PHYSICAL ACTIVITY ENVIRONMENT AND PERFEC/TENACI

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Today's Date

INTRODUCTION.

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

For this reason: 1. we explore the effect of the enviroment variables that promote physiscal activity in schools on IQ and Perf variables. 1. Variables related to how the evironment of schools devoted to physical activity were collected. 1. 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.

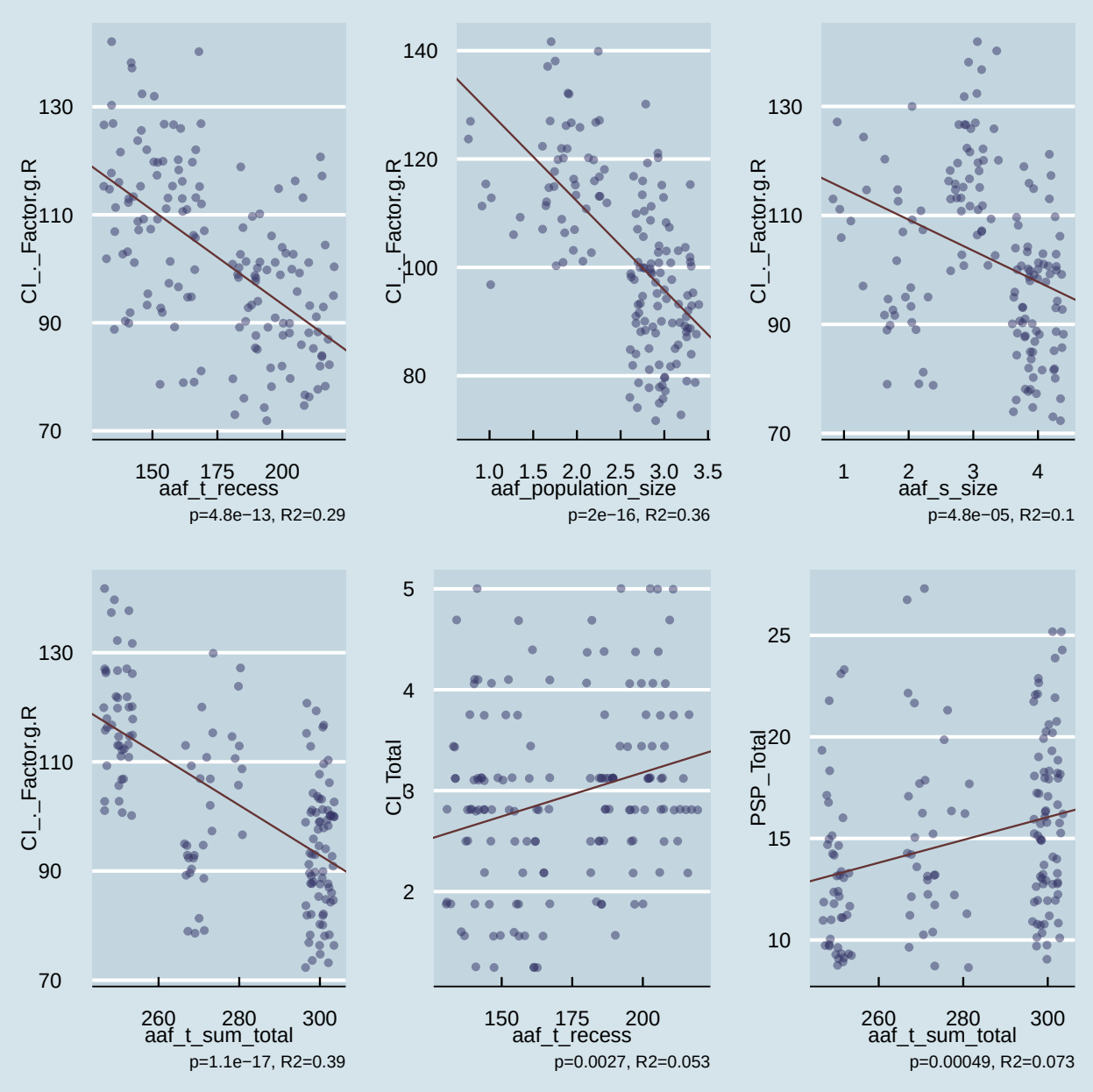
LINEAR REGRESSSION ASSOCIATION ANALYSES.

