Electronic Supplementary Material 1: Research Input

################################## **R CODE** #################################

############ Confirmatory Factor Analysis ##########

```
library(lavaan)

library(foreign)

file.choose()

dat = read.spss("C:\\Users\\ru_28\\OneDrive\\Documents\\Parent Alexithymia Paper Docs\\MVA
AQC.sav", to.data.frame = TRUE)

model <- 'DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

      DDF =~ T2 + T4 + T11 + T12 + T17

      EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20'

fit <- cfa(model, data = dat, estimator = "DWLS")

summary(fit, fit.measures = TRUE)

model1 <- 'DDIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14 + T2 + T4 + T11 + T12 + T17

       EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20'

fit1 <- cfa(model1, data = dat, estimator = "DWLS")

summary(fit1, fit.measures = TRUE)

model2 <- 'DDIFEOT =~ T1 + T3 + T6 + T7 + T9 + T13 + T14 + T2 + T4 + T11 + T12 + T17 + T5 + T8
+ T10 + T15 + T16 + T18 + T19 + T20'

fit2 <- cfa(model2, data = dat, estimator = "DWLS")

summary(fit2, fit.measures = TRUE)
```

####Categorical Measurement Invariance######

```
library(lavaan)

library(foreign)

file.choose()

dat = read.spss("C:\\Users\\ru_28\\OneDrive\\Documents\\Parent tas-20 data\\MVA AQC (2).sav",
to.data.frame = TRUE)

MODEL<- "DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

        DDF =~ T2 + T4 + T11 + T12 + T17

        EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20"

fit.m <- cfa(MODEL, data = dat)

summary(fit.m, fit.measures = TRUE)
```

```
#########THETA MODEL#########


configural_theta<- "
DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

                DDF =~ T2 + T4 + T11 + T12 + T17

                EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20

T1|t1+t2

T2|t1+t2

T3|t1+t2

T4|t1 +t2

T5|t1 +t2

T6|t1 +t2

T7|t1 +t2

T8|t1 +t2

T9|t1 +t2

T10|t1 +t2

T11|t1+t2

T12|t1+t2

T13|t1+t2

T14|t1 +t2

T15|t1+t2

T16|t1+t2

T17|t1+t2

T18|t1 +t2

T19|t1 +t2

T20|t1+t2

T1 ~~ c(1,1)*T1

T2 ~~ c(1,1)*T2

T3 ~~ c(1,1)*T3

T4 ~~ c(1,1)*T4

T5 ~~ c(1,1)*T5

T6 ~~ c(1,1)*T6

T7 ~~ c(1,1)*T7

T8 ~~ c(1,1)*T8
```

T9 ~~ c(1,1)*T9

T10 ~~ c(1,1)*T10

T11 ~~ c(1,1)*T11

T12 ~~ c(1,1)*T12

T13 ~~ c(1,1)*T13

T14 ~~ c(1,1)*T14

T15 ~~ c(1,1)*T15

T16 ~~ c(1,1)*T16

T17 ~~ c(1,1)*T17

T18 ~~ c(1,1)*T18

T19 ~~ c(1,1)*T19

T20 ~~ c(1,1)*T20

T1 ~ c(0,0)*1

T2 ~ c(0,0)*1

T3 ~ c(0,0)*1

T4 ~ c(0,0)*1

T5 ~ c(0,0)*1

T6 ~ c(0,0)*1

T7 ~ c(0,0)*1

T8 ~ c(0,0)*1

T9 ~ c(0,0)*1

T10 ~ c(0,0)*1

T11 ~ c(0,0)*1

T12 ~ c(0,0)*1

T13 ~ c(0,0)*1

T14 ~ c(0,0)*1

T15 ~ c(0,0)*1

T16 ~ c(0,0)*1

T17 ~ c(0,0)*1

T18 ~ c(0,0)*1

T19 ~ c(0,0)*1

T20 ~ c(0,0)*1

DIF ~~ c(1,1)*DIF

DDF ~~ c(1,1)*DDF

```
EOT ~~ c(1,1)*EOT

DIF ~ c(0,0)*1

DDF ~ c(0,0)*1

EOT ~ c(0,0)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"
```

```
m_conf_theta <-lavaan(configural_theta, data = dat, group = "GENDER", parameterization = "theta",
estimator = "DWLS", auto.fix.first = FALSE)
```

```
summary(m_conf_theta, fit.measures = TRUE)
```

