEX -0.15319 0.09525 -1.608 0.110   
## S3AGE -0.06020 0.09289 -0.648 0.518   
## logITN\_age3 -0.35202 0.06171 -5.705 4.95e-08 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.6291 on 173 degrees of freedom  
## Multiple R-squared: 0.1727, Adjusted R-squared: 0.1583   
## F-statistic: 12.03 on 3 and 173 DF, p-value: 3.41e-07

# Deprivation and Threat and early adolescent mental health

summary(lm(CDI\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3,   
 data = dtf))

##   
## Call:  
## lm(formula = CDI\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX +   
## S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -10.2042 -2.5160 -0.9221 1.8513 15.7317   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 9.1001 7.9579 1.144 0.254415   
## FINAL\_THREAT 1.8600 0.5300 3.509 0.000575 \*\*\*  
## FINAL\_DEPRIVATION 2.5337 0.5715 4.434 1.65e-05 \*\*\*  
## SEX -0.9175 0.7013 -1.308 0.192549   
## S3AGE -0.3079 0.6773 -0.455 0.650034   
## logITN\_age3 -0.3132 0.5044 -0.621 0.535451   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 4.573 on 171 degrees of freedom  
## Multiple R-squared: 0.2782, Adjusted R-squared: 0.2571   
## F-statistic: 13.18 on 5 and 171 DF, p-value: 7.276e-11

summary(lm(SCARED\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3,   
 data = dtf))

##   
## Call:  
## lm(formula = SCARED\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -18.565 -6.929 -1.984 5.626 38.691   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 21.6975 18.0350 1.203 0.2306   
## FINAL\_THREAT 2.2043 1.2012 1.835 0.0682 .  
## FINAL\_DEPRIVATION 1.9198 1.2951 1.482 0.1401   
## SEX -0.3104 1.5894 -0.195 0.8454   
## S3AGE -0.4043 1.5350 -0.263 0.7926   
## logITN\_age3 0.5783 1.1432 0.506 0.6136   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 10.36 on 171 degrees of freedom  
## Multiple R-squared: 0.04837, Adjusted R-squared: 0.02055   
## F-statistic: 1.738 on 5 and 171 DF, p-value: 0.1283

summary(zeroinfl(PTSD\_SEV\_COMBINED ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE +   
 logITN\_age3, data = dtf))

##   
## Call:  
## zeroinfl(formula = PTSD\_SEV\_COMBINED ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Pearson residuals:  
## Min 1Q Median 3Q Max   
## -1.9824 -0.6316 -0.4905 0.1524 6.4164   
##   
## Count model coefficients (poisson with log link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 1.44058 0.91250 1.579 0.11440   
## FINAL\_THREAT 0.30617 0.03369 9.087 < 2e-16 \*\*\*  
## FINAL\_DEPRIVATION -0.09514 0.05987 -1.589 0.11204   
## SEX -0.16706 0.07650 -2.184 0.02898 \*   
## S3AGE 0.08961 0.07758 1.155 0.24807   
## logITN\_age3 -0.13522 0.04202 -3.218 0.00129 \*\*   
##   
## Zero-inflation model coefficients (binomial with logit link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 0.80674 3.95852 0.204 0.83851   
## FINAL\_THREAT -1.09576 0.33597 -3.261 0.00111 \*\*  
## FINAL\_DEPRIVATION -0.12680 0.27922 -0.454 0.64974   
## SEX 0.07413 0.35362 0.210 0.83396   
## S3AGE -0.05417 0.33771 -0.160 0.87256   
## logITN\_age3 0.45561 0.25501 1.787 0.07400 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1   
##   
## Number of iterations in BFGS optimization: 8   
## Log-likelihood: -422.8 on 12 Df

# multicollinearity check

imcdiag(lm(CDI\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3,   
 data = dtf))

