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Using the IRAP as a measure of psychological flexibility in children.

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Disclosures:

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- Faculty at University of Jaén (Spain)

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As they develop, children learn to express, understand, and regulate their emotions.

From a functional-contextual perspective, the key point in this learning is the development of Psychological Flexibility (PF).

PF is defined as the ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends.

During childhood, it is important to prevent the development of rigid patterns where some emotions are seen as barriers to engaging in valued or significant activities.

There is very limited research on the development of PF during childhood and adolescence.

Currently, there is a self-report measure of PF, the Avoidance and Fusion Questionnaire Youth (AFQ-Y, Greco, et al., 2008), recently validated in Spanish population (Valdivia-Salas, et al., 2017).

The present study aims to explore the utility of the Implicit Relational Assessment Procedure (IRAP: Barnes-Holmes et al., 2006) as a complementary tool for the study of PF from a developmental perspective.

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The IRAP is a computer-based reaction-time procedure for the measurement of brief, immediate relational responses.

It requires that participants respond under time pressure to stimulus relations (e.g. Pleasant-Love) in a manner that is supposed to be consistent (in this case True) or inconsistent (in this case False) with their learning history.

The rationale is that participants will take longer to respond to inconsistent than to consistent trials.

The IRAP has been applied to the assessment of different implicit beliefs in adults, but the evidence of its application with children is very limited.

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Rabelo, Bartoloti, & Souza (2014) conducted a small research with ten children (ages 7 to 10) to study children's implicit gender-based attitudes toward toys.

Also, Scanlon, McEnteggart, Barnes-Holmes, & Barnes-Holmes (2014) carried out two studies with the IRAP to measure children's implicit attitudes to the self. The first was conducted with ADHD and typically-developing children (age 8 to 11). The second, with dislexia and typically-developing children (age 9 to 14).

Although both studies address relevant issues in socioemotional development, none of them focuses specifically on PF.

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The current study presents data from a group of ten-year olds.

The aim of the study was to assess the children's implicit attitudes to the basic emotions of happiness and sadness, as well as to see if these were perceived as barriers for valued activities.

This study is part of a larger cross-sectional study with children and adolescents with ages between 10 and 15. The larger study attempts to study developmental changes in PF during late childhood and early adolescence.

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Method

Participants

- **43** ten-year old children (**44,2%** boys y **55,8%** girls).
- Normal development.
- Normal reading & writing abilities.
- No previous experience with the IRAP, equivalence relations experiments or similar.

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Materials and Intruments

- Two different **IRAPs.**
- Visual Analogue Scale (**VAS**) with the same stimuli used in the IRAPs.
- **Avoidance and Fusion Questionnaire- Young-17** (Greco, Lambert, & Baer, 2008). Spanish adaptation (Valdivia-Salas, Martín-Albo, Zaldivar, Lombas, & Jimenez, 2017).
- **Emotional Quotient Inventory: Young Version**; (Bar-On & Parker, 2000). Spanish adaptation (Ferrandiz, Hernández, Bermejo, Ferrando, & Sáinz, 2012).
- **General & Current Mood Measure**

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Stimuli used in IRAP 1

Samples

Happiness	Sadness

Targets

is good	is bad
is cool	is lame
I like	bothers me
Is pleasant	is unpleasant
is the best	is the worst
is necessary	is useless