######DELTA MODEL #######

```
configural_delta<- "DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

              DDF =~ T2 + T4 + T11 + T12 + T17

              EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20
```

T1|t1+t2

T2|t1+t2

T3|t1+t2

T4|t1 +t2

T5|t1 +t2

T6|t1 +t2

T7|t1 +t2

T8|t1 +t2

T9|t1 +t2

T10|t1 +t2

T11|t1+t2

T12|t1+t2

T13|t1+t2

T14|t1 +t2

T15|t1+t2

T16|t1+t2

T17|t1+t2

T18|t1 +t2

T19|t1 +t2

T20|t1+t2

T1 ~*~ c(1,1)*T1

T2 ~*~ c(1,1)*T2

T3 ~*~ c(1,1)*T3

T4 ~*~ c(1,1)*T4

T5 ~*~ c(1,1)*T5

T6 ~*~ c(1,1)*T6

T7 ~*~ c(1,1)*T7

T8 ~*~ c(1,1)*T8

T9 ~*~ c(1,1)*T9

T10 ~*~ c(1,1)*T10

T11 ~*~ c(1,1)*T11

T12 ~*~ c(1,1)*T12

T13 ~*~ c(1,1)*T13

T14 ~*~ c(1,1)*T14

T15 ~*~ c(1,1)*T15

T16 ~*~ c(1,1)*T16

T17 ~*~ c(1,1)*T17

T18 ~*~ c(1,1)*T18

T19 ~*~ c(1,1)*T19

T20 ~*~ c(1,1)*T20

T1 ~ c(0,0)*1

T2 ~ c(0,0)*1

T3 ~ c(0,0)*1

T4 ~ c(0,0)*1

T5 ~ c(0,0)*1

T6 ~ c(0,0)*1

T7 ~ c(0,0)*1

T8 ~ c(0,0)*1

T9 ~ c(0,0)*1

T10 ~ c(0,0)*1

T11 ~ c(0,0)*1

T12 ~ c(0,0)*1

T13 ~ c(0,0)*1

T14~ c(0,0)*1

T15 ~ c(0,0)*1

T16 ~ c(0,0)*1

T17 ~ c(0,0)*1

T18 ~ c(0,0)*1

T19 ~ c(0,0)*1

T20 ~ c(0,0)*1

DIF ~~ c(1,1)*DIF

DDF ~~ c(1,1)*DDF

EOT ~~ c(1,1)*EOT

DIF ~ c(0,0)*1

DDF ~ c(0,0)*1

EOT ~ c(0,0)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"

m_conf_delta <-lavaan(configural_delta, data = dat, group = "GENDER", parameterization = "delta", estimator = "DWLS", auto.fix.first = FALSE)

summary(m_conf_delta, fit.measures = TRUE)

