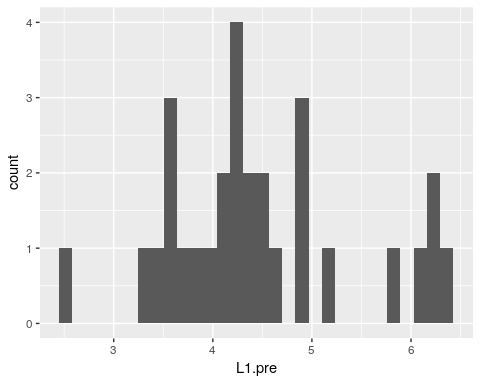
Analysis, code materials

# Test for normality

**#Test of normality (stiffness pre)**

ggplot(stif\_c,aes(L1.pre)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

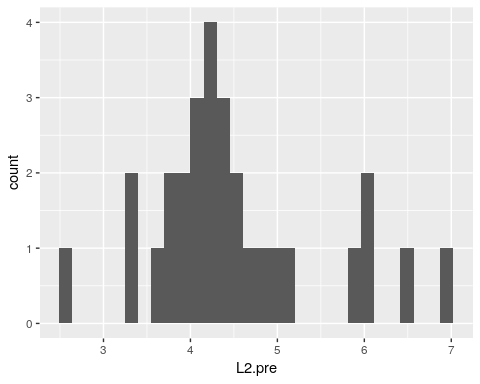


shapiro.test(stif\_c$L1.pre)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L1.pre  
## W = 0.9362, p-value = 0.07976

ggplot(stif\_c,aes(L2.pre)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

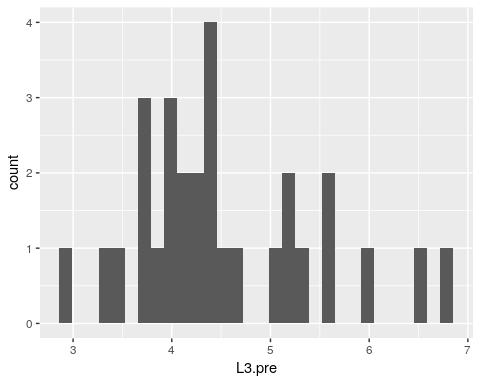


shapiro.test(stif\_c$L2.pre)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L2.pre  
## W = 0.93253, p-value = 0.06399

ggplot(stif\_c,aes(L3.pre)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

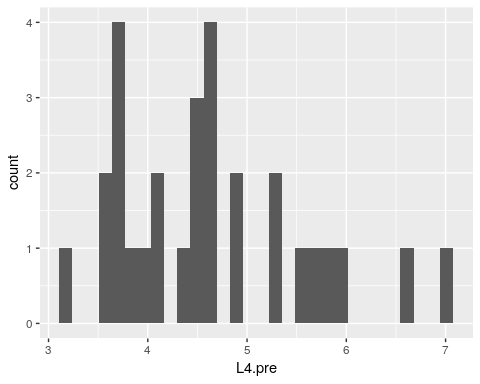


shapiro.test(stif\_c$L3.pre)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L3.pre  
## W = 0.94634, p-value = 0.147

ggplot(stif\_c,aes(L4.pre)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

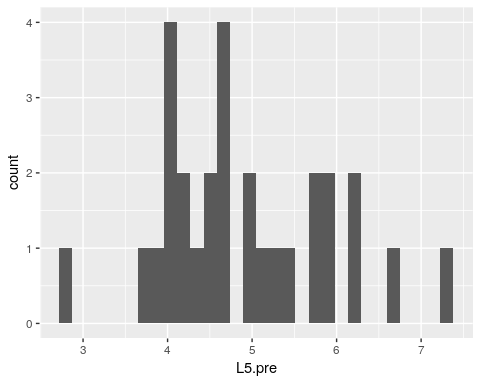


shapiro.test(stif\_c$L4.pre)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L4.pre  
## W = 0.94049, p-value = 0.1033

ggplot(stif\_c,aes(L5.pre)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



shapiro.test(stif\_c$L5.pre)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L5.pre  
## W = 0.96953, p-value = 0.547

**#Test of normality (stiffness post)**

ggplot(stif\_c,aes(L1.post)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

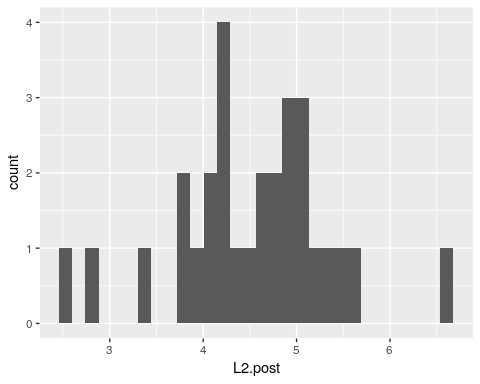


shapiro.test(stif\_c$L1.post)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L1.post  
## W = 0.97526, p-value = 0.708

ggplot(stif\_c,aes(L2.post)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

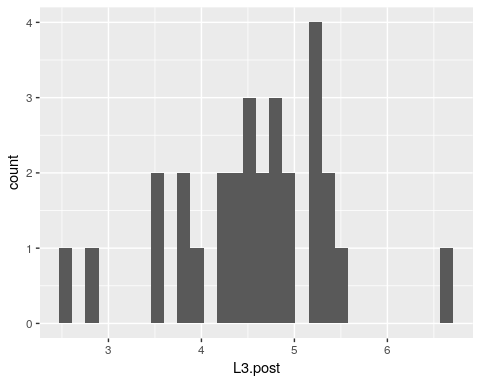


shapiro.test(stif\_c$L2.post)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L2.post  
## W = 0.96982, p-value = 0.5548

ggplot(stif\_c,aes(L3.post)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

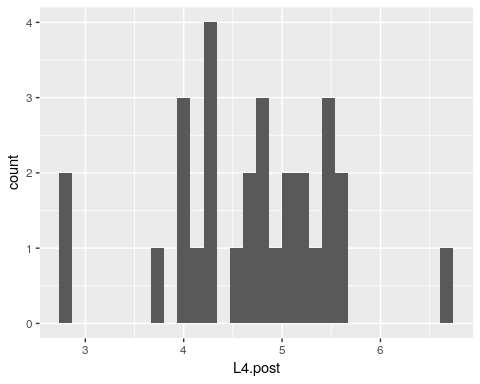


shapiro.test(stif\_c$L3.post)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L3.post  
## W = 0.96772, p-value = 0.4997

ggplot(stif\_c,aes(L4.post)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



shapiro.test(stif\_c$L4.post)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L4.post  
## W = 0.96665, p-value = 0.4729

ggplot(stif\_c,aes(L5.post)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



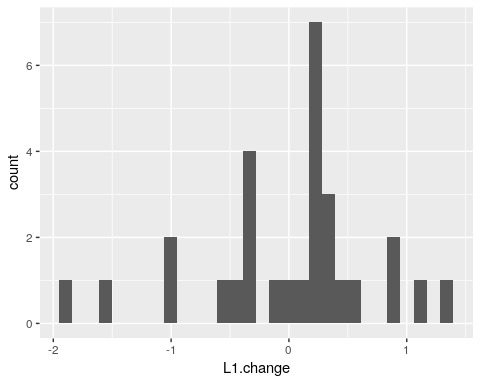
shapiro.test(stif\_c$L5.post)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L5.post  
## W = 0.97413, p-value = 0.6757

