PHYSICAL ACTIVITY ENVIRONMENT AND PERFEC/TENACI

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Today's Date

INTRODUCTION.

Previous analyses showed that enviromental variables, such as school, have significant effects on IQ and Perf. variables.

For this reason:

- we explore the effect of the enviroment variables that promote physiscal activity in schools on IQ and Perf variables.
- Variables related to how the evironment of schools devoted to physical activity were collected.
- They are named and defined in the following section.

DOCUMENTATION

VARIABLES DE AMBIENTE PARA ACTIVIDAD FISICA

El sufijo aaf_ en todas las variabe indica Ambiente (para) Actividad Fisica.

- aaf_

OBSERVED VARIABLES

Nombre d Variable	Definicion	Valores
aaf_t_pe_class	t Tiempo en clase de educacion fisica	Minutos por semana
aaf_t_recess	t Tiempo de recreo	Minutos por semana
aaf_population_size	Tamannho de la poblacion total de la escuela	1 - 4 = chica, mediana, grande, muy_gr
aaf_s_size	s Tamannho d Espacio para actividad fisica	0 - 4 = no_hay, chico, mediano, grande, muy_gr
aaf_s_avail	s Espacio esta disponible o no	0, 1
aaf_s_used	s Espacio se usa o no	0, 1
aaf_s_shape	s Forma del espacio	rectang, triang, irregular, other

COMPUTED VARIABLES

Computed Variable	Definition	Formula
aaf_t_sum_total	total aggregated class+recess time	t_sum = t_class + t_recess
aaf_ratio_s_pop	space-size population-size ratio	ratio_sp = s_size / pop_size
aaf_indica_rec_t_s_p	time_space/population Indicator: Product of recess-time times the space/population ratio	indica_tsp = t_recesss * ratio_sp
aaf_indica_sum_t_s_p	total time_space/population Indicator: Product of aggregated time (class+recess) times the space/population ratio	indica_sum_tsp = t_sum * ratio_sp

ANALYSES.

LINEAR REGRESSSION ASSOCIATION ANALYSES.

PHYSICAL ACTIVITY ENVIROMENT VS IQ/FROST/OROS VARIABLES.

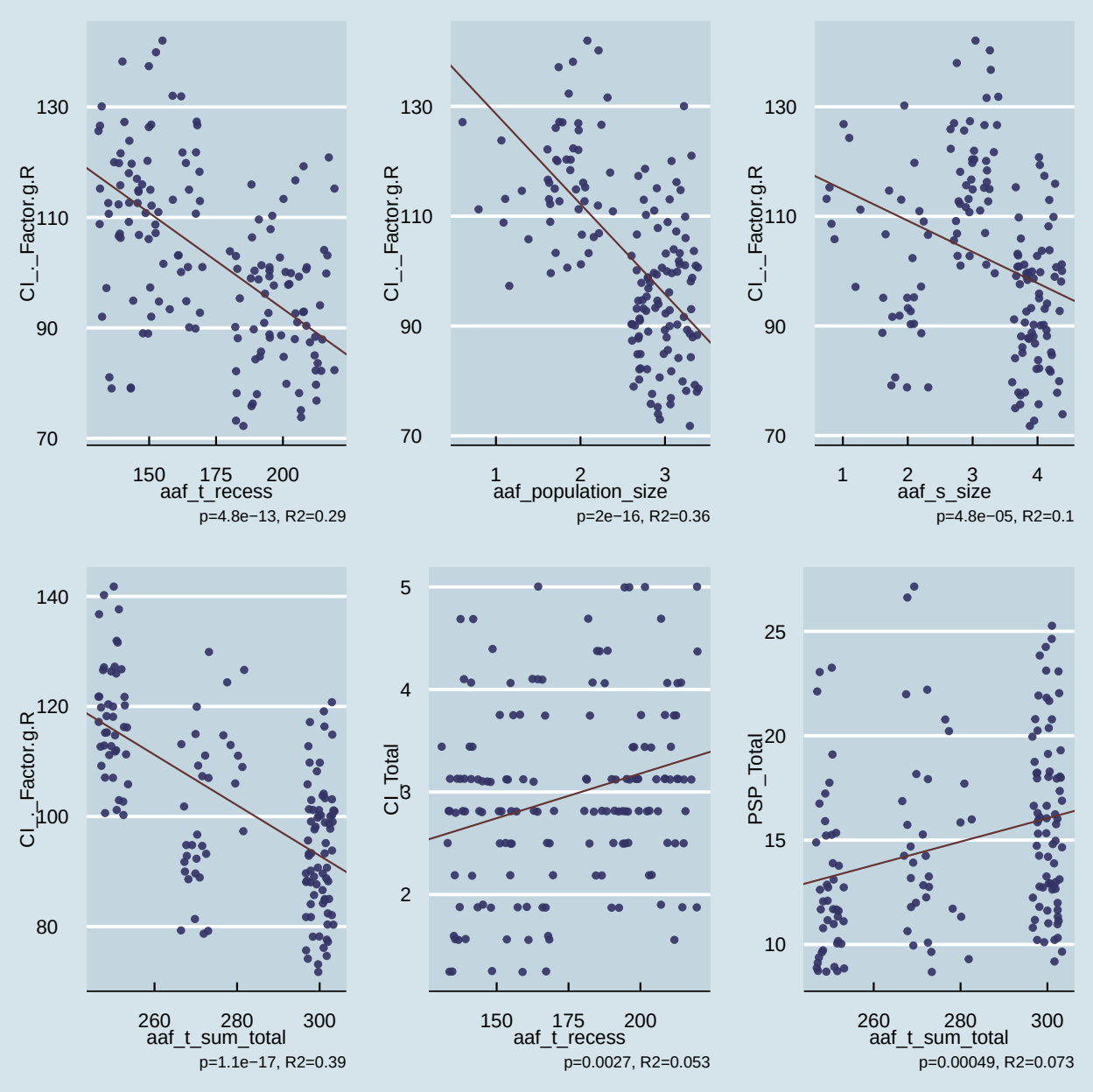
Six significant associations were found.