##   
## Call:  
## imcdiag(mod = lm(CDI\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein IND1  
## FINAL\_THREAT 1.2476 0.8015 10.6477 14.2795 0.8953 1.6915 0 0.0186  
## FINAL\_DEPRIVATION 1.2922 0.7739 12.5626 16.8475 0.8797 1.7519 0 0.0180  
## SEX 1.0366 0.9647 1.5720 2.1082 0.9822 1.4054 0 0.0224  
## S3AGE 1.0154 0.9848 0.6619 0.8876 0.9924 1.3767 0 0.0229  
## logITN\_age3 1.2684 0.7884 11.5396 15.4756 0.8879 1.7197 0 0.0183  
## IND2  
## FINAL\_THREAT 1.4454  
## FINAL\_DEPRIVATION 1.6465  
## SEX 0.2568  
## S3AGE 0.1104  
## logITN\_age3 1.5408  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## SEX , S3AGE , logITN\_age3 , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.2782   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

imcdiag(lm(SCARED\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3,   
 data = dtf))

##   
## Call:  
## imcdiag(mod = lm(SCARED\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein IND1  
## FINAL\_THREAT 1.2476 0.8015 10.6477 14.2795 0.8953 1.2768 1 0.0186  
## FINAL\_DEPRIVATION 1.2922 0.7739 12.5626 16.8475 0.8797 1.3224 1 0.0180  
## SEX 1.0366 0.9647 1.5720 2.1082 0.9822 1.0608 0 0.0224  
## S3AGE 1.0154 0.9848 0.6619 0.8876 0.9924 1.0391 0 0.0229  
## logITN\_age3 1.2684 0.7884 11.5396 15.4756 0.8879 1.2980 1 0.0183  
## IND2  
## FINAL\_THREAT 1.4454  
## FINAL\_DEPRIVATION 1.6465  
## SEX 0.2568  
## S3AGE 0.1104  
## logITN\_age3 1.5408  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## FINAL\_THREAT , FINAL\_DEPRIVATION , SEX , S3AGE , logITN\_age3 , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.0484   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

imcdiag(zeroinfl(PTSD\_SEV\_COMBINED ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE +   
 logITN\_age3, data = dtf))

##   
## Call:  
## imcdiag(mod = zeroinfl(PTSD\_SEV\_COMBINED ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein IND1  
## FINAL\_THREAT 1.2476 0.8015 10.6477 14.2795 0.8953 1.5278 0 0.0186  
## FINAL\_DEPRIVATION 1.2922 0.7739 12.5626 16.8475 0.8797 1.5823 0 0.0180  
## SEX 1.0366 0.9647 1.5720 2.1082 0.9822 1.2693 0 0.0224  
## S3AGE 1.0154 0.9848 0.6619 0.8876 0.9924 1.2434 0 0.0229  
## logITN\_age3 1.2684 0.7884 11.5396 15.4756 0.8879 1.5532 0 0.0183  
## IND2  
## FINAL\_THREAT 1.4454  
## FINAL\_DEPRIVATION 1.6465  
## SEX 0.2568  
## S3AGE 0.1104  
## logITN\_age3 1.5408  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## FINAL\_DEPRIVATION , SEX , S3AGE , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.2933   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

# Mediation of the association between age 3 family income (log transformed) and Depression by Deprivation and Threat

DepMed <- function(x, id) {  
 data <- x[id, ]  
 OutcomeModel <- coef(lm(CDI\_TOT ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE +   
 logITN\_age3, data = data))  
 OutcomeModelAlone <- coef(lm(CDI\_TOT ~ logITN\_age3, data = data))  
 MedModel1 <- coef(lm(FINAL\_THREAT ~ logITN\_age3, data = data))  
 MedModel2 <- coef(lm(FINAL\_DEPRIVATION ~ logITN\_age3, data = data))  
 type1 <- unname(OutcomeModel["FINAL\_THREAT"] \* MedModel1["logITN\_age3"])  
 type2 <- unname(OutcomeModel["FINAL\_DEPRIVATION"] \* MedModel2["logITN\_age3"])  
 return(c(type1 = type1, type2 = type2))  
}  
set.seed(123)  
boot.DepMed <- boot(dtf, statistic = DepMed, R = 10000)  
boot.DepMed