**#Test of normality (stiffness change score)**

ggplot(stif\_c,aes(L1.change)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

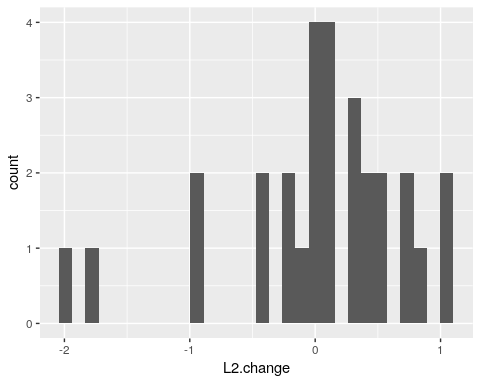


shapiro.test(stif\_c$L1.change)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L1.change  
## W = 0.94038, p-value = 0.1026

ggplot(stif\_c,aes(L2.change)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

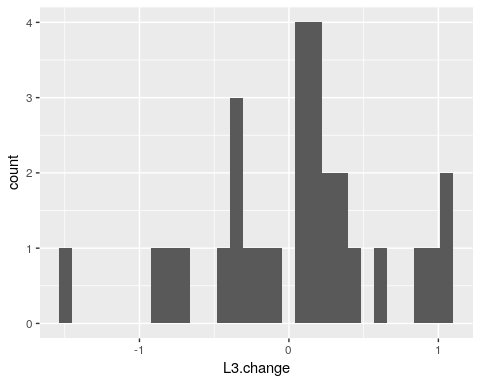


shapiro.test(stif\_c$L2.change)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L2.change  
## W = 0.89606, p-value = 0.007893

ggplot(stif\_c,aes(L3.change)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



shapiro.test(stif\_c$L3.change)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L3.change  
## W = 0.95819, p-value = 0.2964

ggplot(stif\_c,aes(L4.change)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.

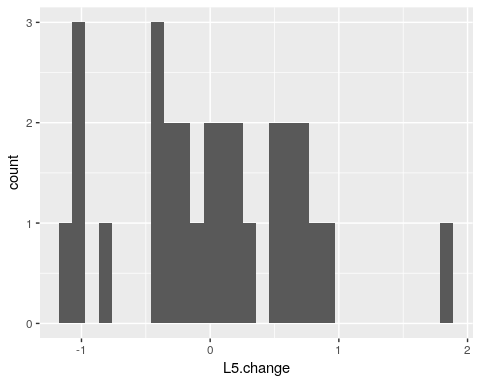


shapiro.test(stif\_c$L4.change)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L4.change  
## W = 0.98412, p-value = 0.9283

ggplot(stif\_c,aes(L5.change)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



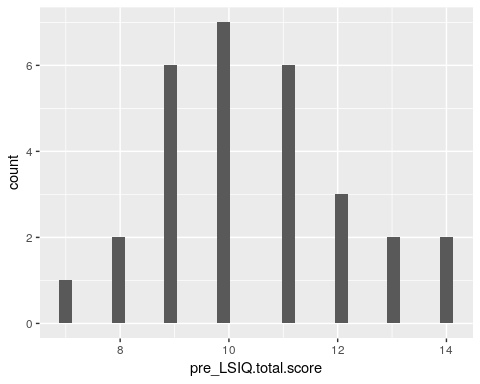
shapiro.test(stif\_c$L5.change)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$L5.change  
## W = 0.96569, p-value = 0.4495

**#Test of normality (LSIQ pre)**

ggplot(stif\_c,aes(pre\_LSIQ.total.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



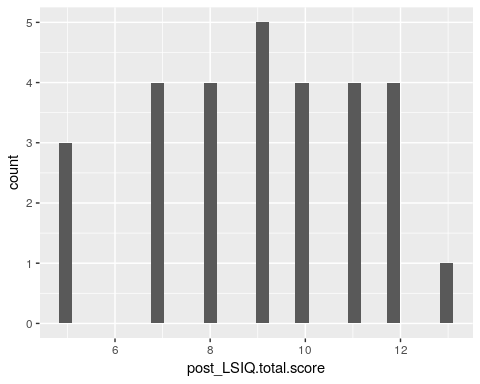
shapiro.test(stif\_c$pre\_LSIQ.total.score)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$pre\_LSIQ.total.score  
## W = 0.95769, p-value = 0.288

**#Test of normality (LSIQ post)**

ggplot(stif\_c,aes(post\_LSIQ.total.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



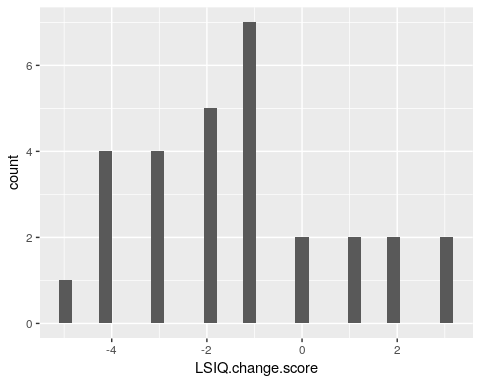
shapiro.test(stif\_c$post\_LSIQ.total.score)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$post\_LSIQ.total.score  
## W = 0.95219, p-value = 0.2085

**#Test of normality (LSIQ change score)**

ggplot(stif\_c,aes(LSIQ.change.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



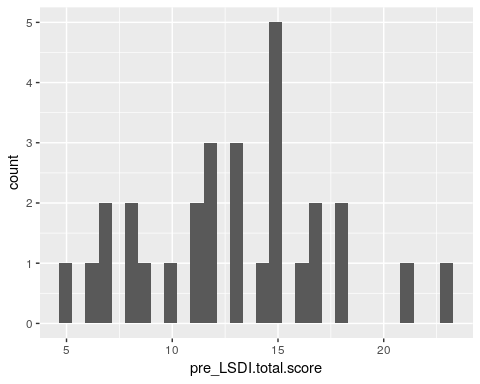
shapiro.test(stif\_c$LSIQ.change.score)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$LSIQ.change.score  
## W = 0.94868, p-value = 0.1691

**#Test of normality (LSDI pre)**

ggplot(stif\_c,aes(pre\_LSDI.total.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



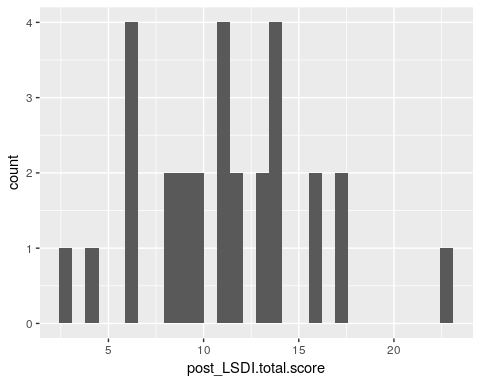
shapiro.test(stif\_c$pre\_LSDI.total.score)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$pre\_LSDI.total.score  
## W = 0.9797, p-value = 0.8306

**#Test of normality (LSDI post)**

ggplot(stif\_c,aes(post\_LSDI.total.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



