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IMPACT OF HIV SEVERITY ON NEUROCOGNITIVE PROFILE IN PERINATALLY HIV-INFECTED YOUNG ADULTS.

NeuroCoRISpe

HIV neuro psychiatry

CoRISpe

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RETIC-RIS Red Española de Investigación en SIDA (RIS)

Consejería de Educación, Juventud y Deporte. Comunidad de Madrid

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OBJECTIVE

To asses if there is impairment in cognitive domains in perinatally HIV patients (PHIV)

Comparing neurocognitive performance in PHIV-infected patients and their negative pairs.

*Identify risk factors that may increase the likelihood that our patients will develop neurocognitive deficits

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METHODS

Follow-up visits

↓

Incl/excl. criteria

↓

Study explanation→ Acceptance

↓

Informed Assent/ Consent

↓

N = 97 patients
4-23 years old
Psychosocial and
Neurocognitive
assessment
Quality of life

→

30 PATIENTS

*Adolescents and young adults (>16 y.)

*None encephalopathy or related important pathology

↔

30 HEALTHY CONTROLS

- Sex
- Age
- Socioeconomic status (max. edu. Level of parents)*

* Cross-sectional

* Pediatric vertically transmitted HIV

* 8 CoRISpe's participant centers

* Medin, G., García-Navarro, et al. (2016). Disease disclosure, treatment adherence, and behavioural profile in a cohort of vertically acquired HIV-infected adolescents. NeuroCoRISpeS study. AIDS Care, 28(1), 124-30. doi: 10.1080/09540121.2015.1071768.

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METHODS

Population

Adolescents with HIV infection due to vertical transmission (From 16 to 25 years old).

- None encephalopathy
- Matched by range of age, sex and socioeconomic status to a HIV- group.

Methodology

Assessment and registry of several variables:

- Clinical HIV-related characteristics (CD4 nadir, current CD4, viral load, AIDS category...), ART and adherence to the treatment.
- Demographic and psychosocial characteristics: Age, sex, SES, family structure, academic achievement...
- Neuropsychological variables.

Groups of analysis:

- PHIV vs HIV-: Perinatal HIV-infected patients vs healthy controls
- PHIV/AIDS vs PHIVnoAIDS: Patients with AIDS category vs no AIDS.

Univariate analysis (SPSS)

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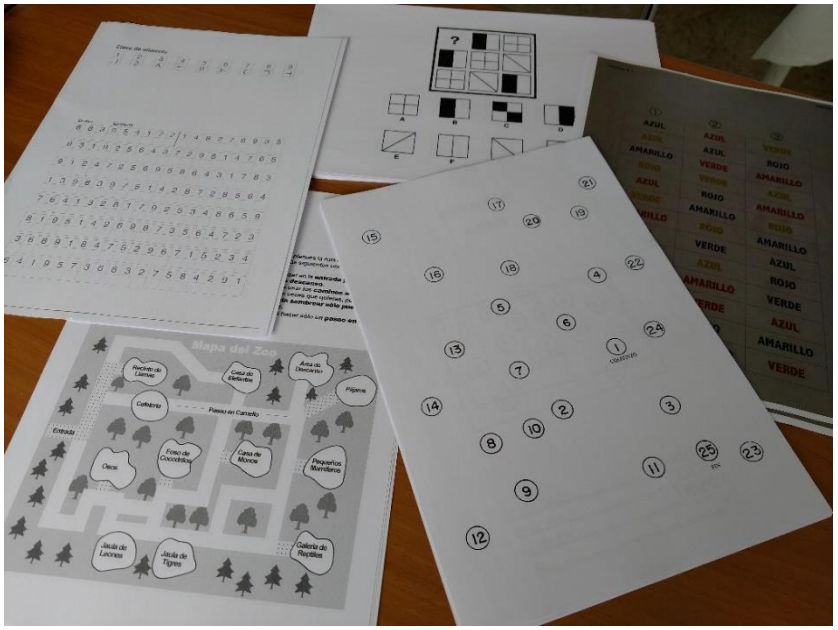
METHODS
Neuropsychological assessment



Cognitive domains assessed	
1	General cognitive ability (GCA)
2	Attention/ Processing-speed
3	Memory
4	Visuoconstructional ability
5	Executive functions
6	NPZ-5