##   
## ORDINARY NONPARAMETRIC BOOTSTRAP  
##   
##   
## Call:  
## boot(data = dtf, statistic = DepMed, R = 10000)  
##   
##   
## Bootstrap Statistics :  
## original bias std. error  
## t1\* -0.6211457 0.0345893528 0.2470558  
## t2\* -0.9003441 0.0007206023 0.2865687

boot.ci(boot.DepMed, type = "bca", index = 1)

## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS  
## Based on 10000 bootstrap replicates  
##   
## CALL :   
## boot.ci(boot.out = boot.DepMed, type = "bca", index = 1)  
##   
## Intervals :   
## Level BCa   
## 95% (-1.1486, -0.1734 )   
## Calculations and Intervals on Original Scale

boot.ci(boot.DepMed, type = "bca", index = 2)

## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS  
## Based on 10000 bootstrap replicates  
##   
## CALL :   
## boot.ci(boot.out = boot.DepMed, type = "bca", index = 2)  
##   
## Intervals :   
## Level BCa   
## 95% (-1.6444, -0.4640 )   
## Calculations and Intervals on Original Scale

# Mediation of the association between age 3 family income (log transformed) and PTSD (zero and count) by Threat

PTMed <- function(x, id) {  
 data <- x[id, ]  
 OutcomeModel <- coef(zeroinfl(PTSD\_SEV\_COMBINED ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = data))  
 OutcomeModelAlone <- coef(zeroinfl(PTSD\_SEV\_COMBINED ~ logITN\_age3, data = data))  
 MedModel <- coef(lm(FINAL\_THREAT ~ logITN\_age3, data = data))  
 type1 <- unname(OutcomeModel["count\_FINAL\_THREAT"] \* MedModel["logITN\_age3"])  
 type2 <- unname(OutcomeModel["zero\_FINAL\_THREAT"] \* MedModel["logITN\_age3"])  
 return(c(type1 = type1, type2 = type2))  
}  
set.seed(123)  
boot.PTMed <- boot(dtf, statistic = PTMed, R = 10000)  
boot.PTMed

##   
## ORDINARY NONPARAMETRIC BOOTSTRAP  
##   
##   
## Call:  
## boot(data = dtf, statistic = PTMed, R = 10000)  
##   
##   
## Bootstrap Statistics :  
## original bias std. error  
## t1\* -0.1022465 0.01328400 0.04146982  
## t2\* 0.3659302 0.02398128 0.14877815

boot.ci(boot.PTMed, type = "bca", index = 1)

## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS  
## Based on 10000 bootstrap replicates  
##   
## CALL :   
## boot.ci(boot.out = boot.PTMed, type = "bca", index = 1)  
##   
## Intervals :   
## Level BCa   
## 95% (-0.1898, -0.0338 )   
## Calculations and Intervals on Original Scale

boot.ci(boot.PTMed, type = "bca", index = 2)

## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS  
## Based on 10000 bootstrap replicates  
##   
## CALL :   
## boot.ci(boot.out = boot.PTMed, type = "bca", index = 2)  
##   
## Intervals :   
## Level BCa   
## 95% ( 0.1360, 0.7003 )   
## Calculations and Intervals on Original Scale