- The strongest association (r>0.6) was found between IQ and physical activity aggregated time.
- Of particular interest:
- Association between Oros's PSP social dimension and aggregated time was found.

The following is the list of significant results, listing the name of variabes, pvalue and Rsquared.

```
## ACTIVITY REGRESSION ANALYSES
res_activity_corr <- regression_significant_main(oactivity_df, joint_nums, varnames_activity, significa
```

```
## [1] "CI_._Factor.g.R aaf_t_recess"
## pv= 4.8e-13
## R2= 0.29
## [1] "CI_._Factor.g.R aaf_population_size"
## pv= 2e-16
## R2= 0.36
## [1] "CI_._Factor.g.R aaf_s_size"
## pv= 4.8e-05
## R2= 0.1
## [1] "CI_._Factor.g.R aaf_t_sum_total"
## pv= 1.1e-17
## R2= 0.39
## [1] "CI_Total aaf_t_recess"
## pv= 0.0027
## R2= 0.053
## [1] "PSP_Total aaf_t_sum_total"
## pv= 0.00049
## R2= 0.073
## [1] "NUMBER OF SIGNIFICANT ANALYSES:"
## [1] 6
```




```
## [1] "NUMBER OF GRAPHICS IN GRID:"
## [1] 6
```

```
## SHOW THE CORRELATIONS GRID
res_activity_corr[['grid']]
```

```
## TableGrob (2 x 3) "arrange": 6 grobs
##                                      z     cells    name           grob
## CI_._Factor.g.R_~_aaf_t_recess       1 (1-1,1-1) arrange gtable[layout]
## CI_._Factor.g.R_~_aaf_population_size 2 (1-1,2-2) arrange gtable[layout]
## CI_._Factor.g.R_~_aaf_s_size         3 (1-1,3-3) arrange gtable[layout]
## CI_._Factor.g.R_~_aaf_t_sum_total    4 (2-2,1-1) arrange gtable[layout]
## CI_Total_~_aaf_t_recess              5 (2-2,2-2) arrange gtable[layout]
## PSP_Total_~_aaf_t_sum_total          6 (2-2,3-3) arrange gtable[layout]
```

DIFFERENCES BETWEEN GROUPS ANALYSES.

By using the physical activity as groupping variables:

- 39 significant differences were found.
- Most of them with small effects.
- However, the associtiaion between IQ and Oros's PSP social dimension was replicated.

The following is the list of significant results, listing the name of variabes, pvalue and Rsquared.