METHODS
Neuropsychological assesment

Cognitive domains	Tests
General cognitive ability (GCA)	Crystallized Intel. (K-BIT) • (Verbal Intel.: Expressive vocabulary and Definitions) Fluid Intel. (K-BIT) • (Non-verbal intel.: Matrices) IQ Composite Score (K-BIT)
Attention/ Processing-speed	Trail Making Test-A Digit span forward (WAIS-IV subtest) Coding (WAIS-IV subtest)
Memory	Luria-DNA subtest Rey-Osterrieth Complex Figure - Memory
Visuoconstructional ability	Rey-Osterrieth Complex Figure - Copy
Executive functions	Semantic verbal fluency (Animals) Phonologic verbal fluency (PMR) Trail Making Test-B Attentional Control (Luria-DNA) Digit span backward (WAIS-IV subtest) Digit span sequencing (WAIS-IV subtest)
NPZ-5	Overall score (Mean of domains)

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RESULTS

- 67% Female 33% Male
- No significant differences in ethnicity

Median age (IQR)

- Study: 19 (17, 20)
- When diagnosed: 0.50 (0.21, 3.34)
- Start of cART: 4.87 (2.5, 8.1)

AIDS category: 8 patients (27%)
HCV co-infection: 4 patients (13%)

Current immunovirological situation

- Median CD4 nadir: 14,0% (RIC: 9, 21)
- Median CD4: 749 (RIC: 537, 921)
- Viral load<50cop/ml: 23 patients (77%)
- Were on ART: 28 patients (93%)
- Good adherence: 82%

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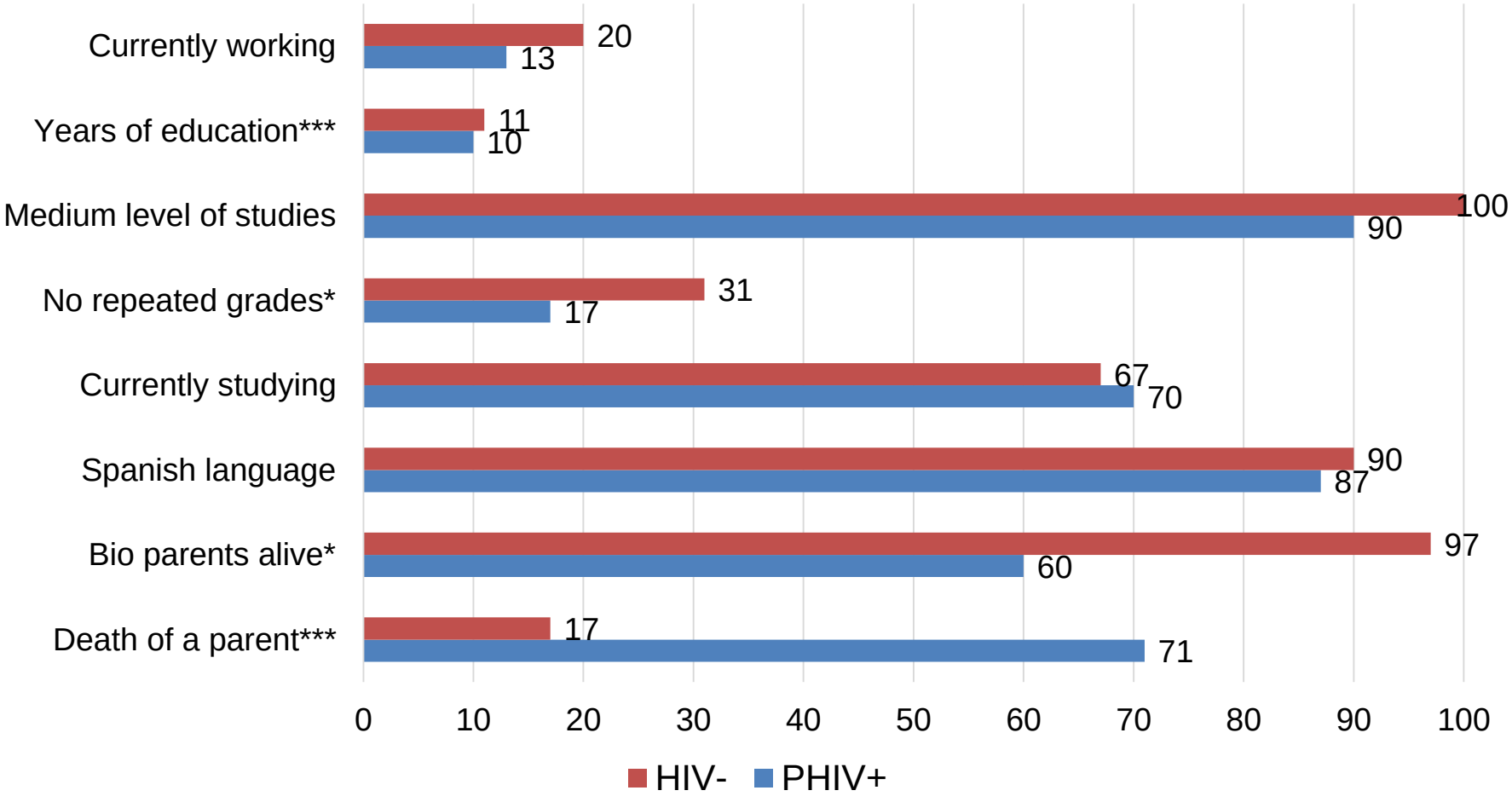
RESULTS