# Association between income, Deprivation, threat, and Amygdala ROIs (Fear vs. Calm)

summary(lm(lamyg.Fear\_GT\_Calm ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = lamyg.Fear\_GT\_Calm ~ SEX + S3AGE + logITN\_age3,   
## data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.92847 -0.68373 0.08027 0.63309 2.43670   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 2.6153 1.6099 1.624 0.1061   
## SEX -0.1168 0.1409 -0.829 0.4082   
## S3AGE -0.1929 0.1374 -1.404 0.1622   
## logITN\_age3 -0.1693 0.0913 -1.854 0.0655 .  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.9308 on 173 degrees of freedom  
## Multiple R-squared: 0.03292, Adjusted R-squared: 0.01615   
## F-statistic: 1.963 on 3 and 173 DF, p-value: 0.1213

summary(lm(lamyg.Fear\_GT\_Calm ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE +   
 logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = lamyg.Fear\_GT\_Calm ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.91371 -0.64700 0.04311 0.63524 2.42242   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 2.82653 1.61745 1.748 0.0823 .  
## FINAL\_THREAT -0.16952 0.10773 -1.574 0.1175   
## FINAL\_DEPRIVATION 0.04151 0.11615 0.357 0.7212   
## SEX -0.14074 0.14254 -0.987 0.3249   
## S3AGE -0.20622 0.13767 -1.498 0.1360   
## logITN\_age3 -0.21068 0.10253 -2.055 0.0414 \*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.9295 on 171 degrees of freedom  
## Multiple R-squared: 0.04674, Adjusted R-squared: 0.01886   
## F-statistic: 1.677 on 5 and 171 DF, p-value: 0.1427

summary(lm(ramyg.Fear\_GT\_Calm ~ SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = ramyg.Fear\_GT\_Calm ~ SEX + S3AGE + logITN\_age3,   
## data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.53990 -0.48181 0.06547 0.49473 2.41886   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) 1.05740 1.53669 0.688 0.492  
## SEX -0.08116 0.13452 -0.603 0.547  
## S3AGE -0.07016 0.13119 -0.535 0.594  
## logITN\_age3 -0.10404 0.08715 -1.194 0.234  
##   
## Residual standard error: 0.8885 on 173 degrees of freedom  
## Multiple R-squared: 0.01172, Adjusted R-squared: -0.005414   
## F-statistic: 0.6841 on 3 and 173 DF, p-value: 0.5629

summary(lm(ramyg.Fear\_GT\_Calm ~ FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE +   
 logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = ramyg.Fear\_GT\_Calm ~ FINAL\_THREAT + FINAL\_DEPRIVATION +   
## SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.58691 -0.45139 0.05778 0.48368 2.60904   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.34314 1.53682 0.874 0.3834   
## FINAL\_THREAT -0.05181 0.10236 -0.506 0.6134   
## FINAL\_DEPRIVATION -0.19454 0.11036 -1.763 0.0797 .  
## SEX -0.12021 0.13544 -0.888 0.3760   
## S3AGE -0.08669 0.13080 -0.663 0.5084   
## logITN\_age3 -0.18965 0.09742 -1.947 0.0532 .  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.8832 on 171 degrees of freedom  
## Multiple R-squared: 0.03476, Adjusted R-squared: 0.006534   
## F-statistic: 1.232 on 5 and 171 DF, p-value: 0.2964

# ROIs from whole brain analysis and Depression

summary(lm(CDI\_TOT ~ mPFC.p0003.Fear\_GT\_Calm + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = CDI\_TOT ~ mPFC.p0003.Fear\_GT\_Calm + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -10.6452 -2.7563 -0.9423 1.7061 16.6980   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 8.7819 7.9246 1.108 0.26935   
## mPFC.p0003.Fear\_GT\_Calm 0.4290 0.2686 1.597 0.11212   
## FINAL\_THREAT 1.6114 0.5501 2.929 0.00387 \*\*   
## FINAL\_DEPRIVATION 2.6010 0.5704 4.560 9.76e-06 \*\*\*  
## SEX -0.8337 0.7001 -1.191 0.23543   
## S3AGE -0.2850 0.6744 -0.423 0.67308   
## logITN\_age3 -0.3827 0.5040 -0.759 0.44879   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 4.553 on 170 degrees of freedom  
## Multiple R-squared: 0.2889, Adjusted R-squared: 0.2638   
## F-statistic: 11.51 on 6 and 170 DF, p-value: 8.562e-11