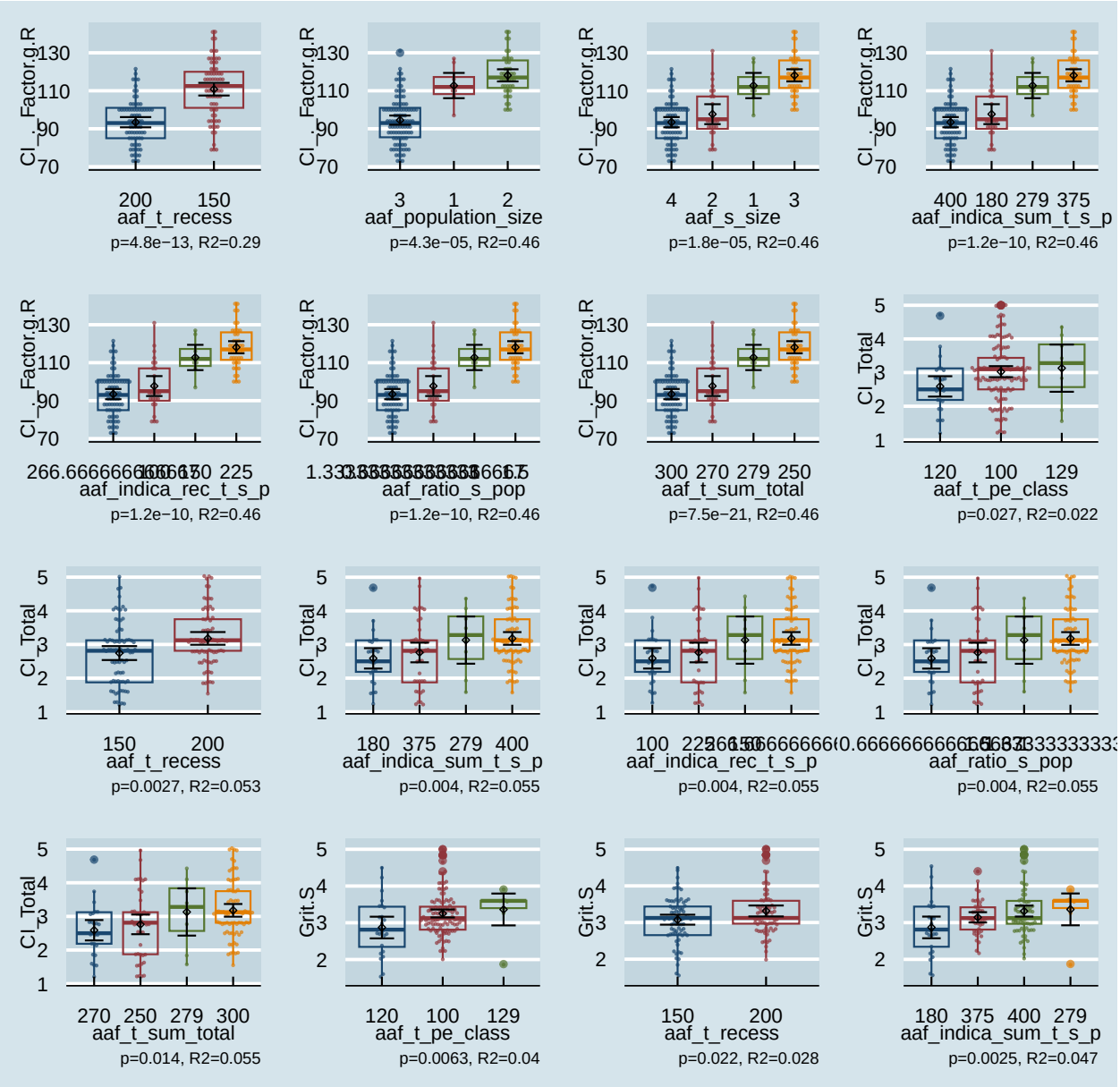
```
## ACTIVITY SAME ANALYSIS AS ABOVE BUT THE ACTIVITIES ARE TAKEN AS CATEFORIES FOR  DIFFERENCE ANALYSES.
res_activity_diff <- regression_significant_main(oactivity_factored_df, joint_nums, varnames_activity, s
```