PHYSICAL ACTIVITY ENVIROMENT VS IQ/FROST/OROS VARIABLES.

Six significan associations were found. The followind is the list. - The strongest association (r>4) was found between iq and physical actriviti aggregated time. - Of particular interest: 1. Association between POO and aggregated time was found.

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

```
## [1] "CI_._Factor.g.R aaf_t_recess"
## [1] 4.8e-13
## [1] 0.29
## [1] "CI_._Factor.g.R aaf_population_size"
## [1] 2e-16
## [1] 0.36
## [1] "CI_._Factor.g.R aaf_s_size"
## [1] 4.8e-05
## [1] 0.1
## [1] "CI_._Factor.g.R aaf_t_sum_total"
## [1] 1.1e-17
## [1] 0.39
## [1] "CI_Total aaf_t_recess"
## [1] 0.0027
## [1] 0.053
## [1] "PSP_Total aaf_t_sum_total"
## [1] 0.00049
## [1] 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:

1. 39 significant differences were found.
2. Most of them of little interest.
3. However, the associtiaion between iq and PSP reported above was replicated.

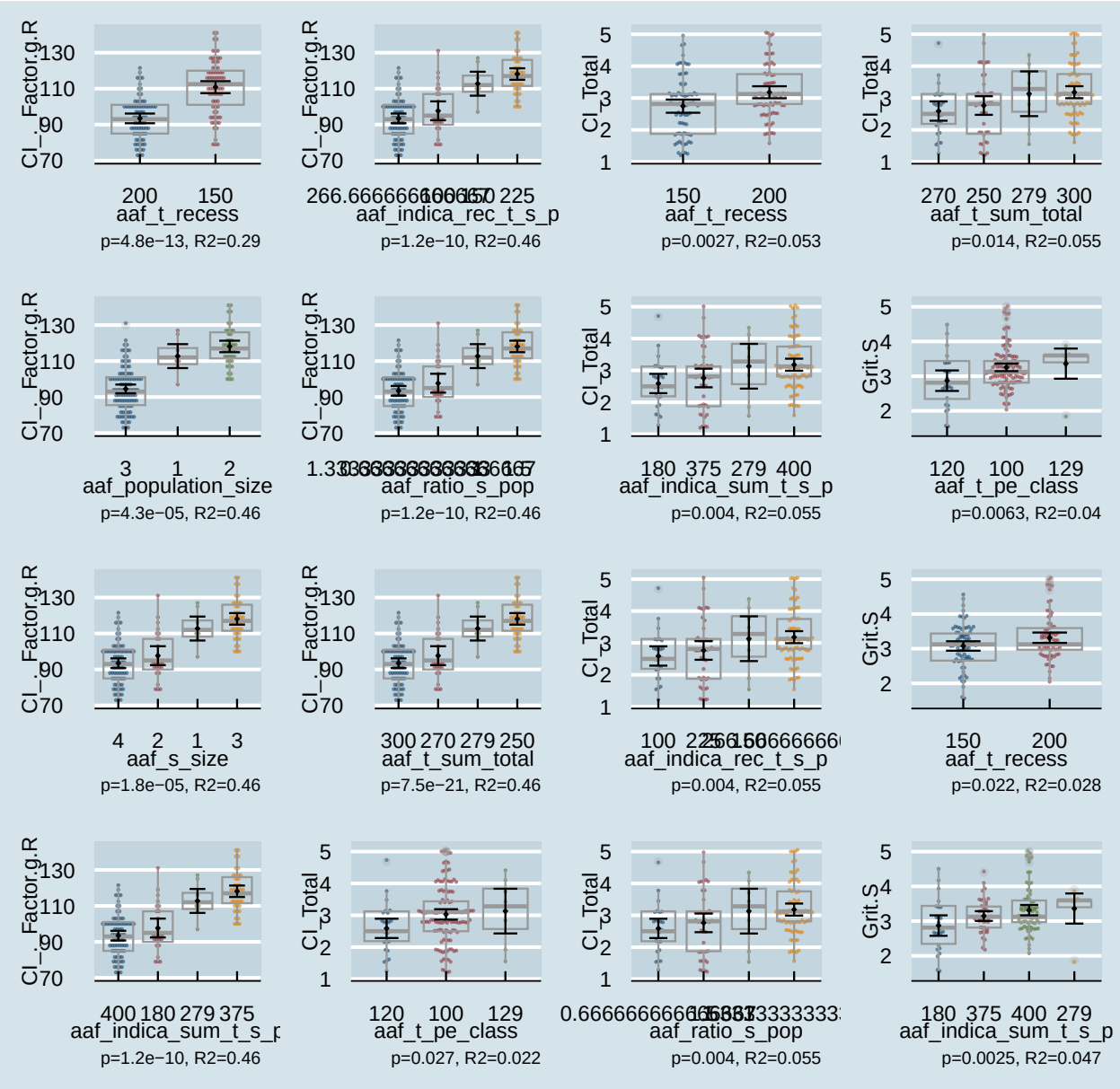
```
## ACTIVITY SAME ANALYSIS AS ABOVE BUT THE ACTIVITIES ARE TAKEN AS CATEFORIES FOR  DIFFERENCE ANALYSES.
res_activity_diff <- regression_significant_main(oactivity_factored_df, joint_nums, varnames_activity, s
```

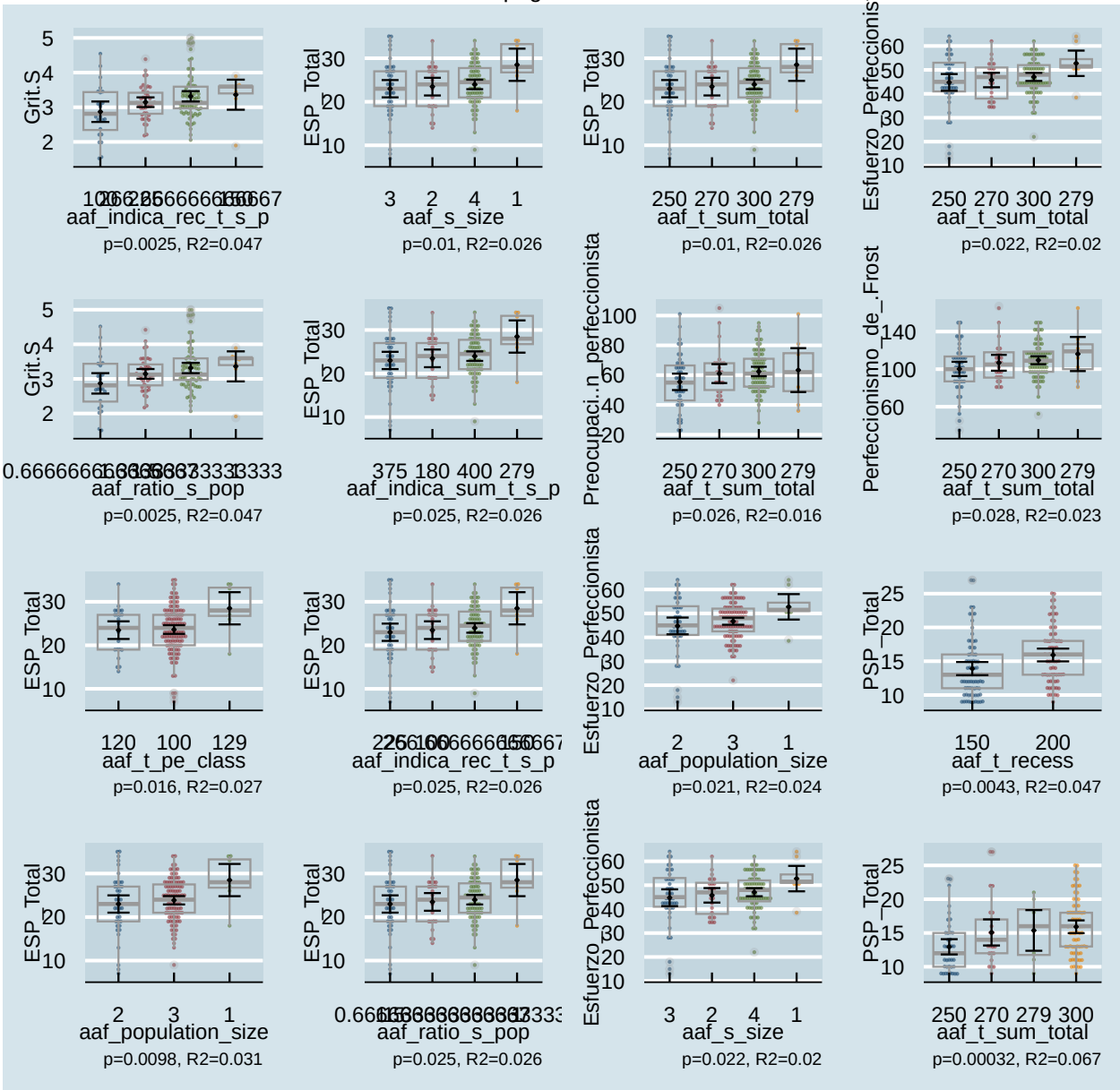
```
## [1] "CI_._Factor.g.R aaf_t_recess"
## [1] 4.8e-13
## [1] 0.29
## [1] "CI_._Factor.g.R aaf_population_size"
## [1] 4.3e-05
## [1] 0.46
## [1] "CI_._Factor.g.R aaf_s_size"
## [1] 1.8e-05
## [1] 0.46
## [1] "CI_._Factor.g.R aaf_indica_sum_t_s_p"
## [1] 1.2e-10
## [1] 0.46
## [1] "CI_._Factor.g.R aaf_indica_rec_t_s_p"
## [1] 1.2e-10
## [1] 0.46
## [1] "CI_._Factor.g.R aaf_ratio_s_pop"
## [1] 1.2e-10
## [1] 0.46
## [1] "CI_._Factor.g.R aaf_t_sum_total"
## [1] 7.5e-21