summary(lm(CDI\_TOT ~ lamyg.p0003.Fear\_GT\_Calm + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## lm(formula = CDI\_TOT ~ lamyg.p0003.Fear\_GT\_Calm + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -10.282 -2.606 -0.965 1.637 15.598   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 9.3895 7.9903 1.175 0.241593   
## lamyg.p0003.Fear\_GT\_Calm -0.2228 0.3948 -0.564 0.573332   
## FINAL\_THREAT 1.8361 0.5328 3.446 0.000716 \*\*\*  
## FINAL\_DEPRIVATION 2.5127 0.5738 4.379 2.08e-05 \*\*\*  
## SEX -0.9363 0.7035 -1.331 0.185011   
## S3AGE -0.3200 0.6790 -0.471 0.638085   
## logITN\_age3 -0.4048 0.5309 -0.763 0.446768   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 4.583 on 170 degrees of freedom  
## Multiple R-squared: 0.2796, Adjusted R-squared: 0.2542   
## F-statistic: 11 on 6 and 170 DF, p-value: 2.432e-10

# multicollinearity check

imcdiag(lm(CDI\_TOT ~ Fear\_GT\_Calm.pcc + FINAL\_THREAT + FINAL\_DEPRIVATION + SEX +   
 S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## imcdiag(mod = lm(CDI\_TOT ~ Fear\_GT\_Calm.pcc + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein IND1  
## Fear\_GT\_Calm.pcc 1.1049 0.9051 3.5864 4.5092 0.9514 1.5138 0 0.0265  
## FINAL\_THREAT 1.3337 0.7498 11.4131 14.3498 0.8659 1.8274 0 0.0219  
## FINAL\_DEPRIVATION 1.2931 0.7733 10.0254 12.6050 0.8794 1.7718 0 0.0226  
## SEX 1.0367 0.9646 1.2567 1.5800 0.9821 1.4205 0 0.0282  
## S3AGE 1.0169 0.9834 0.5768 0.7252 0.9917 1.3932 0 0.0288  
## logITN\_age3 1.2701 0.7873 9.2384 11.6155 0.8873 1.7402 0 0.0230  
## IND2  
## Fear\_GT\_Calm.pcc 0.6808  
## FINAL\_THREAT 1.7947  
## FINAL\_DEPRIVATION 1.6259  
## SEX 0.2542  
## S3AGE 0.1190  
## logITN\_age3 1.5254  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## Fear\_GT\_Calm.pcc , SEX , S3AGE , logITN\_age3 , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.2808   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

imcdiag(lm(CDI\_TOT ~ Fear\_GT\_Calm.mpfc + FINAL\_THREAT + FINAL\_DEPRIVATION + SEX +   
 S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## imcdiag(mod = lm(CDI\_TOT ~ Fear\_GT\_Calm.mpfc + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein IND1  
## Fear\_GT\_Calm.mpfc 1.1134 0.8981 3.8787 4.8768 0.9477 1.5933 0 0.0263  
## FINAL\_THREAT 1.3558 0.7375 12.1699 15.3013 0.8588 1.9402 0 0.0216  
## FINAL\_DEPRIVATION 1.3021 0.7680 10.3324 12.9910 0.8763 1.8634 0 0.0225  
## SEX 1.0495 0.9529 1.6918 2.1271 0.9761 1.5018 0 0.0279  
## S3AGE 1.0166 0.9837 0.5661 0.7118 0.9918 1.4547 0 0.0288  
## logITN\_age3 1.2685 0.7883 9.1824 11.5451 0.8879 1.8152 0 0.0231  
## IND2  
## Fear\_GT\_Calm.mpfc 0.7013  
## FINAL\_THREAT 1.8071  
## FINAL\_DEPRIVATION 1.5975  
## SEX 0.3245  
## S3AGE 0.1121  
## logITN\_age3 1.4574  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## Fear\_GT\_Calm.mpfc , SEX , S3AGE , logITN\_age3 , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.286   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