Psychosocial and educational variables



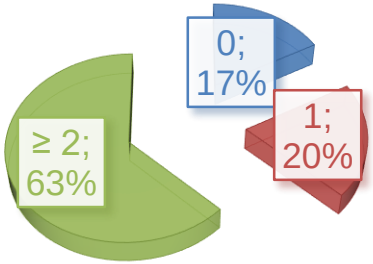
* p< 0.05; ** p < 0.01; p < 0.001 ***

Level of studies, Inverse distribution:
PHIV (mean 10.03, range: 8-13) vs HIV- (mean 11.30, range: 9-15).

RESULTS

Psychosocial and educational variables

PHIV+



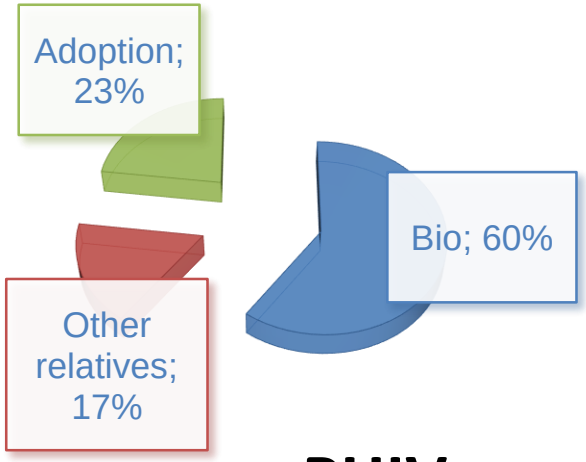
HIV-

Repeated grades

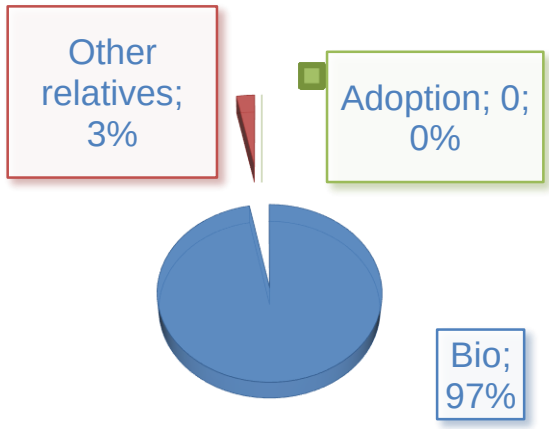
*p = 0.028

Family structure

*p = 0.002



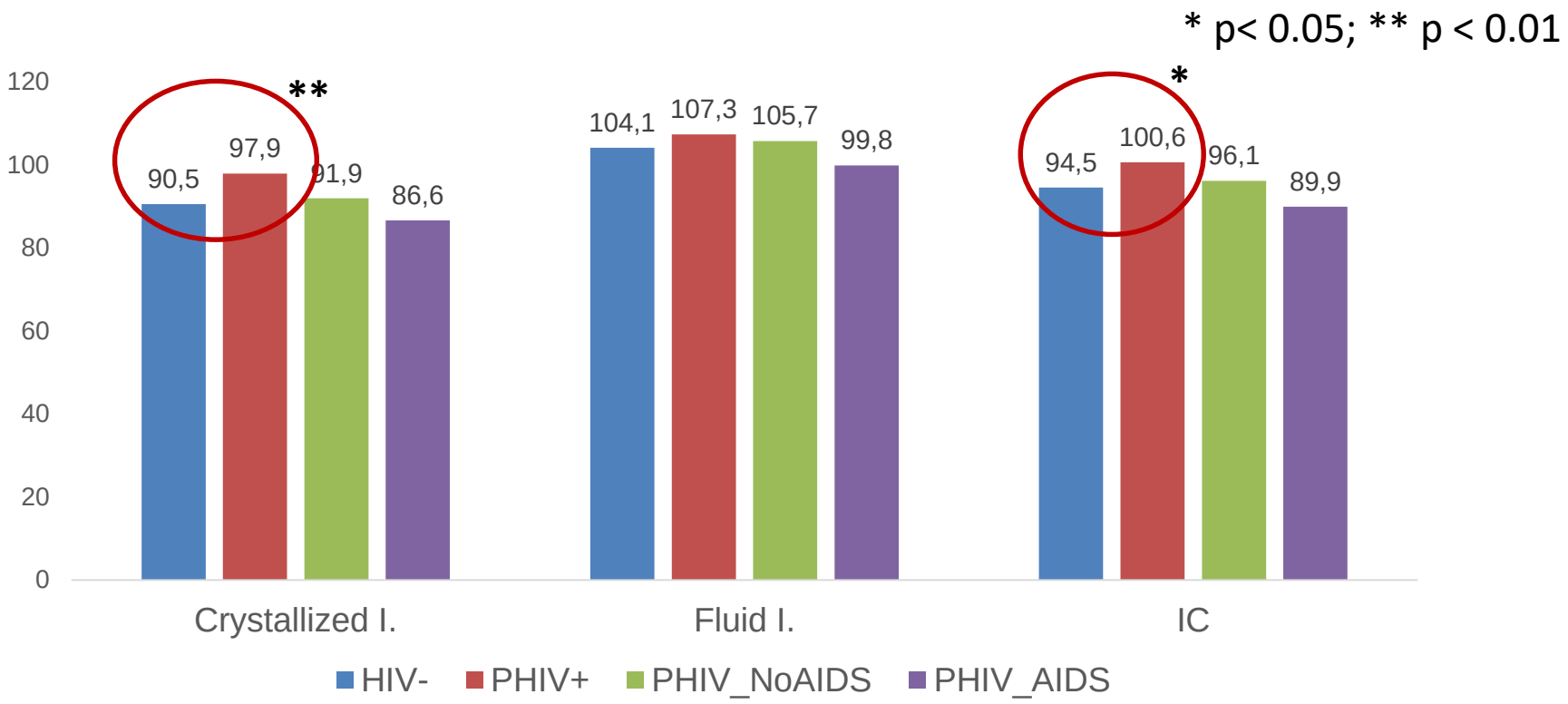
PHIV+



HIV-

RESULTS

Intelligence scales: Patients vs Controls y AIDS vs noAIDS



- Patients and healthy subjects scored average in all the intelligence scales.
- PHIV group scored lower in verbal scale and IQ, but it had not clinical relevance.
- AIDS group had the poorest scores.

RESULTS

Neurocognitive variables

	PHIV	HIV-	p	PHIV_ AIDS	PHIV_ noAIDS	p
General cognitive ability	-0.22	0.09	**0.035**	-0.49	-0.12	0.139
Attention/ Processing-speed	-0.41	-0.17	0.141	-0.64	-0.33	0.132
Memory	-0.17	0.35	**0.018**	-0.40	-0.23	0.453
Executive functions	-0.33	-0.14	0.080	-0.38	-0.06	0.205
Visuoconstructional ability	-0.63	-0.39	0.325	-0.92	-0.52	0.759
NPZ-5	-0.34	-0.07	**0.024**	-0.56	-0.25	**0.049**

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RESULTS

Neurocognitive and HIV variables

	Age at diagnoses	CDC category	Nadir CD4 (mm3)	Total ART time	Total cART time	Indetec. VL