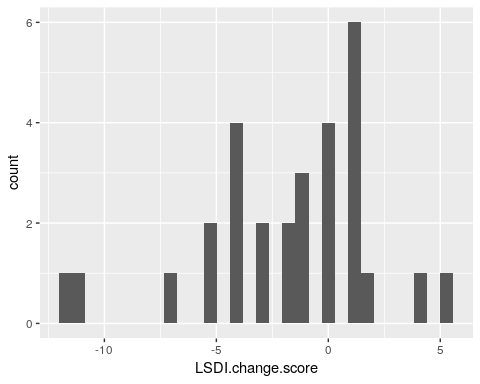
shapiro.test(stif\_c$post\_LSDI.total.score)

##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$post\_LSDI.total.score  
## W = 0.97438, p-value = 0.6829

**#Test of normality (LSDI change score)**

ggplot(stif\_c,aes(LSDI.change.score)) +  
 geom\_histogram()

## `stat\_bin()` using `bins = 30`. Pick better value with `binwidth`.



shapiro.test(stif\_c$LSDI.change.score)

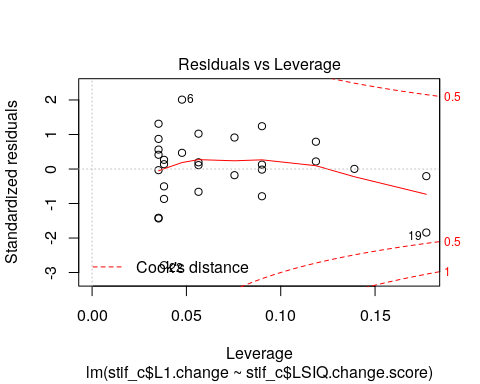
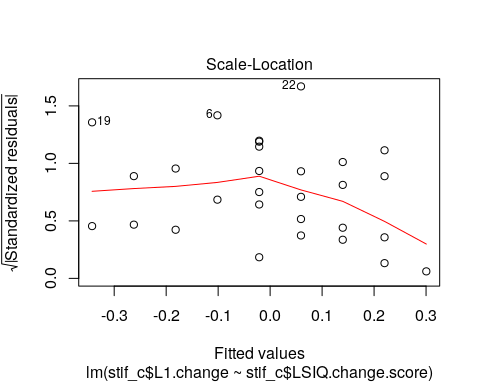
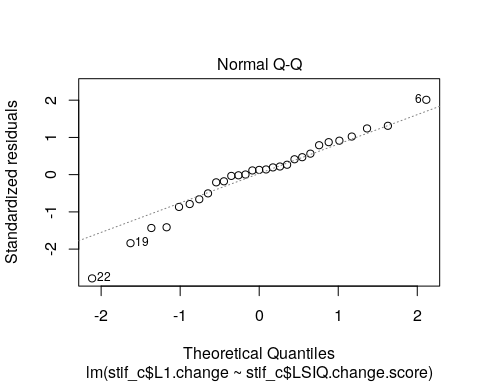
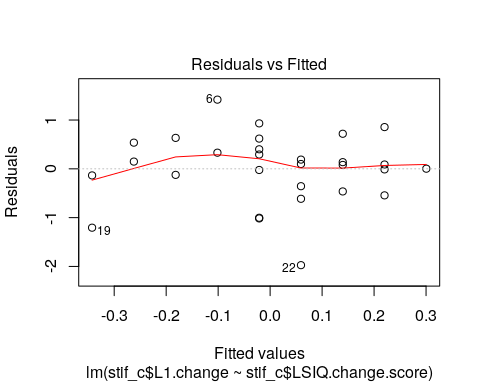
##   
## Shapiro-Wilk normality test  
##   
## data: stif\_c$LSDI.change.score  
## W = 0.92771, p-value = 0.048

# LSIQ – change

#L1  
stif.lm.L1.LSIQ<- lm(stif\_c$L1.change~stif\_c$LSIQ.change.score)  
summary(stif.lm.L1.LSIQ)

##   
## Call:  
## lm(formula = stif\_c$L1.change ~ stif\_c$LSIQ.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.97436 -0.35636 0.08788 0.40001 1.41739   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.10139 0.15774 -0.643 0.526  
## stif\_c$LSIQ.change.score -0.08038 0.06332 -1.269 0.215  
##   
## Residual standard error: 0.7225 on 27 degrees of freedom  
## Multiple R-squared: 0.05632, Adjusted R-squared: 0.02137   
## F-statistic: 1.612 on 1 and 27 DF, p-value: 0.2151

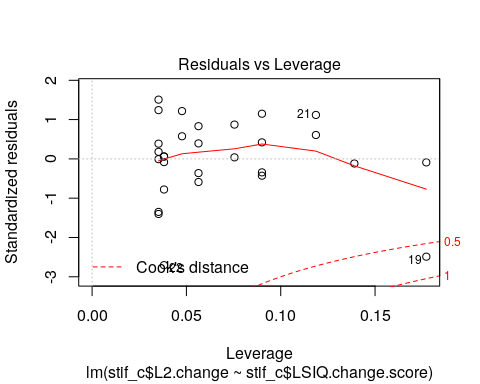
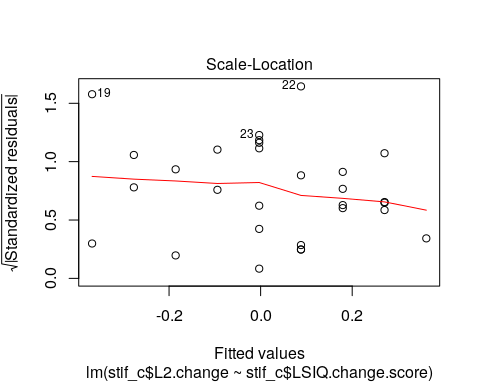
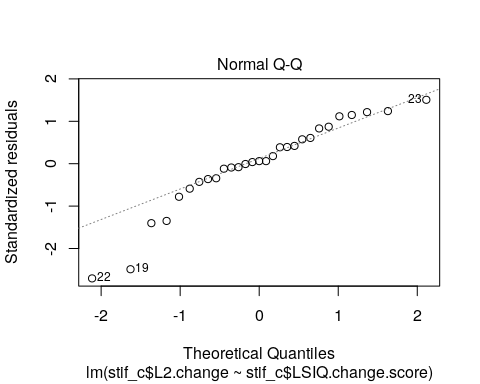
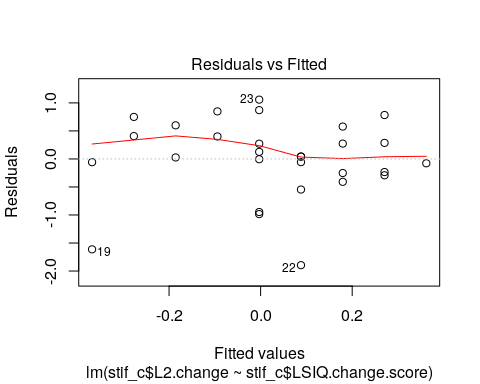
plot(stif.lm.L1.LSIQ)



#L2  
stif.lm.L2.LSIQ<- lm(stif\_c$L2.change~stif\_c$LSIQ.change.score)  
summary(stif.lm.L2.LSIQ)