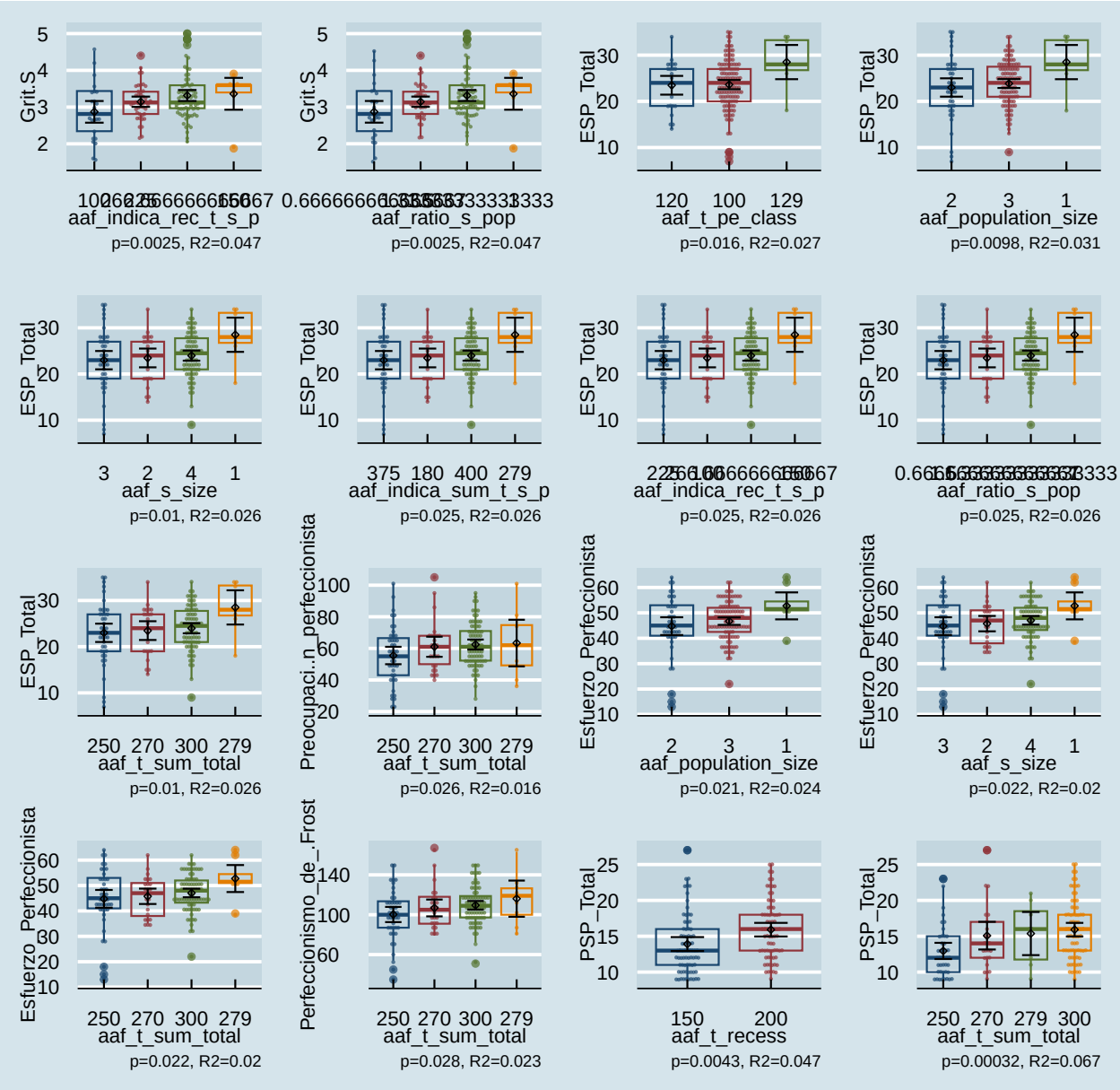
```
## [1] "CI_._Factor.g.R aaf_t_recess"
## pv= 4.8e-13
## R2= 0.29
## [1] "CI_._Factor.g.R aaf_population_size"
## pv= 4.3e-05
## R2= 0.46
## [1] "CI_._Factor.g.R aaf_s_size"
## pv= 1.8e-05
## R2= 0.46
## [1] "CI_._Factor.g.R aaf_indica_sum_t_s_p"
## pv= 1.2e-10
## R2= 0.46
## [1] "CI_._Factor.g.R aaf_indica_rec_t_s_p"
## pv= 1.2e-10
## R2= 0.46
## [1] "CI_._Factor.g.R aaf_ratio_s_pop"
## pv= 1.2e-10
## R2= 0.46
## [1] "CI_._Factor.g.R aaf_t_sum_total"
## pv= 7.5e-21
## R2= 0.46
## [1] "CI_Total aaf_t_pe_class"
## pv= 0.027
## R2= 0.022
## [1] "CI_Total aaf_t_recess"
## pv= 0.0027
## R2= 0.053
## [1] "CI_Total aaf_indica_sum_t_s_p"
## pv= 0.004
## R2= 0.055
## [1] "CI_Total aaf_indica_rec_t_s_p"
## pv= 0.004
## R2= 0.055
## [1] "CI_Total aaf_ratio_s_pop"
## pv= 0.004
## R2= 0.055
## [1] "CI_Total aaf_t_sum_total"
## pv= 0.014
## R2= 0.055
## [1] "Grit.S aaf_t_pe_class"
## pv= 0.0063
## R2= 0.04
## [1] "Grit.S aaf_t_recess"
```