## [1] 0.46
## [1] "CI_Total aaf_t_pe_class"
## [1] 0.027
## [1] 0.022
## [1] "CI_Total aaf_t_recess"
## [1] 0.0027
## [1] 0.053
## [1] "CI_Total aaf_indica_sum_t_s_p"
## [1] 0.004
## [1] 0.055
## [1] "CI_Total aaf_indica_rec_t_s_p"
## [1] 0.004
## [1] 0.055
## [1] "CI_Total aaf_ratio_s_pop"
## [1] 0.004
## [1] 0.055
## [1] "CI_Total aaf_t_sum_total"
## [1] 0.014
## [1] 0.055
## [1] "Grit.S aaf_t_pe_class"
## [1] 0.0063
## [1] 0.04
## [1] "Grit.S aaf_t_recess"
## [1] 0.022
## [1] 0.028
```

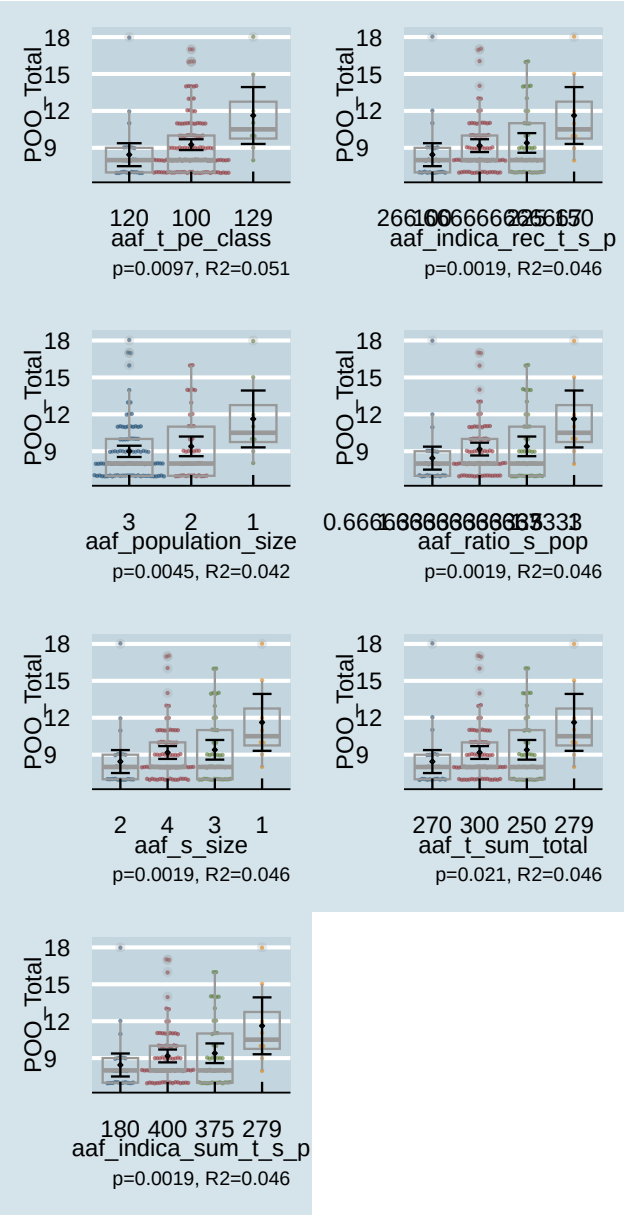
```
## [1] "Grit.S aaf_indica_sum_t_s_p"
## [1] 0.0025
## [1] 0.047
## [1] "Grit.S aaf_indica_rec_t_s_p"
## [1] 0.0025
## [1] 0.047
## [1] "Grit.S aaf_ratio_s_pop"
## [1] 0.0025
## [1] 0.047
## [1] "ESP_Total aaf_t_pe_class"
## [1] 0.016
## [1] 0.027
## [1] "ESP_Total aaf_population_size"
## [1] 0.0098
## [1] 0.031