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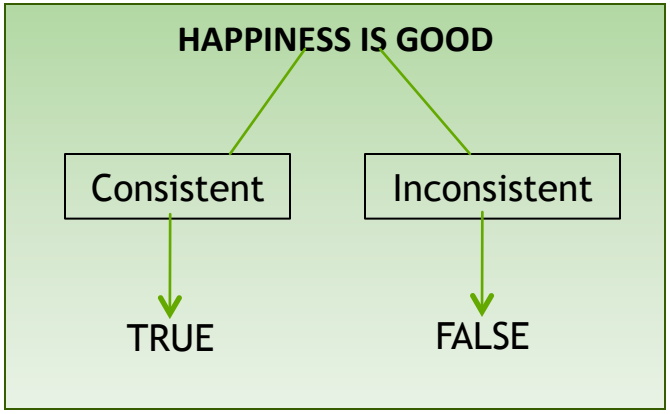
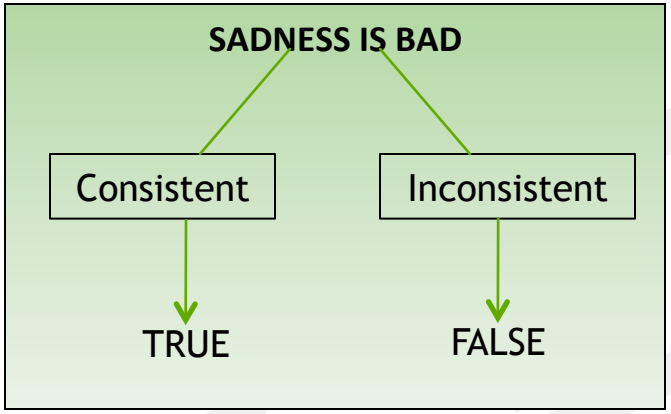
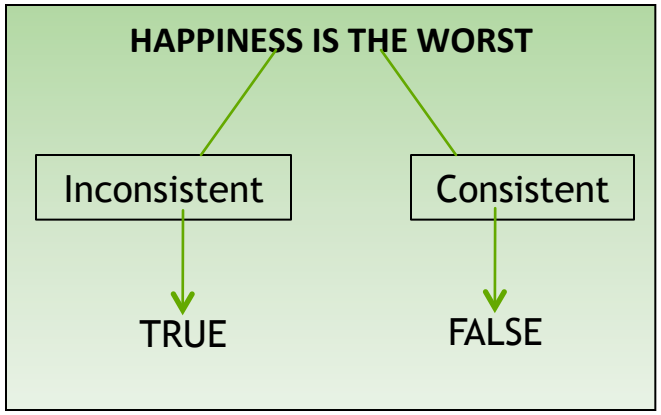
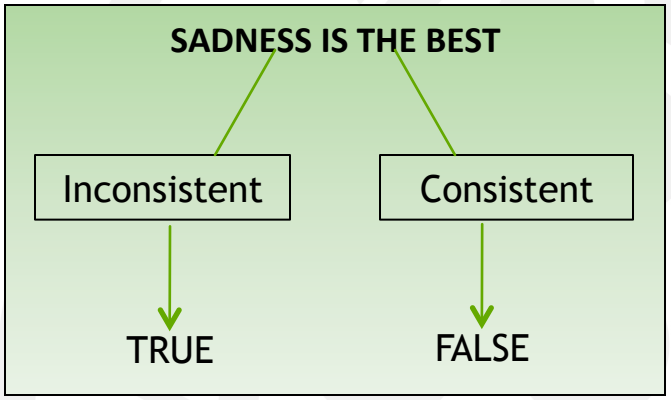
IRAP 1 trial types









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Stimuli used in IRAP 2

Samples

I Happy	I Sad

Targets

want to play	don't want to play
hang out with friends	want to be alone
do well at school	do badly at school
concentrate	can't concentrate
have fun	have a hard time
enjoy	get bored