###################NESTED MODELS################

############### INVARIANCE MODEL ###################

t_inv_theta <- "DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

            DDF =~ T2 + T4 + T11 + T12 + T17

            EOT =~ T5 + T8 + T10 + T15 + T16 + T18 + T19 + T20

T1 |c(t1_1, t1_1)*t1 + c(t2_1, t_1)*t2

T2 |c(t1_2, t1_2)*t1 + c(t2_2, t_2)*t2

T3 |c(t1_3, t1_3)*t1 + c(t2_3, t_3)*t2

T4 |c(t1_4, t1_4)*t1 + c(t2_4, t_4)*t2

T5 |c(t1_5, t1_5)*t1 + c(t2_5, t_5)*t2

T6 |c(t1_6, t1_6)*t1 + c(t2_6, t_6)*t2

T7 |c(t1_7, t1_7)*t1 + c(t2_7, t_7)*t2

T8 |c(t1_8, t1_8)*t1 + c(t2_8, t_8)*t2

T9 |c(t1_9, t1_9)*t1 + c(t2_9, t_9)*t2

T10 |c(t1_10, t1_10)*t1 + c(t2_10, t_10)*t2

T11 |c(t1_11, t1_11)*t1 + c(t2_11, t_11)*t2

T12 |c(t1_12, t1_12)*t1 + c(t2_12, t_12)*t2

T13 |c(t1_13, t1_13)*t1 + c(t2_13, t_13)*t2

T14 |c(t1_14, t1_14)*t1 + c(t2_14, t_14)*t2

T15 |c(t1_15, t1_15)*t1 + c(t2_15, t_15)*t2

T16 |c(t1_16, t1_16)*t1 + c(t2_16, t_16)*t2

T17 |c(t1_17, t1_17)*t1 + c(t2_17, t_17)*t2

T18 |c(t1_18, t1_18)*t1 + c(t2_18, t_18)*t2

T19 |c(t1_19, t1_19)*t1 + c(t2_19, t_19)*t2

T20 |c(t1_20, t1_20)*t1 + c(t2_20, t_20)*t2

T1 ~~ c(1, NA)*T1

T2 ~~ c(1, NA)*T2

T3 ~~ c(1, NA)*T3

T4 ~~ c(1, NA)*T4

T5 ~~ c(1, NA)*T5

T6 ~~ c(1, NA)*T6

T7 ~~ c(1, NA)*T7

T8 ~~ c(1, NA)*T8

T9 ~~ c(1, NA)*T9

T10 ~~ c(1, NA)*T10

T11 ~~ c(1, NA)*T11

T12 ~~ c(1, NA)*T12

T13 ~~ c(1, NA)*T13

T14 ~~ c(1, NA)*T14

T15 ~~ c(1, NA)*T15

T16 ~~ c(1, NA)*T16

T17 ~~ c(1, NA)*T17

T18 ~~ c(1, NA)*T18

T19 ~~ c(1, NA)*T19

T20 ~~ c(1, NA)*T20

T1 ~ c (0, NA)*1

T2 ~ c (0, NA)*1

```
T3 ~ c (0, NA)*1

T4 ~ c (0, NA)*1

T5 ~ c (0, NA)*1

T6 ~ c (0, NA)*1

T7 ~ c (0, NA)*1

T8 ~ c (0, NA)*1

T9 ~ c (0, NA)*1

T10 ~ c (0, NA)*1

T11 ~ c (0, NA)*1

T12 ~ c (0, NA)*1

T13 ~ c (0, NA)*1

T14 ~ c (0, NA)*1

T15 ~ c (0, NA)*1

T16 ~ c (0, NA)*1

T17 ~ c (0, NA)*1

T18 ~ c (0, NA)*1

T19 ~ c (0, NA)*1

T20 ~ c (0, NA)*1

DIF ~~ c(1,1)*DIF

DDF ~~ c(1,1)*DDF

EOT ~~ c(1,1)*EOT

DIF ~ c(0,0)*1

DDF ~ c(0,0)*1

EOT ~ c(0,0)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"

m_t_inv_theta<-lavaan(t_inv_theta, data = dat, group = "GENDER", parameterization = "theta",
estimator = "DWLS", auto.fix.first = FALSE)

summary(m_t_inv_theta, fit.measures = TRUE)


#################### THRESHOLD AND LOADING INVARIANCE###########


tl_inv_theta<-"

DIF =~ c(l1, l1)*T1 + c(l2, l2)*T3 + c(l3, l3)*T6 + c(l4, l4)*T7 + c(l5, l5)*T9 + c(l6, l6)*T13 + c(l7, l7)*T14
```

DDF =~ c (I8, I8)*T2 + c (I9, I9)*T4 + c (I10, I10)*T11 + c (I11, I11)*T12 + c (I12, I12)*T17

EOT =~ c (I13, I13)*T5 + c (I14, I14)*T8 + c (I15, I15)*T10 + c (I16, I16)*T15 + c (I17, I17)*T16 +c (I18, I18)*T18 +c (I9, I9)*T19 + c (I20, I20)*T20