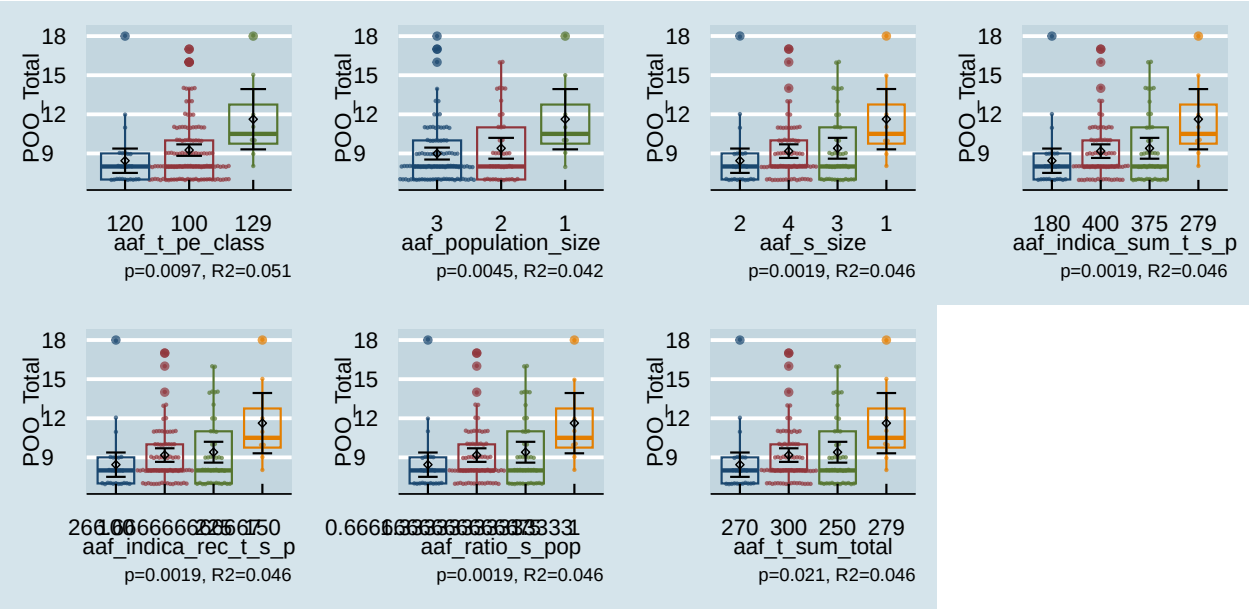
```
## pv= 0.022
## R2= 0.028
## [1] "Grit.S aaf_indica_sum_t_s_p"
## pv= 0.0025
## R2= 0.047
## [1] "Grit.S aaf_indica_rec_t_s_p"
## pv= 0.0025
## R2= 0.047
## [1] "Grit.S aaf_ratio_s_pop"
## pv= 0.0025
## R2= 0.047
## [1] "ESP_Total aaf_t_pe_class"
## pv= 0.016
## R2= 0.027
## [1] "ESP_Total aaf_population_size"
## pv= 0.0098
## R2= 0.031
## [1] "ESP_Total aaf_s_size"
## pv= 0.01
## R2= 0.026
## [1] "ESP_Total aaf_indica_sum_t_s_p"
## pv= 0.025
## R2= 0.026
## [1] "ESP_Total aaf_indica_rec_t_s_p"
## pv= 0.025
## R2= 0.026
## [1] "ESP_Total aaf_ratio_s_pop"
## pv= 0.025
## R2= 0.026
## [1] "ESP_Total aaf_t_sum_total"
## pv= 0.01
## R2= 0.026
## [1] "Preocupaci..n_perfeccionista aaf_t_sum_total"
## pv= 0.026
## R2= 0.016
## [1] "Esfuerzo_Perfeccionista aaf_population_size"
## pv= 0.021
## R2= 0.024
## [1] "Esfuerzo_Perfeccionista aaf_s_size"
## pv= 0.022
## R2= 0.02
## [1] "Esfuerzo_Perfeccionista aaf_t_sum_total"
## pv= 0.022
## R2= 0.02
## [1] "Perfeccionismo_de_.Frost aaf_t_sum_total"
## pv= 0.028
## R2= 0.023
## [1] "PSP_Total aaf_t_recess"
## pv= 0.0043
## R2= 0.047
## [1] "PSP_Total aaf_t_sum_total"
## pv= 0.00032
## R2= 0.067
## [1] "POO_Total aaf_t_pe_class"
```

```
## pv= 0.0097
## R2= 0.051
## [1] "POO_Total aaf_population_size"
## pv= 0.0045
## R2= 0.042
## [1] "POO_Total aaf_s_size"
## pv= 0.0019
## R2= 0.046
## [1] "POO_Total aaf_indica_sum_t_s_p"
## pv= 0.0019
## R2= 0.046
## [1] "POO_Total aaf_indica_rec_t_s_p"
## pv= 0.0019
## R2= 0.046
## [1] "POO_Total aaf_ratio_s_pop"
## pv= 0.0019
## R2= 0.046
## [1] "POO_Total aaf_t_sum_total"
## pv= 0.021
## R2= 0.046
## [1] "NUMBER OF SIGNIFICANT ANALYSES:"
## [1] 39
## [1] "NUMBER OF GRAPHICS IN GRID:"
## [1] 39
```

```
## SHOW THE GRID
res_activity_diff[['grid']]
```