##   
## Call:  
## lm(formula = stif\_c$L2.change ~ stif\_c$LSIQ.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.89514 -0.25138 0.04286 0.40786 1.05811   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.09436 0.15600 -0.605 0.550  
## stif\_c$LSIQ.change.score -0.09125 0.06262 -1.457 0.157  
##   
## Residual standard error: 0.7145 on 27 degrees of freedom  
## Multiple R-squared: 0.07292, Adjusted R-squared: 0.03858   
## F-statistic: 2.124 on 1 and 27 DF, p-value: 0.1566

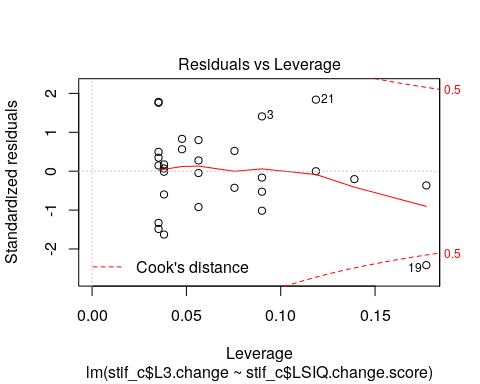
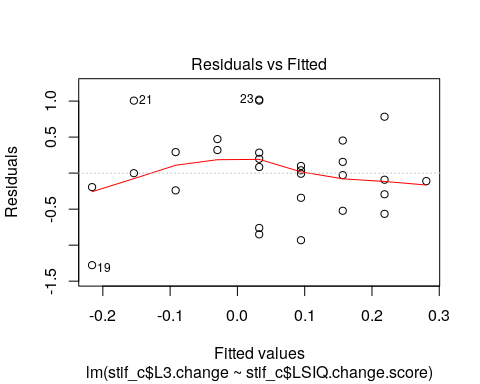
plot(stif.lm.L2.LSIQ)



#L3  
stif.lm.L3.LSIQ<- lm(stif\_c$L3.change~stif\_c$LSIQ.change.score)  
summary(stif.lm.L3.LSIQ)

##   
## Call:  
## lm(formula = stif\_c$L3.change ~ stif\_c$LSIQ.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.2780 -0.2937 -0.0011 0.2918 1.0206   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.02971 0.12730 -0.233 0.817  
## stif\_c$LSIQ.change.score -0.06209 0.05110 -1.215 0.235  
##   
## Residual standard error: 0.5831 on 27 degrees of freedom  
## Multiple R-squared: 0.05186, Adjusted R-squared: 0.01674   
## F-statistic: 1.477 on 1 and 27 DF, p-value: 0.2348

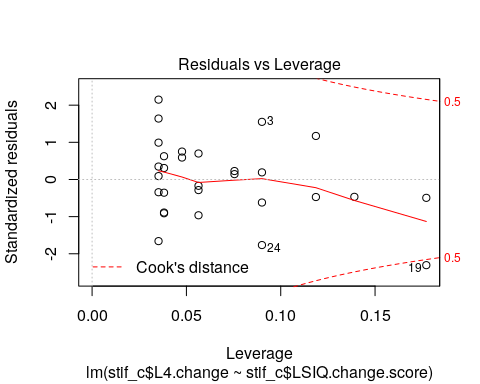
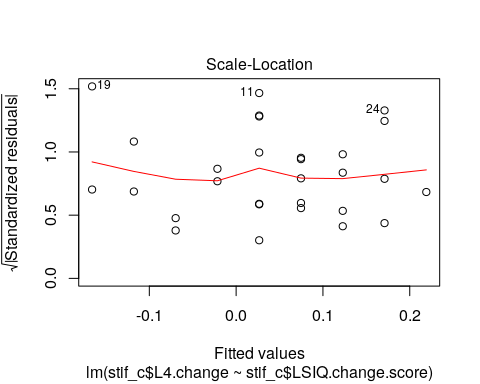
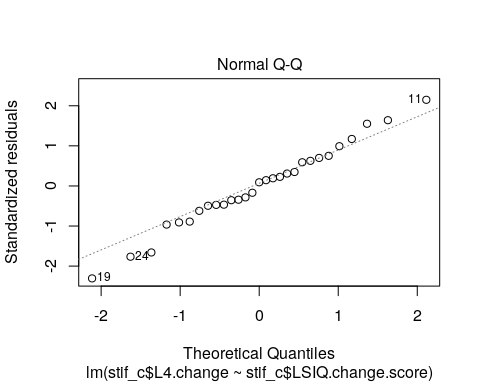
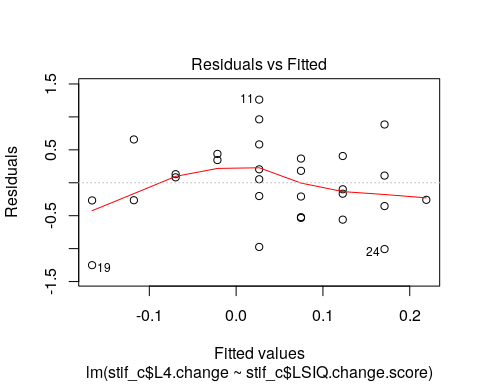
plot(stif.lm.L3.LSIQ)



#L4  
stif.lm.L4.LSIQ<- lm(stif\_c$L4.change~stif\_c$LSIQ.change.score)  
summary(stif.lm.L4.LSIQ)

##   
## Call:  
## lm(formula = stif\_c$L4.change ~ stif\_c$LSIQ.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.25108 -0.26808 0.05342 0.36729 1.26242   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.02154 0.13057 -0.165 0.870  
## stif\_c$LSIQ.change.score -0.04813 0.05241 -0.918 0.367  
##   
## Residual standard error: 0.598 on 27 degrees of freedom  
## Multiple R-squared: 0.03028, Adjusted R-squared: -0.005632   
## F-statistic: 0.8432 on 1 and 27 DF, p-value: 0.3666

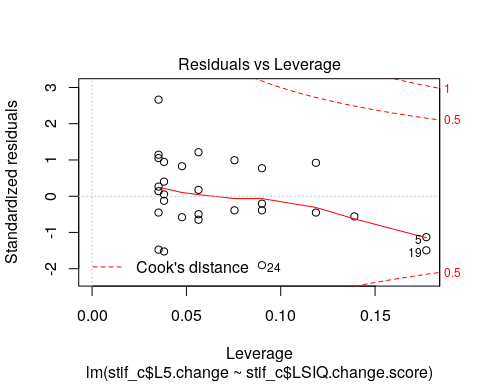
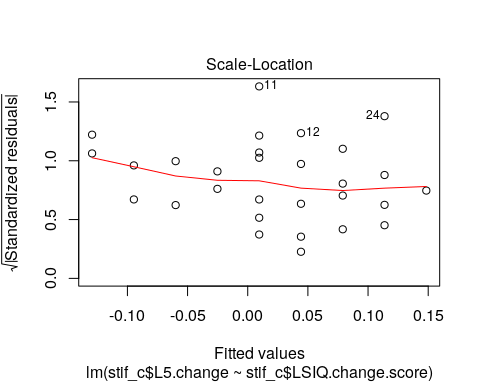
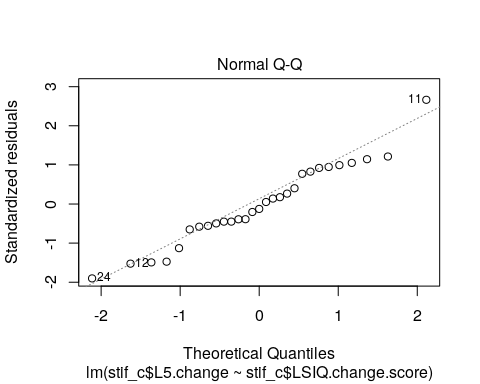
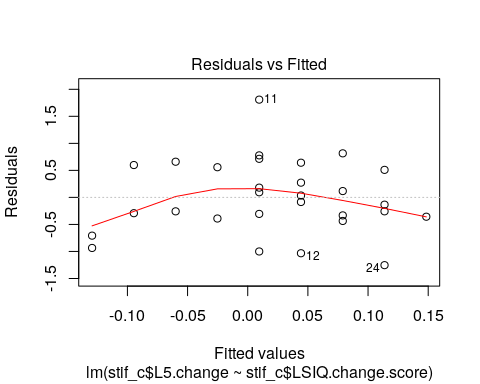
plot(stif.lm.L4.LSIQ)