T1 |c(t1_1, t1_1)*t1 + c(t2_1, t_1)*t2

T2 |c(t1_2, t1_2)*t1 + c(t2_2, t_2)*t2

T3 |c(t1_3, t1_3)*t1 + c(t2_3, t_3)*t2

T4 |c(t1_4, t1_4)*t1 + c(t2_4, t_4)*t2

T5 |c(t1_5, t1_5)*t1 + c(t2_5, t_5)*t2

T6 |c(t1_6, t1_6)*t1 + c(t2_6, t_6)*t2

T7 |c(t1_7, t1_7)*t1 + c(t2_7, t_7)*t2

T8 |c(t1_8, t1_8)*t1 + c(t2_8, t_8)*t2

T9 |c(t1_9, t1_9)*t1 + c(t2_9, t_9)*t2

T10 |c(t1_10, t1_10)*t1 + c(t2_10, t_10)*t2

T11 |c(t1_11, t1_11)*t1 + c(t2_11, t_11)*t2

T12 |c(t1_12, t1_12)*t1 + c(t2_12, t_12)*t2

T13 |c(t1_13, t1_13)*t1 + c(t2_13, t_13)*t2

T14 |c(t1_14, t1_14)*t1 + c(t2_14, t_14)*t2

T15 |c(t1_15, t1_15)*t1 + c(t2_15, t_15)*t2

T16 |c(t1_16, t1_16)*t1 + c(t2_16, t_16)*t2

T17 |c(t1_17, t1_17)*t1 + c(t2_17, t_17)*t2

T18 |c(t1_18, t1_18)*t1 + c(t2_18, t_18)*t2

T19 |c(t1_19, t1_19)*t1 + c(t2_19, t_19)*t2

T20 |c(t1_20, t1_20)*t1 + c(t2_20, t_20)*t2

T1 ~~ c(1, NA)*T1

T2 ~~ c(1, NA)*T2

T3 ~~ c(1, NA)*T3

T4 ~~ c(1, NA)*T4

T5 ~~ c(1, NA)*T5

T6 ~~ c(1, NA)*T6

T7 ~~ c(1, NA)*T7

T8 ~~ c(1, NA)*T8

T9 ~~ c(1, NA)*T9

T10 ~~ c(1, NA)*T10

T11 ~~ c(1, NA)*T11

T12 ~~ c(1, NA)*T12

T13 ~~ c(1, NA)*T13

T14 ~~ c(1, NA)*T14

T15 ~~ c(1, NA)*T15

T16 ~~ c(1, NA)*T16

T17 ~~ c(1, NA)*T17

T18 ~~ c(1, NA)*T18

T19 ~~ c(1, NA)*T19

T20 ~~ c(1, NA)*T20

T1 ~ c (0, NA)*1

T2 ~ c (0, NA)*1

T3 ~ c (0, NA)*1

T4 ~ c (0, NA)*1

T5 ~ c (0, NA)*1

T6 ~ c (0, NA)*1

T7 ~ c (0, NA)*1

T8 ~ c (0, NA)*1

T9 ~ c (0, NA)*1

T10 ~ c (0, NA)*1

T11 ~ c (0, NA)*1

T12 ~ c (0, NA)*1

T13 ~ c (0, NA)*1

T14 ~ c (0, NA)*1

T15 ~ c (0, NA)*1

T16 ~ c (0, NA)*1

T17 ~ c (0, NA)*1

T18 ~ c (0, NA)*1

T19 ~ c (0, NA)*1

T20 ~ c (0, NA)*1

DIF ~~ c(1, NA) *DIF

DDF ~~ c(1, NA)*DDF

EOT ~~ c(1, NA)*EOT

DIF ~ c(0, 0)*1

DDF ~ c(0, 0)*1

EOT ~ c(0, 0)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"

m_tl_inv_theta <- lavaan(tl_inv_theta,

                     data = dat, group = "GENDER",

                     parameterization="theta", estimator="DWLS",

                     auto.fix.first = FALSE, check.gradient = FALSE)

summary(m_tl_inv_theta, fit.measures = TRUE)

################ THRESHOLD, LOADING AND INTERCEPT INVARIANCE #############

tli_inv_theta <- "