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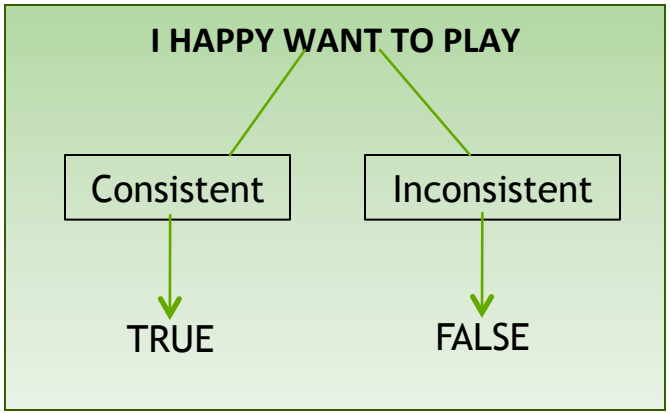
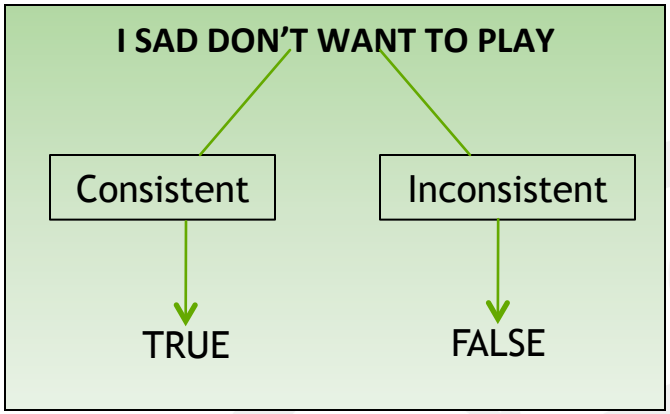
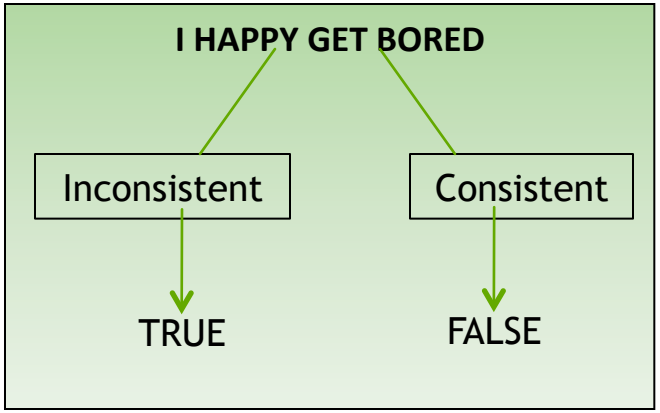
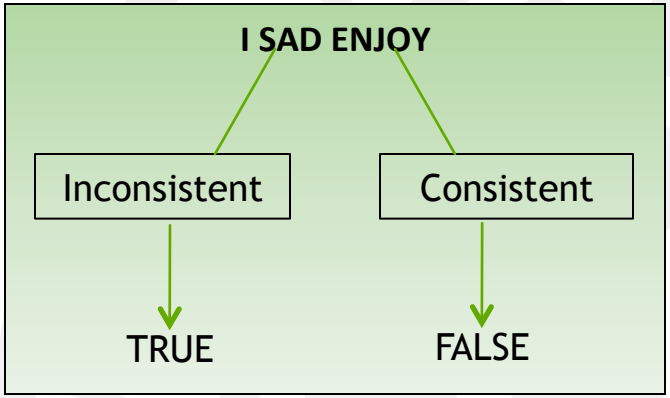
IRAP 2 trial types









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VAS 1

Rate the next phrase by making a mark on the scale below

Happiness is useless

Totally disagree **Totally agree**

Rate the next phrase by making a mark on the scale below

Sadness is useless

Totally disagree **Totally agree**

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VAS 2

Rate the next phrase by making a mark on the scale below

I happy want to play

Totally disagree **Totally agree**

Rate the next phrase by making a mark on the scale below

I sad want to play

Totally disagree **Totally agree**

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General & Current Mood Measure

Today:

I'M SAD----------I'M HAPPY

1 2 3 4 5 6 7

Usually, in my life:

I'M SAD----------I'M HAPPY

1 2 3 4 5 6 7

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Procedure

University Ethics Board approval and informed consent from parents and children were collected.

3 sessions with each child (a few days interval among sessions)

- Administration of different questionnaires and explicit measures (in group).
- IRAP 1 (individually).
- IRAP 2 (individually).

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Procedure IRAP

Pre-training with prompts

C I

TO CRITERION

3000 ms latency
80% correct responses

Practice blocks

C I

TO CRITERION WITH A MAXIMUM 6 PAIRS OF BLOCKS

Test blocks

C I C I C I

FIXED 3 PAIRS OF BLOCKS

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Data Analysis Plan

D-IRAP scores (Greenwald) were calculated.

- IRAP 1:
  - Overall D (average of four trial types)
  - $D_{happiness}$ (average of happiness sample trials)
  - $D_{sadness}$ (average of sadness sample trials)
- IRAP 2:
  - Overall D (average of four trial types)
  - $D_{I\ happy}$ (average of I happy sample trials)
  - $D_{I\ sad}$ (average of I sad sample trials)

- **One-sample T tests against zero** for all IRAP scores.