CI_Factor.g.R
130
110
90
70
200 150
aaf_t_recess
p=4.8e−13, R2=0.29
3 1 2
aaf_population_size
p=4.3e−05, R2=0.46
4 2 1 3
aaf_s_size
p=1.8e−05, R2=0.46
400 180 279 375
aaf_indica_sum_t_s_p
p=1.2e−10, R2=0.46
225
aaf_indica_rec_t_s_p
p=1.2e−10, R2=0.46
aaf_ratio_s_pop
p=1.2e−10, R2=0.46
300 270 279 250
aaf_t_sum_total
p=7.5e−21, R2=0.46
CI_Total
5
4
3
2
1
120 100 129
aaf_t_pe_class
p=0.027, R2=0.022
150 200
aaf_t_recess
p=0.0027, R2=0.053
180 375 279 400
aaf_indica_sum_t_s_p
p=0.004, R2=0.055
aaf_indica_rec_t_s_p
p=0.004, R2=0.055
aaf_ratio_s_pop
p=0.004, R2=0.055
Grit.S
270 250 279 300
aaf_t_sum_total
p=0.014, R2=0.055
120 100 129
aaf_t_pe_class
p=0.0063, R2=0.04
150 200
aaf_t_recess
p=0.022, R2=0.028
180 375 400 279
aaf_indica_sum_t_s_p
p=0.0025, R2=0.047