## [1] "ESP_Total aaf_s_size"
## [1] 0.01
## [1] 0.026
## [1] "ESP_Total aaf_indica_sum_t_s_p"
## [1] 0.025
## [1] 0.026
## [1] "ESP_Total aaf_indica_rec_t_s_p"
## [1] 0.025
## [1] 0.026
## [1] "ESP_Total aaf_ratio_s_pop"
## [1] 0.025
## [1] 0.026
## [1] "ESP_Total aaf_t_sum_total"
## [1] 0.01
## [1] 0.026
## [1] "Preocupaci..n_perfeccionista aaf_t_sum_total"
## [1] 0.026
## [1] 0.016
## [1] "Esfuerzo_Perfeccionista aaf_population_size"
## [1] 0.021
## [1] 0.024
## [1] "Esfuerzo_Perfeccionista aaf_s_size"
## [1] 0.022
## [1] 0.02
## [1] "Esfuerzo_Perfeccionista aaf_t_sum_total"
## [1] 0.022
## [1] 0.02
## [1] "Perfeccionismo_de_.Frost aaf_t_sum_total"
## [1] 0.028
## [1] 0.023
## [1] "PSP_Total aaf_t_recess"
## [1] 0.0043
## [1] 0.047
## [1] "PSP_Total aaf_t_sum_total"
## [1] 0.00032
## [1] 0.067
## [1] "POO_Total aaf_t_pe_class"
## [1] 0.0097
## [1] 0.051
```