DIF =~ c(l1, l1)*T1 + c(l2, l2)*T3 + c(l3, l3)*T6 + c(l4, l4)*T7 + c(l5, l5)*T9 + c(l6, l6)*T13 + c(l7, l7)*T14

DDF =~ c (l8, l8)*T2 + c (l9, l9)*T4 + c (l10, l10)*T11 + c (l11, l11)*T12 + c (l12, l12)*T17

EOT =~ c (l13, l13)*T5 + c (l14, l14)*T8 + c (l15, l15)*T10 + c (l16, l16)*T15 + c (l17, l17)*T16 +c (l18, l18)*T18 +c (l9, l9)*T19 + c (l20, l20)*T20

T1 |c(t1_1, t1_1)*t1 + c(t2_1, t_1)*t2

T2 |c(t1_2, t1_2)*t1 + c(t2_2, t_2)*t2

T3 |c(t1_3, t1_3)*t1 + c(t2_3, t_3)*t2

T4 |c(t1_4, t1_4)*t1 + c(t2_4, t_4)*t2

T5 |c(t1_5, t1_5)*t1 + c(t2_5, t_5)*t2

T6 |c(t1_6, t1_6)*t1 + c(t2_6, t_6)*t2

T7 |c(t1_7, t1_7)*t1 + c(t2_7, t_7)*t2

T8 |c(t1_8, t1_8)*t1 + c(t2_8, t_8)*t2

T9 |c(t1_9, t1_9)*t1 + c(t2_9, t_9)*t2

T10 |c(t1_10, t1_10)*t1 + c(t2_10, t_10)*t2

T11 |c(t1_11, t1_11)*t1 + c(t2_11, t_11)*t2

T12 |c(t1_12, t1_12)*t1 + c(t2_12, t_12)*t2

T13 |c(t1_13, t1_13)*t1 + c(t2_13, t_13)*t2

T14 |c(t1_14, t1_14)*t1 + c(t2_14, t_14)*t2

T15 |c(t1_15, t1_15)*t1 + c(t2_15, t_15)*t2

T16 |c(t1_16, t1_16)*t1 + c(t2_16, t_16)*t2

T17 |c(t1_17, t1_17)*t1 + c(t2_17, t_17)*t2

T18 |c(t1_18, t1_18)*t1 + c(t2_18, t_18)*t2

T19 |c(t1_19, t1_19)*t1 + c(t2_19, t_19)*t2

T20 |c(t1_20, t1_20)*t1 + c(t2_20, t_20)*t2

T1 ~~ c(1, NA)*T1

T2 ~~ c(1, NA)*T2

T3 ~~ c(1, NA)*T3

T4 ~~ c(1, NA)*T4

T5 ~~ c(1, NA)*T5

T6 ~~ c(1, NA)*T6

T7 ~~ c(1, NA)*T7

T8 ~~ c(1, NA)*T8

T9 ~~ c(1, NA)*T9

T10 ~~ c(1, NA)*T10

T11 ~~ c(1, NA)*T11

T12 ~~ c(1, NA)*T12

T13 ~~ c(1, NA)*T13

T14 ~~ c(1, NA)*T14

T15 ~~ c(1, NA)*T15

T16 ~~ c(1, NA)*T16

T17 ~~ c(1, NA)*T17

T18 ~~ c(1, NA)*T18

T19 ~~ c(1, NA)*T19

T20 ~~ c(1, NA)*T20

T1 ~ c (0, 0)*1

T2 ~ c (0, 0)*1

T3 ~ c (0, 0)*1

T4 ~ c (0, 0)*1

T5 ~ c (0, 0)*1

T6 ~ c (0, 0)*1

T7 ~ c (0, 0)*1

T8 ~ c (0, 0)*1

T9 ~ c (0, 0)*1

T10 ~ c (0, 0)*1

T11 ~ c (0, 0)*1

T12 ~ c (0, 0)*1

T13 ~ c (0, 0)*1

T14 ~ c (0, 0)*1

T15 ~ c (0, 0)*1

T16 ~ c (0, 0)*1

T17 ~ c (0, 0)*1

T18 ~ c (0, 0)*1

T19 ~ c (0, 0)*1

T20 ~ c (0, 0)*1

DIF ~~ c(1, NA) *DIF

DDF ~~ c(1, NA)*DDF

EOT ~~ c(1, NA)*EOT

DIF ~ c(0, NA)*1

DDF ~ c(0, NA)*1

EOT ~ c(0, NA)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"

m_tli_inv_theta <- lavaan(tli_inv_theta,

          data = dat, group = "GENDER",

          parameterization="theta", estimator="DWLS",

          auto.fix.first = FALSE)

summary(m_tli_inv_theta, fit.measures = TRUE)