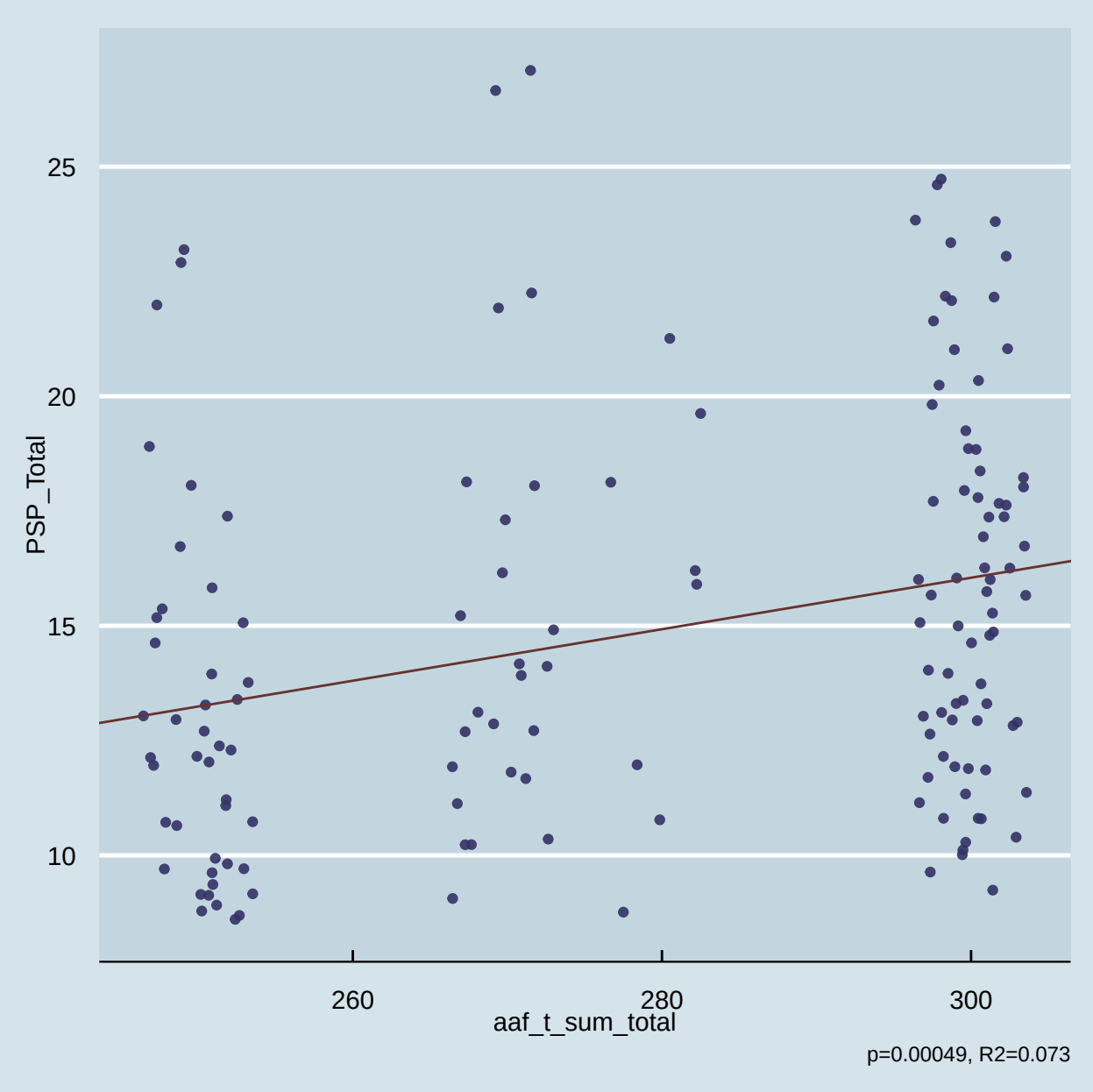

Grit.S
aaf_indica_rec_t_s_p
p=0.0025, R2=0.047
Grit.S
aaf_ratio_s_pop
p=0.0025, R2=0.047
ESP_Total
120 100 129
aaf_t_pe_class
p=0.016, R2=0.027
ESP_Total
2 3 1
aaf_population_size
p=0.0098, R2=0.031
ESP_Total
3 2 4 1
aaf_s_size
p=0.01, R2=0.026
ESP_Total
375 180 400 279
aaf_indica_sum_t_s_p
p=0.025, R2=0.026
ESP_Total
aaf_indica_rec_t_s_p
p=0.025, R2=0.026
ESP_Total
aaf_ratio_s_pop
p=0.025, R2=0.026
ESP_Total
250 270 300 279
aaf_t_sum_total
p=0.01, R2=0.026
Preocupaci..n_perfeccionista
250 270 300 279
aaf_t_sum_total
p=0.026, R2=0.016
Esfuerzo_Perfeccionista
2 3 1
aaf_population_size
p=0.021, R2=0.024
Esfuerzo_Perfeccionista
3 2 4 1
aaf_s_size
p=0.022, R2=0.02
Esfuerzo_Perfeccionista
250 270 300 279
aaf_t_sum_total
p=0.022, R2=0.02
Perfeccionismo_de_.Frost
250 270 300 279
aaf_t_sum_total
p=0.028, R2=0.023
PSP_Total
150 200
aaf_t_recess
p=0.0043, R2=0.047
PSP_Total
250 270 279 300
aaf_t_sum_total
p=0.00032, R2=0.067



VARIABLE OF INTERES, OROS'S PSP SOCIAL DIMENSION, GRAPHICS IN DETAIL.