- **Pearson** product to moment correlations among IRAP scores, explicit and questionnaire measures.

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Results

40 out of 43 participants (93%) completed the practice phases of IRAP 1 and IRAP 2 and passed to the testing phases.

In the IRAP 1, 3 additional participants failed to maintain the performance criteria.

In IRAP 2, all participants that completed the test phase, maintained the performance criteria.

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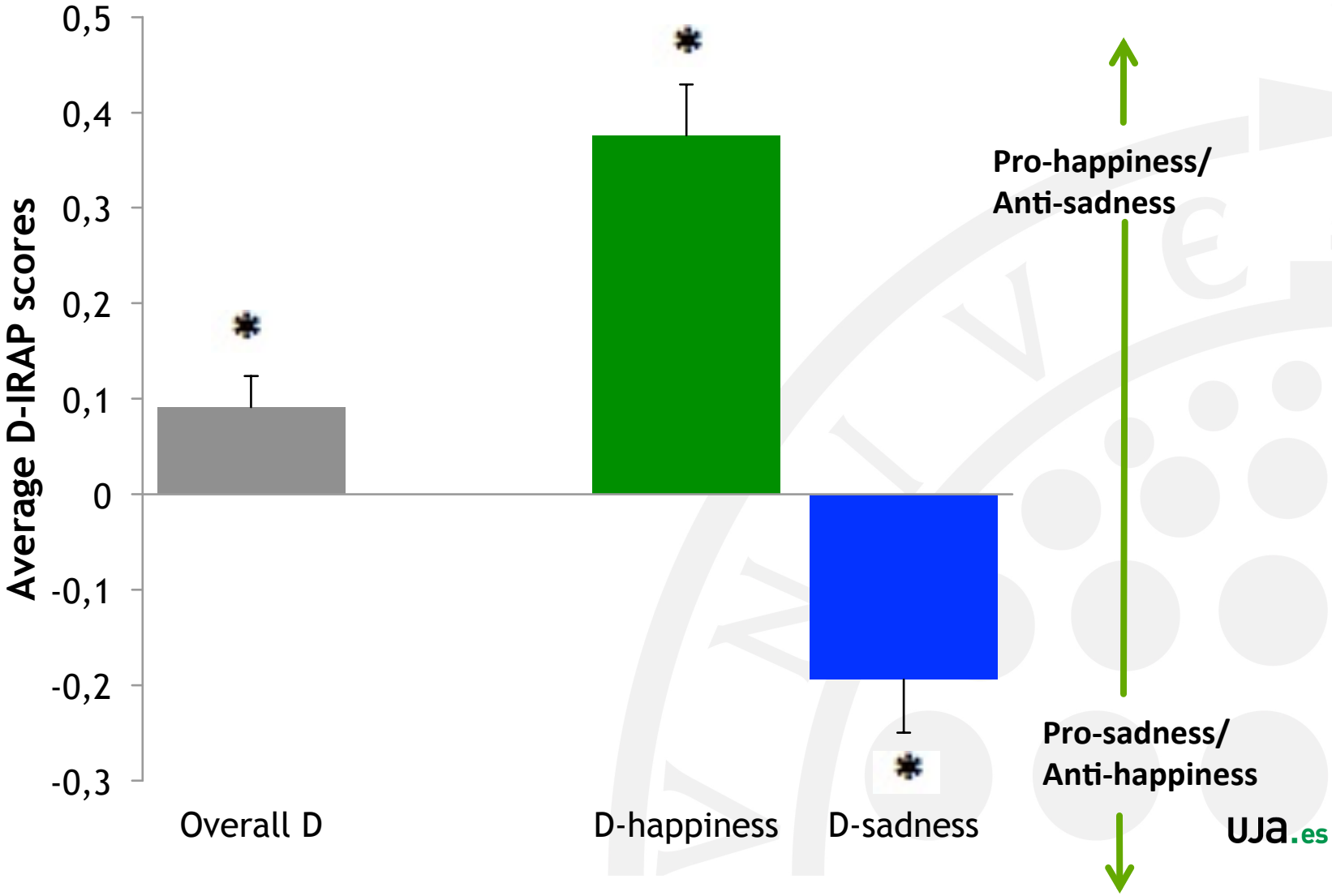
Results IRAP 1