#L5  
stif.lm.L5.LSIQ<- lm(stif\_c$L5.change~stif\_c$LSIQ.change.score)  
summary(stif.lm.L5.LSIQ)

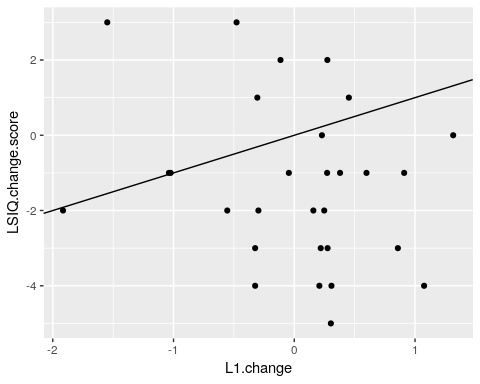
##   
## Call:  
## lm(formula = stif\_c$L5.change ~ stif\_c$LSIQ.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.25370 -0.35743 -0.08526 0.55819 1.80847   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.02519 0.15086 -0.167 0.869  
## stif\_c$LSIQ.change.score -0.03472 0.06055 -0.573 0.571  
##   
## Residual standard error: 0.691 on 27 degrees of freedom  
## Multiple R-squared: 0.01203, Adjusted R-squared: -0.02456   
## F-statistic: 0.3288 on 1 and 27 DF, p-value: 0.5711

plot(stif.lm.L5.LSIQ)

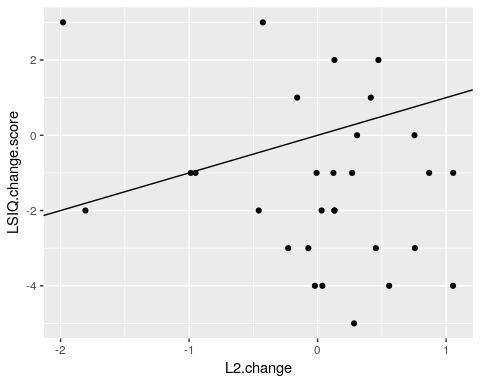


LSIQ plots (regression)

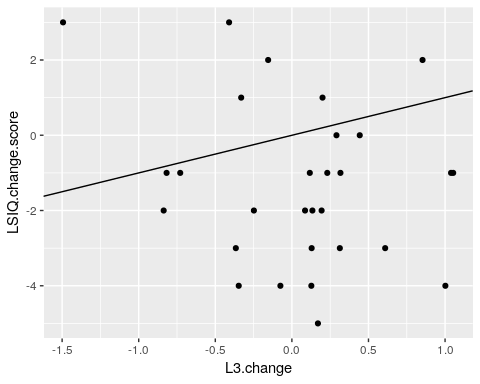
ggplot(stif\_c,aes(x=L1.change,y=LSIQ.change.score)) +  
 geom\_point() +  
 geom\_abline()



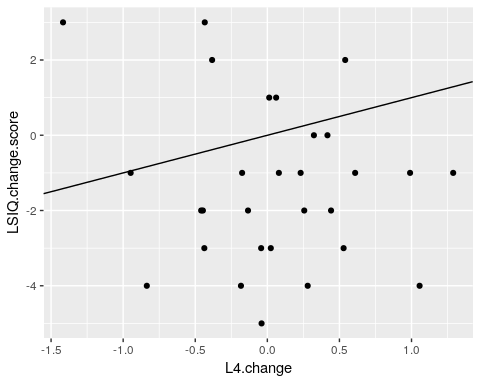
ggplot(stif\_c,aes(x=L2.change,y=LSIQ.change.score)) +  
 geom\_point() +  
 geom\_abline()



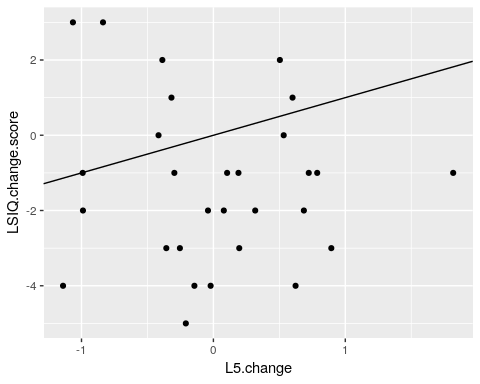
ggplot(stif\_c,aes(x=L3.change,y=LSIQ.change.score)) +  
 geom\_point() +  
 geom\_abline()



ggplot(stif\_c,aes(x=L4.change,y=LSIQ.change.score)) +  
 geom\_point() +  
 geom\_abline()



ggplot(stif\_c,aes(x=L5.change,y=LSIQ.change.score)) +  
 geom\_point() +  
 geom\_abline()



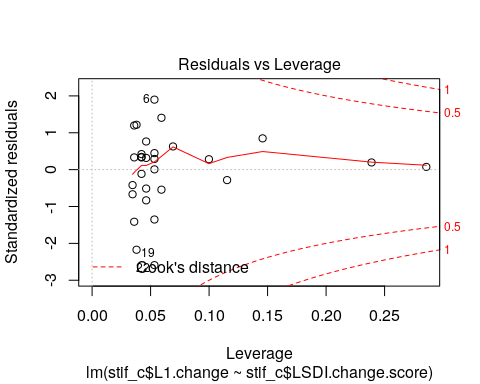
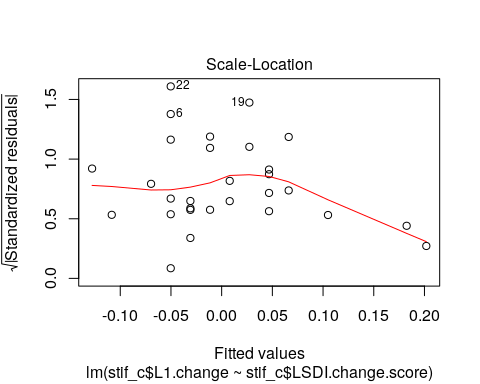
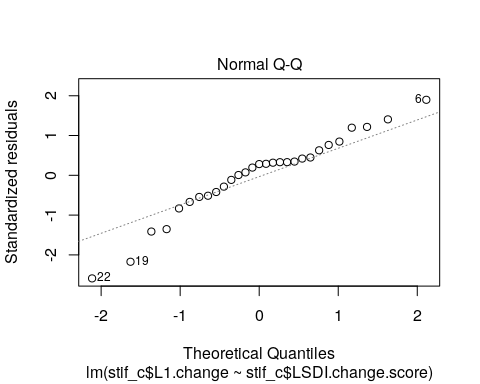
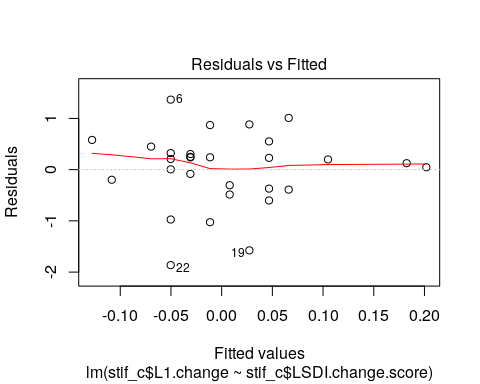
# 