```
## [1] "POO_Total aaf_population_size"
## [1] 0.0045
## [1] 0.042
## [1] "POO_Total aaf_s_size"
## [1] 0.0019
## [1] 0.046
## [1] "POO_Total aaf_indica_sum_t_s_p"
## [1] 0.0019
## [1] 0.046
## [1] "POO_Total aaf_indica_rec_t_s_p"
## [1] 0.0019
## [1] 0.046
## [1] "POO_Total aaf_ratio_s_pop"
## [1] 0.0019
## [1] 0.046
## [1] "POO_Total aaf_t_sum_total"
## [1] 0.021
## [1] 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
CI_.Factor.g.R
130
110
90
70
aaf_indica_rec_t_s_p
p=1.2e−10, R2=0.46
CI_Total
5
4
3
2
1
150 200
aaf_t_recess
p=0.0027, R2=0.053
CI_Total
5
4
3
2
1
270 250 279 300
aaf_t_sum_total
p=0.014, R2=0.055
CI_.Factor.g.R
130
110
90
70
3 1 2
aaf_population_size
p=4.3e−05, R2=0.46
CI_.Factor.g.R
130
110
90
70
aaf_ratio_s_pop
p=1.2e−10, R2=0.46
CI_Total
5
4
3
2
1
180 375 279 400
aaf_indica_sum_t_s_p
p=0.004, R2=0.055
Grit.S
5
4
3
2
120 100 129
aaf_t_pe_class
p=0.0063, R2=0.04
CI_.Factor.g.R
130
110
90
70
4 2 1 3
aaf_s_size
p=1.8e−05, R2=0.46
CI_.Factor.g.R
130
110
90
70
300 270 279 250
aaf_t_sum_total
p=7.5e−21, R2=0.46
CI_Total
5
4
3
2
1
aaf_indica_rec_t_s_p
p=0.004, R2=0.055
Grit.S
5
4
3
2
150 200
aaf_t_recess
p=0.022, R2=0.028
CI_.Factor.g.R
130
110
90
70
400 180 279 375
p=1.2e−10, R2=0.46
CI_Total
5
4
3
2
1
120 100 129
aaf_t_pe_class
p=0.027, R2=0.022
CI_Total
5
4
3
2
1
aaf_ratio_s_pop
p=0.004, R2=0.055
Grit.S
5
4
3
2
180 375 400 279
aaf_indica_sum_t_s_p
p=0.0025, R2=0.047