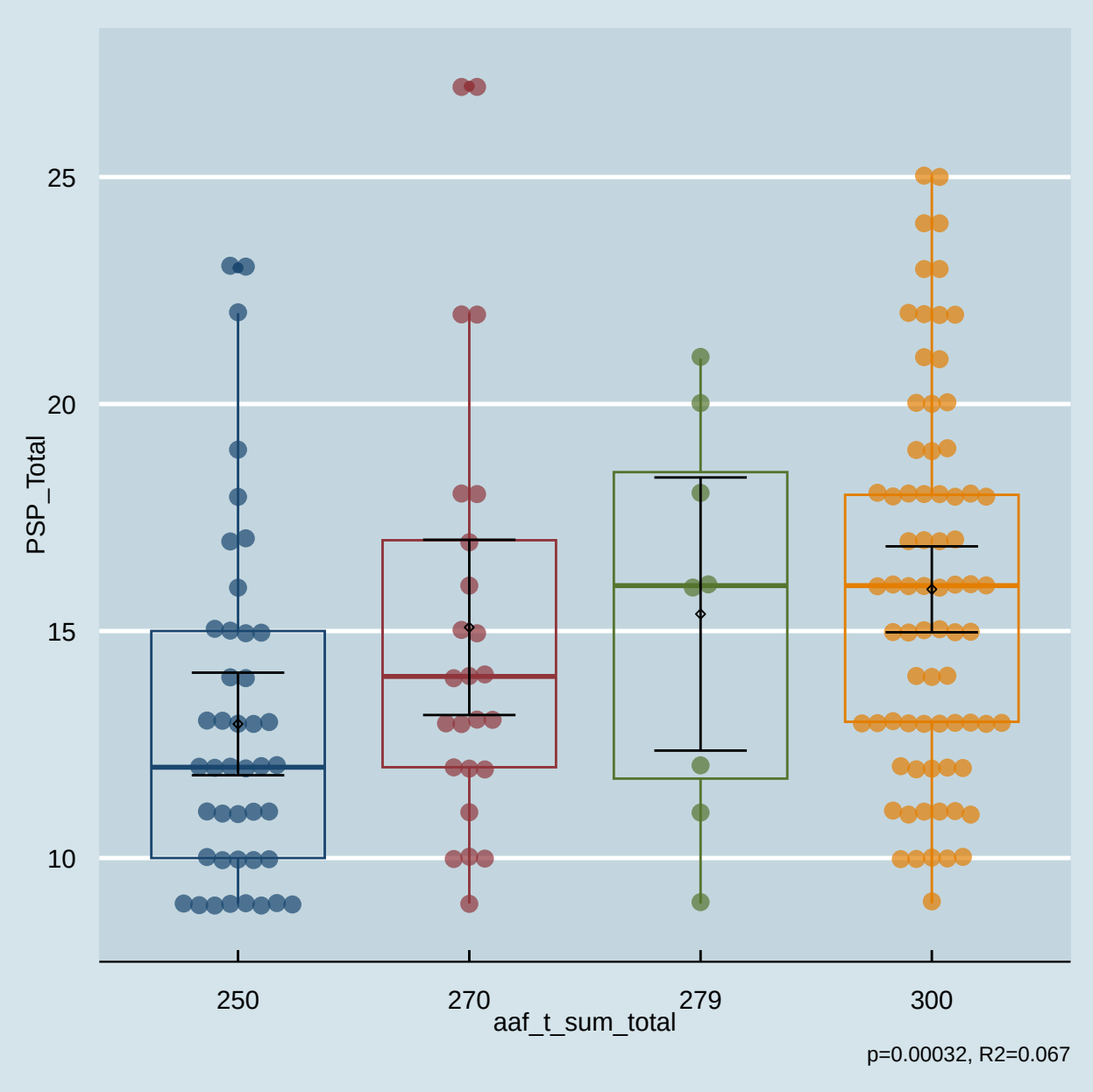
PSP-TIME ASSOCIATION.

```
## SHOW THE PSP CORRELATION GRAPH
res_activity_corr[['plots']][['PSP_Total_~_aaf_t_sum_total']]
```



DIFFERENCES IN PSP SOCIAL DIMENSION.

```
## SHOW THE PSP CORRELATION GRAPH
res_activity_diff[['plots']][['PSP_Total_~_aaf_t_sum_total']]
```


25
20
15
10
PSP_Total
250
270
279
300
aaf_t_sum_total
p=0.00032, R2=0.067