# LSDI change

#L1  
stif.lm.L1.LSDI<- lm(stif\_c$L1.change~stif\_c$LSDI.change.score)  
summary(stif.lm.L1.LSDI)

##   
## Call:  
## lm(formula = stif\_c$L1.change ~ stif\_c$LSDI.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.8648 -0.3707 0.1981 0.3222 1.3662   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.03083 0.15205 -0.203 0.841  
## stif\_c$LSDI.change.score -0.01939 0.03633 -0.534 0.598  
##   
## Residual standard error: 0.7398 on 27 degrees of freedom  
## Multiple R-squared: 0.01044, Adjusted R-squared: -0.02621   
## F-statistic: 0.2848 on 1 and 27 DF, p-value: 0.5979

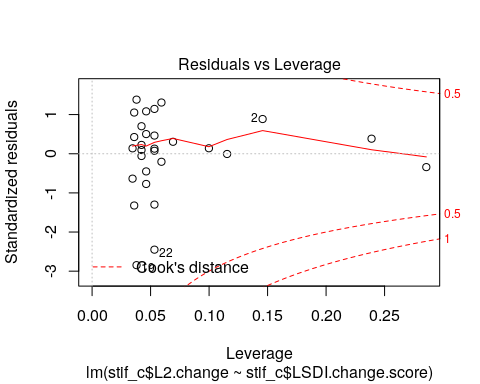
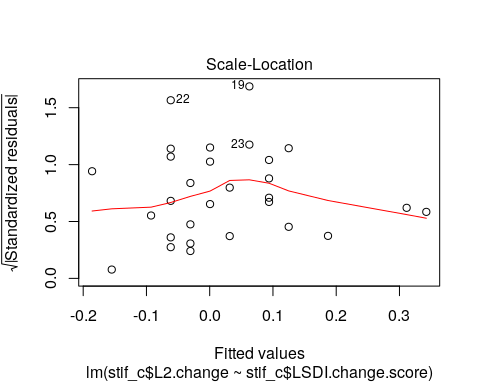
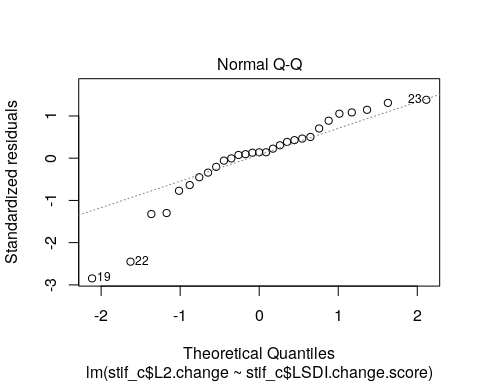
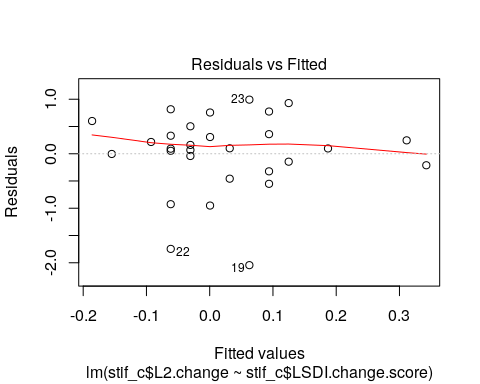
plot(stif.lm.L1.LSDI)



#L2  
stif.lm.L2.LSDI<- lm(stif\_c$L2.change~stif\_c$LSDI.change.score)  
summary(stif.lm.L2.LSDI)

##   
## Call:  
## lm(formula = stif\_c$L2.change ~ stif\_c$LSDI.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.04372 -0.21145 0.09696 0.35920 0.99228   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) -0.03053 0.15044 -0.203 0.841  
## stif\_c$LSDI.change.score -0.03108 0.03594 -0.865 0.395  
##   
## Residual standard error: 0.732 on 27 degrees of freedom  
## Multiple R-squared: 0.02695, Adjusted R-squared: -0.00909   
## F-statistic: 0.7478 on 1 and 27 DF, p-value: 0.3948

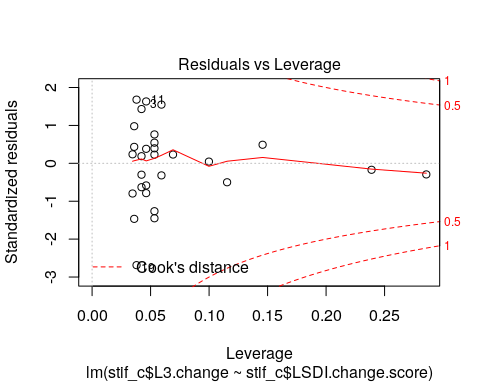
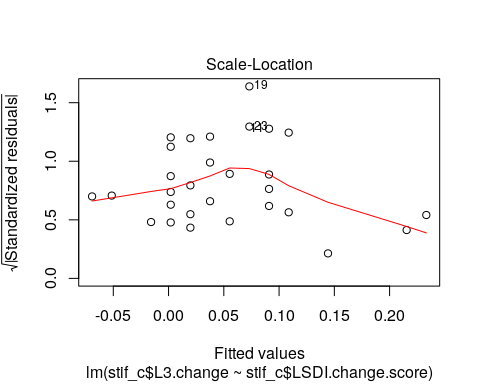
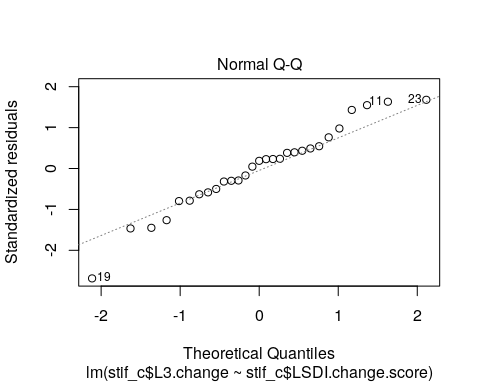
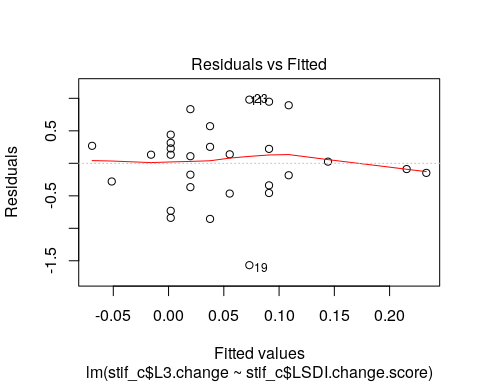
plot(stif.lm.L2.LSDI)