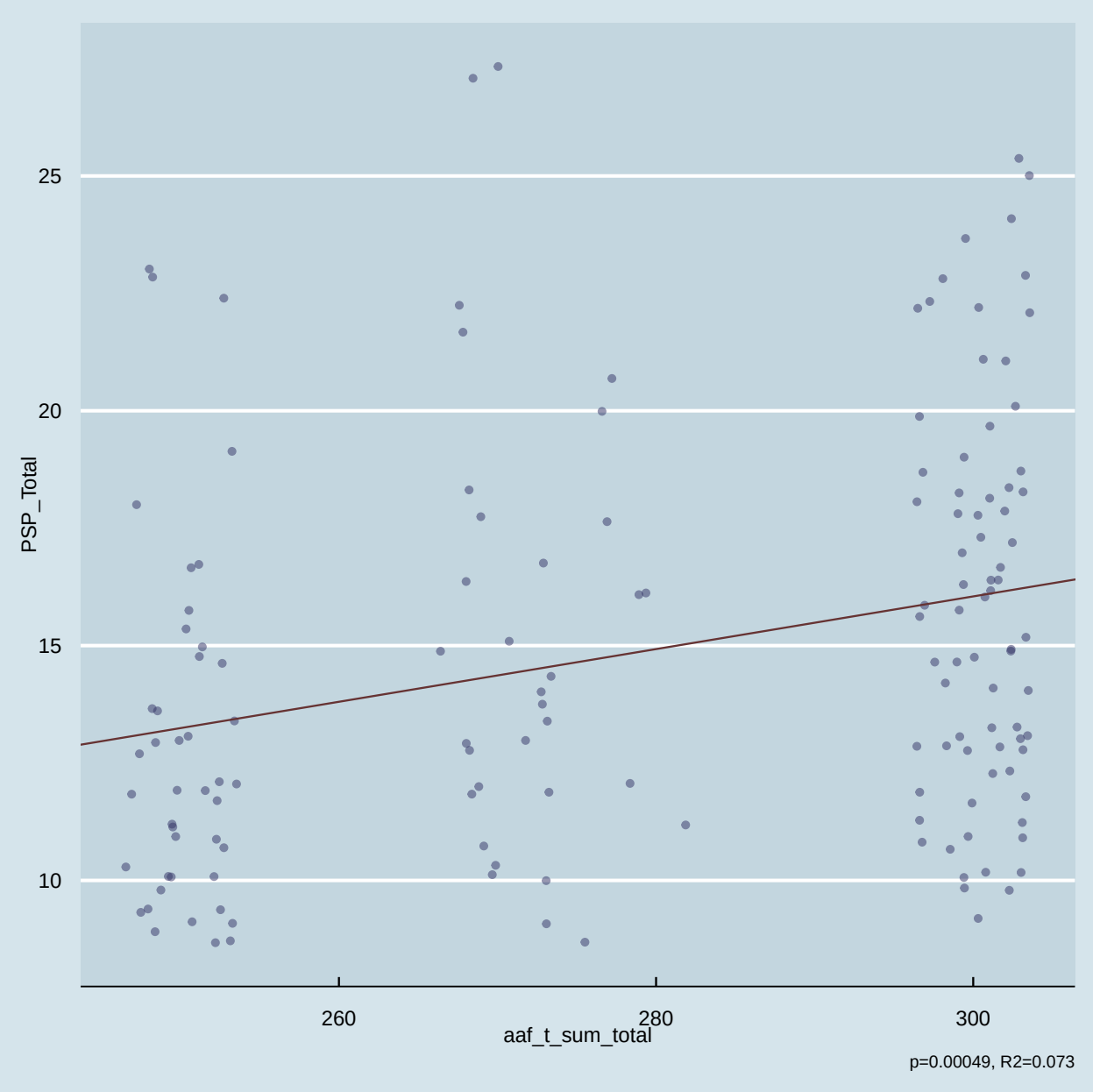

Grit.S
aaf_indica_rec_t_s_p
p=0.0025, R2=0.047
ESP_Total
aaf_s_size
p=0.01, R2=0.026
ESP_Total
aaf_t_sum_total
p=0.01, R2=0.026
Esfuerzo_Perfeccionista
aaf_t_sum_total
p=0.022, R2=0.02
Grit.S
aaf_ratio_s_pop
p=0.0025, R2=0.047
ESP_Total
aaf_indica_sum_t_s_p
p=0.025, R2=0.026
Preocupaci...n_perfeccionista
aaf_t_sum_total
p=0.026, R2=0.016
Perfeccionismo_de_.Frost
aaf_t_sum_total
p=0.028, R2=0.023
ESP_Total
aaf_t_pe_class
p=0.016, R2=0.027
ESP_Total
aaf_indica_rec_t_s_p
p=0.025, R2=0.026
Esfuerzo_Perfeccionista
aaf_population_size
p=0.021, R2=0.024
PSP_Total
aaf_t_recess
p=0.0043, R2=0.047
ESP_Total
aaf_population_size
p=0.0098, R2=0.031
ESP_Total
aaf_ratio_s_pop
p=0.025, R2=0.026
Esfuerzo_Perfeccionista
aaf_s_size
p=0.022, R2=0.02
PSP_Total
aaf_t_sum_total
p=0.00032, R2=0.067



VARIABLE OF INTERES, PSP, GRAPHICS IN DETAIL.