# ROIs from whole brain analysis and PTSD

summary(zeroinfl(PTSD\_SEV\_COMBINED ~ mPFC.p0003.Fear\_GT\_Calm + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## zeroinfl(formula = PTSD\_SEV\_COMBINED ~ mPFC.p0003.Fear\_GT\_Calm + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Pearson residuals:  
## Min 1Q Median 3Q Max   
## -1.9342 -0.6496 -0.4764 0.1084 6.7004   
##   
## Count model coefficients (poisson with log link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 1.48836 0.91651 1.624 0.1044   
## mPFC.p0003.Fear\_GT\_Calm 0.02072 0.02887 0.718 0.4729   
## FINAL\_THREAT 0.29585 0.03662 8.080 6.48e-16 \*\*\*  
## FINAL\_DEPRIVATION -0.09208 0.06001 -1.534 0.1249   
## SEX -0.15000 0.08002 -1.874 0.0609 .   
## S3AGE 0.08472 0.07802 1.086 0.2775   
## logITN\_age3 -0.14216 0.04322 -3.290 0.0010 \*\*   
##   
## Zero-inflation model coefficients (binomial with logit link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 0.87909 3.97094 0.221 0.82480   
## mPFC.p0003.Fear\_GT\_Calm -0.09734 0.13197 -0.738 0.46077   
## FINAL\_THREAT -1.02945 0.34621 -2.973 0.00294 \*\*  
## FINAL\_DEPRIVATION -0.14403 0.28057 -0.513 0.60771   
## SEX 0.05509 0.35526 0.155 0.87677   
## S3AGE -0.05886 0.33869 -0.174 0.86202   
## logITN\_age3 0.46868 0.25572 1.833 0.06684 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1   
##   
## Number of iterations in BFGS optimization: 5   
## Log-likelihood: -422.3 on 14 Df

summary(zeroinfl(PTSD\_SEV\_COMBINED ~ lamyg.p0003.Fear\_GT\_Calm + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## zeroinfl(formula = PTSD\_SEV\_COMBINED ~ lamyg.p0003.Fear\_GT\_Calm + FINAL\_THREAT +   
## FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3, data = dtf)  
##   
## Pearson residuals:  
## Min 1Q Median 3Q Max   
## -1.9784 -0.6325 -0.4889 0.1507 6.4509   
##   
## Count model coefficients (poisson with log link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 1.46492 0.91640 1.599 0.10992   
## lamyg.p0003.Fear\_GT\_Calm -0.01337 0.04637 -0.288 0.77302   
## FINAL\_THREAT 0.30413 0.03440 8.842 < 2e-16 \*\*\*  
## FINAL\_DEPRIVATION -0.09944 0.06162 -1.614 0.10659   
## SEX -0.17308 0.07933 -2.182 0.02912 \*   
## S3AGE 0.08857 0.07767 1.140 0.25415   
## logITN\_age3 -0.14143 0.04724 -2.994 0.00275 \*\*   
##   
## Zero-inflation model coefficients (binomial with logit link):  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) 0.82195 3.96522 0.207 0.83578   
## lamyg.p0003.Fear\_GT\_Calm -0.01454 0.19474 -0.075 0.94047   
## FINAL\_THREAT -1.09581 0.33591 -3.262 0.00111 \*\*  
## FINAL\_DEPRIVATION -0.12845 0.28002 -0.459 0.64644   
## SEX 0.07314 0.35370 0.207 0.83618   
## S3AGE -0.05467 0.33790 -0.162 0.87148   
## logITN\_age3 0.44976 0.26609 1.690 0.09097 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1   
##   
## Number of iterations in BFGS optimization: 7   
## Log-likelihood: -422.8 on 14 Df