#L3  
stif.lm.L3.LSDI<- lm(stif\_c$L3.change~stif\_c$LSDI.change.score)  
summary(stif.lm.L3.LSDI)

##   
## Call:  
## lm(formula = stif\_c$L3.change ~ stif\_c$LSDI.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.5671 -0.3389 0.1092 0.2692 0.9799   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) 0.01976 0.12222 0.162 0.873  
## stif\_c$LSDI.change.score -0.01779 0.02920 -0.609 0.548  
##   
## Residual standard error: 0.5947 on 27 degrees of freedom  
## Multiple R-squared: 0.01356, Adjusted R-squared: -0.02298   
## F-statistic: 0.3711 on 1 and 27 DF, p-value: 0.5475

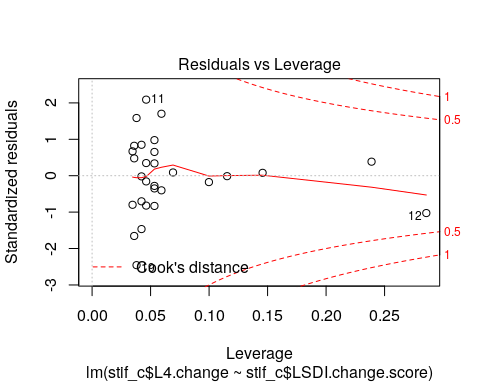
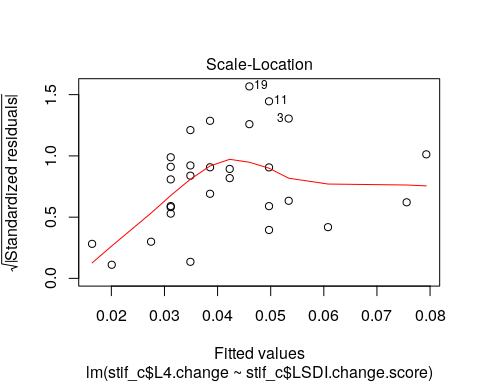
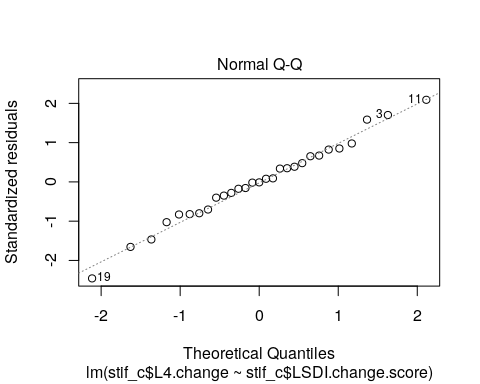
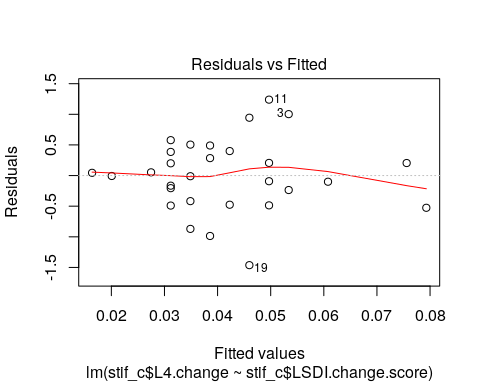
plot(stif.lm.L3.LSDI)



#L4  
stif.lm.L4.LSDI<- lm(stif\_c$L4.change~stif\_c$LSDI.change.score)  
summary(stif.lm.L4.LSDI)

##   
## Call:  
## lm(formula = stif\_c$L4.change ~ stif\_c$LSDI.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.46298 -0.41788 -0.00708 0.38582 1.23931   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) 0.034881 0.124774 0.280 0.782  
## stif\_c$LSDI.change.score -0.003701 0.029812 -0.124 0.902  
##   
## Residual standard error: 0.6071 on 27 degrees of freedom  
## Multiple R-squared: 0.0005705, Adjusted R-squared: -0.03645   
## F-statistic: 0.01541 on 1 and 27 DF, p-value: 0.9021

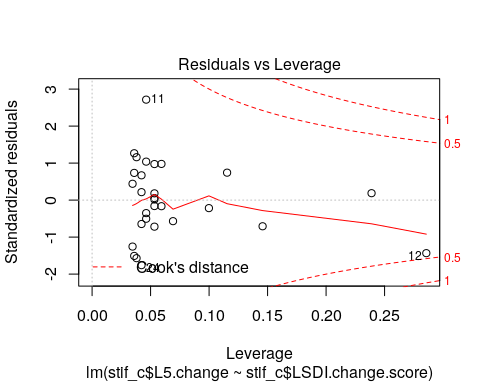
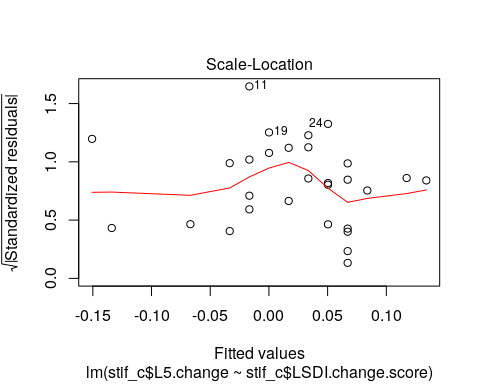
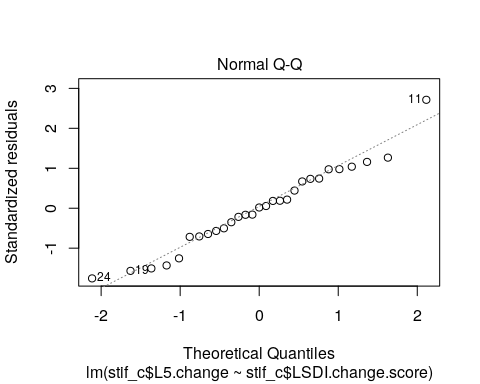
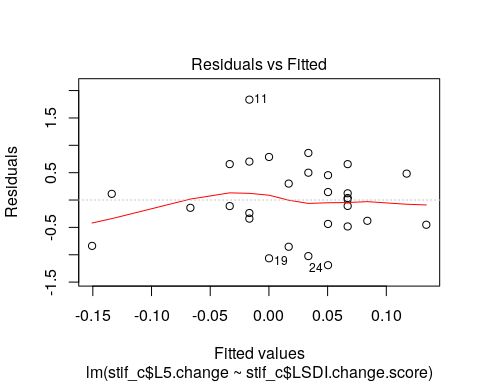
plot(stif.lm.L4.LSDI)



#L5  
stif.lm.L5.LSDI<- lm(stif\_c$L5.change~stif\_c$LSDI.change.score)  
summary(stif.lm.L5.LSDI)

##   
## Call:  
## lm(formula = stif\_c$L5.change ~ stif\_c$LSDI.change.score)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -1.19034 -0.43734 0.01191 0.48267 1.83465   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)  
## (Intercept) 0.05034 0.14223 0.354 0.726  
## stif\_c$LSDI.change.score 0.01675 0.03398 0.493 0.626  
##   
## Residual standard error: 0.6921 on 27 degrees of freedom  
## Multiple R-squared: 0.008915, Adjusted R-squared: -0.02779   
## F-statistic: 0.2429 on 1 and 27 DF, p-value: 0.6261

plot(stif.lm.L5.LSDI)