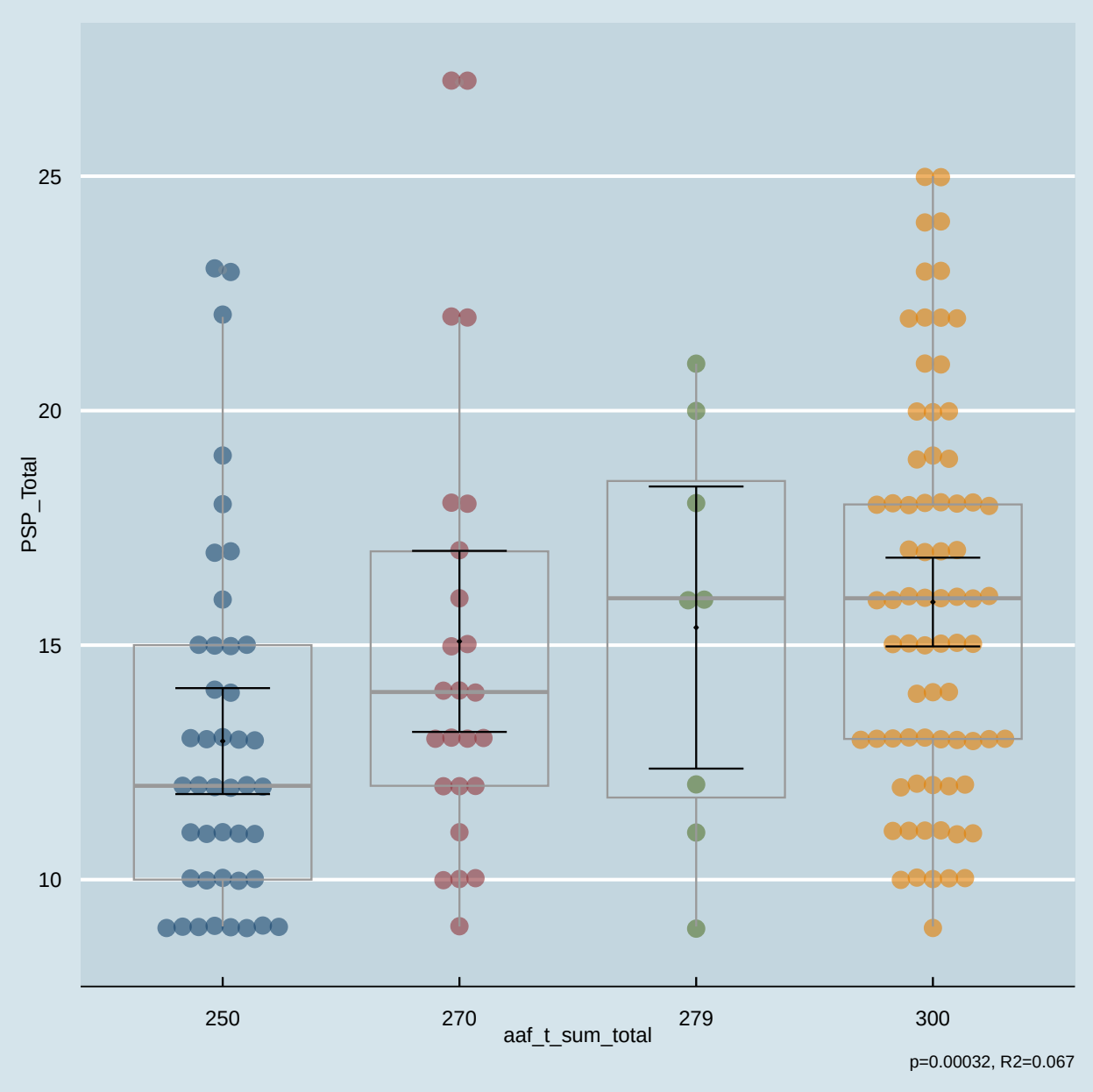
PSP TIME ASSOCIATION.

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



PSP TIME DIFFERENCES.

```
## 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