# multicollinearity check

imcdiag(zeroinfl(PTSD\_SEV\_COMBINED ~ SEX + S3AGE + logITN\_age3 + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 mPFC.p0003.Fear\_GT\_Calm, data = dtf))

##   
## Call:  
## imcdiag(mod = zeroinfl(PTSD\_SEV\_COMBINED ~ SEX + S3AGE + logITN\_age3 +   
## FINAL\_THREAT + FINAL\_DEPRIVATION + mPFC.p0003.Fear\_GT\_Calm,   
## data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein  
## SEX 1.0424 0.9593 1.4508 1.8240 0.9794 1.3305 0  
## S3AGE 1.0158 0.9844 0.5420 0.6814 0.9922 1.2966 0  
## logITN\_age3 1.2779 0.7826 9.5031 11.9483 0.8846 1.6310 0  
## FINAL\_THREAT 1.3562 0.7374 12.1812 15.3156 0.8587 1.7310 0  
## FINAL\_DEPRIVATION 1.2993 0.7697 10.2344 12.8679 0.8773 1.6583 0  
## mPFC.p0003.Fear\_GT\_Calm 1.0995 0.9095 3.4023 4.2777 0.9537 1.4033 0  
## IND1 IND2  
## SEX 0.0280 0.2848  
## S3AGE 0.0288 0.1092  
## logITN\_age3 0.0229 1.5221  
## FINAL\_THREAT 0.0216 1.8383  
## FINAL\_DEPRIVATION 0.0225 1.6122  
## mPFC.p0003.Fear\_GT\_Calm 0.0266 0.6333  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## SEX , S3AGE , FINAL\_DEPRIVATION , mPFC.p0003.Fear\_GT\_Calm , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.2946   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================

imcdiag(zeroinfl(PTSD\_SEV\_COMBINED ~ lamyg.p0003.Fear\_GT\_Calm + FINAL\_THREAT + FINAL\_DEPRIVATION +   
 SEX + S3AGE + logITN\_age3, data = dtf))

##   
## Call:  
## imcdiag(mod = zeroinfl(PTSD\_SEV\_COMBINED ~ lamyg.p0003.Fear\_GT\_Calm +   
## FINAL\_THREAT + FINAL\_DEPRIVATION + SEX + S3AGE + logITN\_age3,   
## data = dtf))  
##   
##   
## All Individual Multicollinearity Diagnostics Result  
##   
## VIF TOL Wi Fi Leamer CVIF Klein  
## lamyg.p0003.Fear\_GT\_Calm 1.1066 0.9037 3.6441 4.5818 0.9506 1.3613 0  
## FINAL\_THREAT 1.2555 0.7965 8.7387 10.9873 0.8925 1.5445 0  
## FINAL\_DEPRIVATION 1.2976 0.7706 10.1787 12.7978 0.8779 1.5963 0  
## SEX 1.0389 0.9626 1.3300 1.6722 0.9811 1.2780 0  
## S3AGE 1.0164 0.9839 0.5612 0.7056 0.9919 1.2504 0  
## logITN\_age3 1.3992 0.7147 13.6530 17.1661 0.8454 1.7213 0  
## IND1 IND2  
## lamyg.p0003.Fear\_GT\_Calm 0.0264 0.6656  
## FINAL\_THREAT 0.0233 1.4067  
## FINAL\_DEPRIVATION 0.0225 1.5853  
## SEX 0.0281 0.2587  
## S3AGE 0.0288 0.1116  
## logITN\_age3 0.0209 1.9721  
##   
## 1 --> COLLINEARITY is detected by the test   
## 0 --> COLLINEARITY is not detected by the test  
##   
## lamyg.p0003.Fear\_GT\_Calm , FINAL\_DEPRIVATION , SEX , S3AGE , coefficient(s) are non-significant may be due to multicollinearity  
##   
## R-square of y on all x: 0.2933   
##   
## \* use method argument to check which regressors may be the reason of collinearity  
## ===================================