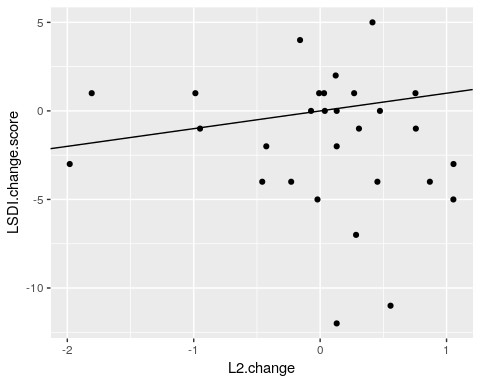


plots

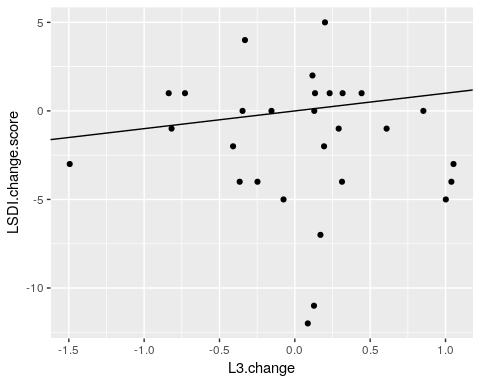
ggplot(stif\_c,aes(x=L1.change,y=LSDI.change.score)) +  
 geom\_point() +  
 geom\_abline()



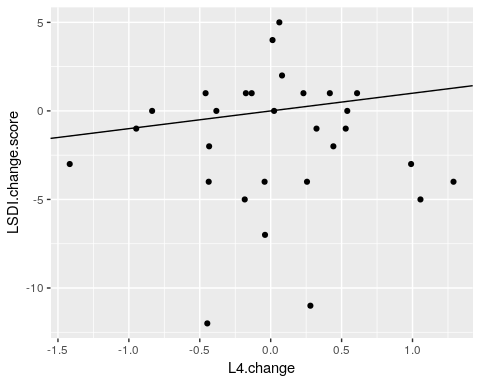
ggplot(stif\_c,aes(x=L2.change,y=LSDI.change.score)) +  
 geom\_point() +  
 geom\_abline()



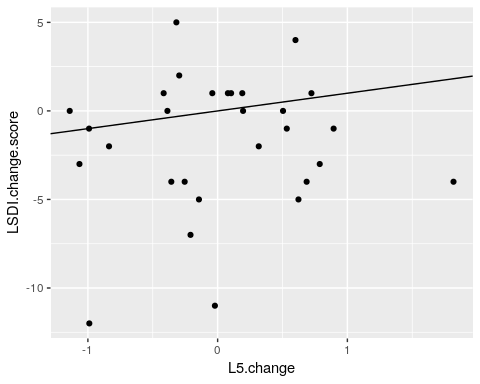
ggplot(stif\_c,aes(x=L3.change,y=LSDI.change.score)) +  
 geom\_point() +  
 geom\_abline()



ggplot(stif\_c,aes(x=L4.change,y=LSDI.change.score)) +  
 geom\_point() +  
 geom\_abline()



ggplot(stif\_c,aes(x=L5.change,y=LSDI.change.score)) +  
 geom\_point() +  
 geom\_abline()



# 

# T-test

#L1  
  
t.test(stif\_RLSIQ$L1.change,stif\_NRLSIQ$L1.change)

##   
## Welch Two Sample t-test   
##   
## data: stif\_RLSIQ$L1.change and stif\_NRLSIQ$L1.change   
## t = 0.1081, df = 11.19, p-value = 0.9158  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.6918002 0.7634192  
## sample estimates:  
## mean of x mean of y   
## 0.01380952 -0.02200000

t.test(stif\_RLSDI$L1.change,stif\_NRLSDI$L1.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSDI$L1.change and stif\_NRLSDI$L1.change  
## t = 1.416, df = 8.5023, p-value = 0.1924  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.2351993 1.0038660  
## sample estimates:  
## mean of x mean of y   
## 0.32200000 -0.06233333

#L2  
  
t.test(stif\_RLSIQ$L2.change,stif\_NRLSIQ$L2.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSIQ$L2.change and stif\_NRLSIQ$L2.change  
## t = 0.35006, df = 10.665, p-value = 0.7331  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.6314182 0.8691682  
## sample estimates:  
## mean of x mean of y   
## 0.058000 -0.060875

t.test(stif\_RLSDI$L2.change,stif\_NRLSDI$L2.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSDI$L2.change and stif\_NRLSDI$L2.change  
## t = 1.8559, df = 10.384, p-value = 0.09204  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.0883608 0.9965275  
## sample estimates:  
## mean of x mean of y   
## 0.40100000 -0.05308333

#L3  
  
t.test(stif\_RLSIQ$L3.change,stif\_NRLSIQ$L3.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSIQ$L3.change and stif\_NRLSIQ$L3.change  
## t = 0.6307, df = 10.32, p-value = 0.542  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.4417159 0.7925611  
## sample estimates:  
## mean of x mean of y   
## 0.1000476 -0.0753750

t.test(stif\_RLSDI$L3.change,stif\_NRLSDI$L3.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSDI$L3.change and stif\_NRLSDI$L3.change  
## t = 1.1179, df = 8.0068, p-value = 0.296  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.2700516 0.7783849  
## sample estimates:  
## mean of x mean of y   
## 0.262000000 0.007833333

#L4  
  
t.test(stif\_RLSIQ$L4.change,stif\_NRLSIQ$L4.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSIQ$L4.change and stif\_NRLSIQ$L4.change  
## t = 0.80989, df = 11.86, p-value = 0.434  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.3544075 0.7728837  
## sample estimates:  
## mean of x mean of y   
## 0.0992381 -0.1100000

t.test(stif\_RLSDI$L4.change,stif\_NRLSDI$L4.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSDI$L4.change and stif\_NRLSDI$L4.change  
## t = 0.38568, df = 6.0123, p-value = 0.713  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.5917222 0.8132888  
## sample estimates:  
## mean of x mean of y   
## 0.13320000 0.02241667

#L5  
  
t.test(stif\_RLSIQ$L5.change,stif\_NRLSIQ$L5.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSIQ$L5.change and stif\_NRLSIQ$L5.change  
## t = 0.9746, df = 13.657, p-value = 0.3467  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.3223301 0.8569253  
## sample estimates:  
## mean of x mean of y   
## 0.09404762 -0.17325000

t.test(stif\_RLSDI$L5.change,stif\_NRLSDI$L5.change)

##   
## Welch Two Sample t-test  
##   
## data: stif\_RLSDI$L5.change and stif\_NRLSDI$L5.change  
## t = -0.68945, df = 6.8168, p-value = 0.5133  
## alternative hypothesis: true difference in means is not equal to 0  
## 95 percent confidence interval:  
## -0.9047088 0.4979588  
## sample estimates:  
## mean of x mean of y   
## -0.148000 0.055375

par(mfrow=c(2,2))

# 