####### Identifying modification indices ######

modindices(m_tli_inv_theta)

rerunning partial invariance model on threshold, loading and intercept model

tli_inv_theta <- "

DIF =~ c(l1, l1)*T1 + c(l2, l2)*T3 + c(l3, l3)*T6 + c(l4, l4)*T7 + c(l5, l5)*T9 + c(l6, l6)*T13 + c(l7, l7)*T14

DDF =~ c (l8, l8)*T2 + c (l9, l9)*T4 + c (l10, l10)*T11 + c (l11, l11)*T12 + c (l12, l12)*T17

EOT =~ c (l13, l13)*T5 + c (l14, l14)*T8 + c (l15, l15)*T10 + c (l16, l16)*T15 + c (l17, l17)*T16 +c (l18, l18)*T18 +c (l9, l9)*T19 + c (l20, l20)*T20

T1 |c(t1_1, t1_1)*t1 + c(t2_1, t_1)*t2

T2 |c(t1_2, t1_2)*t1 + c(t2_2, t_2)*t2

T3 |c(t1_3, t1_3)*t1 + c(t2_3, t_3)*t2

T4 |c(t1_4, t1_4)*t1 + c(t2_4, t_4)*t2

T5 |c(t1_5, t1_5)*t1 + c(t2_5, t_5)*t2

T6 |c(t1_6, t1_6)*t1 + c(t2_6, t_6)*t2

T7 |c(t1_7, t1_7)*t1 + c(t2_7, t_7)*t2

T8 |c(t1_8, t1_8)*t1 + c(t2_8, t_8)*t2

T9 |c(t1_9, t1_9)*t1 + c(t2_9, t_9)*t2

T10 |c(t1_10, t1_10)*t1 + c(t2_10, t_10)*t2

T11 |c(t1_11, t1_11)*t1 + c(t2_11, t_11)*t2

T12 |c(t1_12, t1_12)*t1 + c(t2_12, t_12)*t2

T13 |c(t1_13, t1_13)*t1 + c(t2_13, t_13)*t2

T14 |c(t1_14, t1_14)*t1 + c(t2_14, t_14)*t2

T15 |c(t1_15, t1_15)*t1 + c(t2_15, t_15)*t2

T16 |c(t1_16, t1_16)*t1 + c(t2_16, t_16)*t2

T17 |c(t1_17, t1_17)*t1 + c(t2_17, t_17)*t2

T18 |c(t1_18, t1_18)*t1 + c(t2_18, t_18)*t2

T19 |c(t1_19, t1_19)*t1 + c(t2_19, t_19)*t2

T20 |c(t1_20, t1_20)*t1 + c(t2_20, t_20)*t2

T1 ~~ c(1, NA)*T1

T2 ~~ c(1, NA)*T2

T3 ~~ c(1, NA)*T3

T4 ~~ c(1, NA)*T4

T5 ~~ c(1, NA)*T5

T6 ~~ c(1, NA)*T6

T7 ~~ c(1, NA)*T7

T8 ~~ c(1, NA)*T8

T9 ~~ c(1, NA)*T9

T10 ~~ c(1, NA)*T10

T11 ~~ c(1, NA)*T11

T12 ~~ c(1, NA)*T12

T13 ~~ c(1, NA)*T13

T14 ~~ c(1, NA)*T14

T15 ~~ c(1, NA)*T15

T16 ~~ c(1, NA)*T16

T17 ~~ c(1, NA)*T17

T18 ~~ c(1, NA)*T18

T19 ~~ c(1, NA)*T19

T20 ~~ c(1, NA)*T20

```
T1 ~ c (0, 0)*1
T2 ~ c (0, 0)*1
T3 ~ c (0, 0)*1