General cognitive ability	r=-0.250 p=0.183	r=-0.202 p=0.284	**r=0.415 p=0.023**	r=0.114 p=0.549	r=0.137 p=0.469	r=0.184 p=0.331
Attention/ Processing-speed	r=-0.230 p=0.222	r=-0.225 p=0.231	**r=0.371 p=0.044**	r=-0.030 p=0.875	r=0.158 p=0.404	r=-0.197 p=0.298
Memory	r=-0.327 p=0.077	r=-0.150 p=0.430	r=0.324 p=0.081	**r=0.391 p=0.033**	r=0.313 p=0.092	**r=0.392 p=0.032**
Executive functions	r=-0.124 p=0.515	r=-0.148 p=0.434	r=0.340 p=0.066	r=0.299 p=0.109	r=0.218 p=0.246	r=0.174 p=0.358
Visuo-constructional ability	r=-0.276 p=0.140	r=0.001 p=0.997	r=0.023 p=0.905	r=0.019 p=0.921	r=-0.083 p=0.664	r=-0.068 p=0.720
NPZ-5	r=-0.302 p=0.105	r=-0.331 p=0.074	**r=0.378 p=0.040**	r=0.102 p=0.592	r=0.213 p=0.259	r=-0.052 p=0.784

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CONCLUSSIONS

- Both patients and healthy subjects scores were average in intelligence scales, while AIDS patients were on the limit (-1SD).

- HIV infection was related to poorer performance in General cognitive ability (GCA) and Memory domains, while taking ART and keeping a good control of the infection had a minor beneficial effect on memory.

- Markers of HIV disease severity (nadirCD4, AIDS) were related to poorer cognitive function in GCA, Attention/Processing-speed tests and/or NPZ-5.

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HIV neuropsychiatry

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