T4 ~ c (0, 0)*1
T5 ~ c (0, 0)*1
T6 ~ c (0, 0)*1
T7 ~ c (0, 0)*1
T8 ~ c (0, 0)*1
T9 ~ c (0, 0)*1
T10 ~ c (0, 0)*1
T11 ~ c (0, 0)*1
T12 ~ c (0, 0)*1
T13 ~ c (0, 0)*1
T14 ~ c (0, 0)*1
T15 ~ c (0, 0)*1
T16 ~ c (0, 0)*1
T17 ~ c (0, 0)*1
T18 ~ c (0, 0)*1
T19 ~ c (0, 0)*1
T20 ~ c (0, 0)*1
DIF ~~ c(1, NA) *DIF
DDF ~~ c(1, NA)*DDF
EOT ~~ c(1, NA)*EOT
DIF ~ c(0, NA)*1
DDF ~ c(0, NA)*1
EOT ~ c(0, NA)*1
DIF ~~ NA*DDF
DDF ~~ NA*EOT
EOT ~~ NA*DIF"
m_tli_inv_theta <- lavaan(tli_inv_theta,
                data = dat, group = "GENDER",
                parameterization="theta", estimator="DWLS",
                auto.fix.first = FALSE)
```

```
summary(m_tli_inv_theta.partial, fit.measures = TRUE)

#### Partial measurement invariance for AQC #########

modindices(m_t_inv_theta)

t_inv_theta.constraits <- "DIF =~ T1 + T3 + T6 + T7 + T9 + T13 + T14

          DDF =~ T2 + T4 + T11 + T12 + T17

          EOT =~ T5 + T8 + T10 + T15 + T18 + T19 + T20

T1 |c(t1_1, t1_1)*t1 + c(t2_1, t_1)*t2

T2 |c(t1_2, t1_2)*t1 + c(t2_2, t_2)*t2

T3 |c(t1_3, t1_3)*t1 + c(t2_3, t_3)*t2

T4 |c(t1_4, t1_4)*t1 + c(t2_4, t_4)*t2

T5 |c(t1_5, t1_5)*t1 + c(t2_5, t_5)*t2

T6 |c(t1_6, t1_6)*t1 + c(t2_6, t_6)*t2

T7 |c(t1_7, t1_7)*t1 + c(t2_7, t_7)*t2

T8 |c(t1_8, t1_8)*t1 + c(t2_8, t_8)*t2

T9 |c(t1_9, t1_9)*t1 + c(t2_9, t_9)*t2

T10 |c(t1_10, t1_10)*t1 + c(t2_10, t_10)*t2

T11 |c(t1_11, t1_11)*t1 + c(t2_11, t_11)*t2

T12 |c(t1_12, t1_12)*t1 + c(t2_12, t_12)*t2

T13 |c(t1_13, t1_13)*t1 + c(t2_13, t_13)*t2

T14 |c(t1_14, t1_14)*t1 + c(t2_14, t_14)*t2

T15 |c(t1_15, t1_15)*t1 + c(t2_15, t_15)*t2


T17 |c(t1_17, t1_17)*t1 + c(t2_17, t_17)*t2

T18 |c(t1_18, t1_18)*t1 + c(t2_18, t_18)*t2

T19 |c(t1_19, t1_19)*t1 + c(t2_19, t_19)*t2

T20 |c(t1_20, t1_20)*t1 + c(t2_20, t_20)*t2

T1 ~~ c(1, NA)*T1

T2 ~~ c(1, NA)*T2

T3 ~~ c(1, NA)*T3

T4 ~~ c(1, NA)*T4

T5 ~~ c(1, NA)*T5
```

T6 ~~ c(1, NA)*T6

T7 ~~ c(1, NA)*T7

T8 ~~ c(1, NA)*T8

T9 ~~ c(1, NA)*T9

T10 ~~ c(1, NA)*T10

T11 ~~ c(1, NA)*T11

T12 ~~ c(1, NA)*T12

T13 ~~ c(1, NA)*T13

T14 ~~ c(1, NA)*T14

T15 ~~ c(1, NA)*T15

T17 ~~ c(1, NA)*T17

T18 ~~ c(1, NA)*T18

T19 ~~ c(1, NA)*T19

T20 ~~ c(1, NA)*T20

T1 ~ c (0, NA)*1

T2 ~ c (0, NA)*1

T3 ~ c (0, NA)*1

T4 ~ c (0, NA)*1

T5 ~ c (0, NA)*1

T6 ~ c (0, NA)*1

T7 ~ c (0, NA)*1

T8 ~ c (0, NA)*1

T9 ~ c (0, NA)*1

T10 ~ c (0, NA)*1

T11 ~ c (0, NA)*1

T12 ~ c (0, NA)*1

T13 ~ c (0, NA)*1

T14 ~ c (0, NA)*1

T15 ~ c (0, NA)*1

T17 ~ c (0, NA)*1

T18 ~ c (0, NA)*1

T19 ~ c (0, NA)*1

T20 ~ c (0, NA)*1

DIF ~~ c(1,1)*DIF

DDF ~~ c(1,1)*DDF

EOT ~~ c(1,1)*EOT

DIF ~ c(0,0)*1

DDF ~ c(0,0)*1

EOT ~ c(0,0)*1

DIF ~~ NA*DDF

DDF ~~ NA*EOT

EOT ~~ NA*DIF"

m_t_inv_theta.constraits<-lavaan(t_inv_theta.constraits, data = dat, group = "GENDER", parameterization = "theta", auto.fix.first = FALSE)

summary(m_t_inv_theta.constraits, fit.measures = TRUE)

################################## **SPSS Syntax** ##################################

#Descriptive Statistics#

ATASET ACTIVATE DataSet5.

DESCRIPTIVES VARIABLES=FULL.CHILD.TAS20 FULL.PARENT.TAS20

  /STATISTICS=MEAN STDDEV MIN MAX KURTOSIS SKEWNESS.

#Corelations between AQC, AQC-P total and subfactor scores#

CORRELATIONS

  /VARIABLES=FULL.CHILD.TAS20 C.DIF C.DDF C.EOT FULL.PARENT.TAS20 PTASDIF PTASDDF PTASEOT

  /PRINT=TWOTAIL NOSIG

  /MISSING=PAIRWISE.

#paired t-tests#

T-TEST PAIRS=C.DIF C.DDF C.EOT FULL.CHILD.TAS20 WITH PTASDIF PTASDDF PTASEOT FULL.PARENT.TAS20

    (PAIRED)

  /CRITERIA=CI(.9500)

  /MISSING=ANALYSIS.

#correlations between AQC/AQC-P and external measures#

CORRELATIONS

  /VARIABLES=FULL.CHILD.TAS20 FULL.PARENT.TAS20 DEPREAL REALEQ FULL.PROSOCIAL FULL.HYPERACTIVITY

    FULL.EMOTIONAL.SYMPTOMS FULL.CONDUCT.PROB FULL.PEER

  /PRINT=TWOTAIL NOSIG

  /MISSING=PAIRWISE.

#Cronbach alphas#

RELIABILITY

  /VARIABLES=CTAS1 CTAS2 CTAS3 R.TAS4 R.CTAS5 CTAS6 CTAS7 CTAS8 CTAS9 R.CTAS10 CTAS11 CTAS12 CTAS13

    CTAS14 CTAS15 CTAS16 CTAS17 R.CTAS18 R.CTAS19 CTAS20

  /SCALE('ALL VARIABLES') ALL

  /MODEL=ALPHA.

#Cronbach alphas#

RELIABILITY

  /VARIABLES=PTAS1 R.PTAS2 PTAS3 R.PTAS4 R.PTAS5 PTAS6 PTAS7 PTAS8 PTAS9 R.PTAS10 PTAS11 PTAS12

    PTAS13 PTAS14 PTAS15 PTAS16 PTAS17 R.PTAS18 R.PTAS19 PTAS20

  /SCALE('ALL VARIABLES') ALL

  /MODEL=ALPHA.