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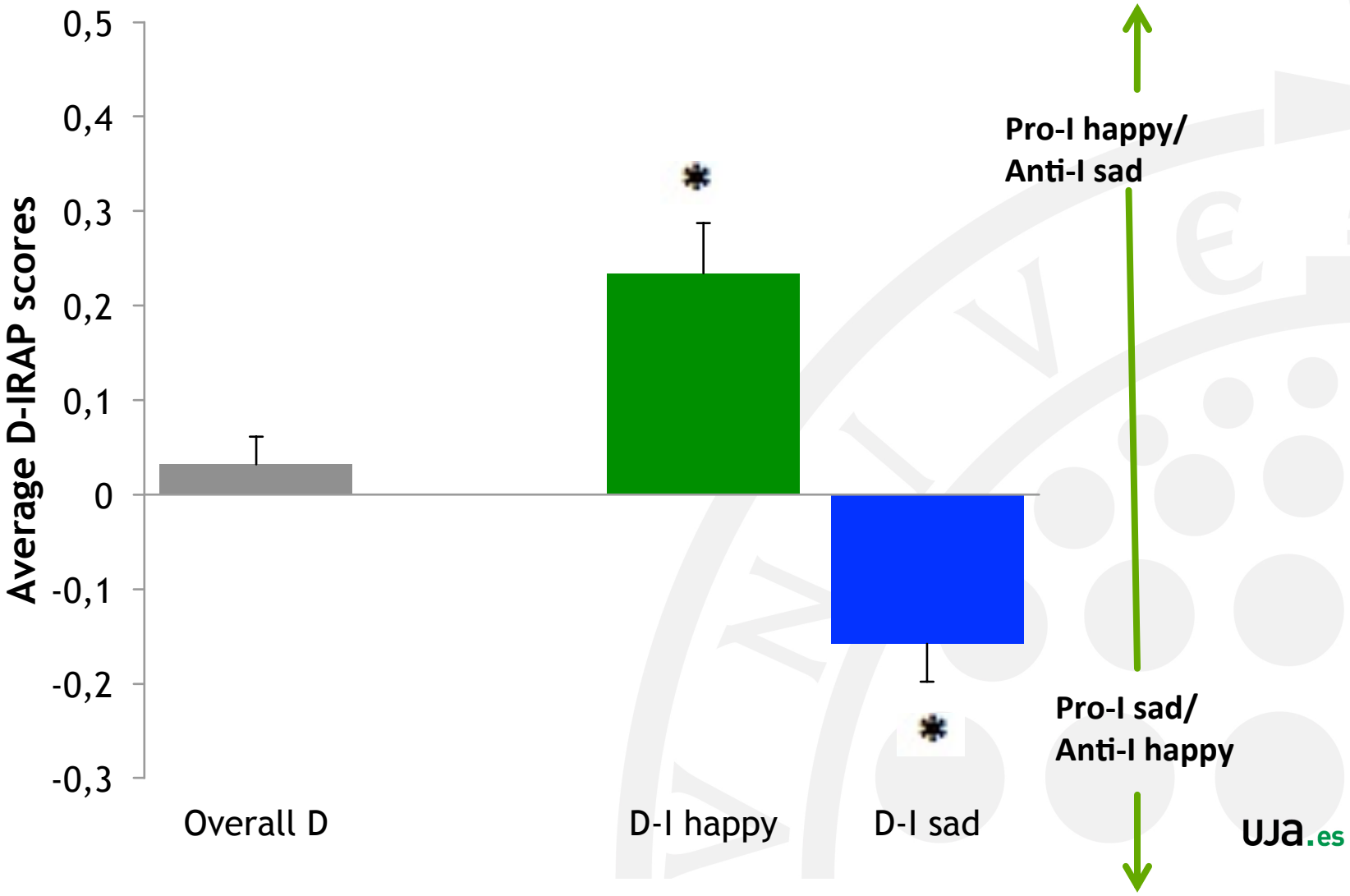
Results IRAP 2



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Descriptive statistics for main explicit measures

	M	SD
VAS1	3,382	1,448
$VAS1_{happiness}$	3,874	1,461
$VAS1_{sadness}$	2,890	1,663
VAS2	3,226	1,490
$VAS2_{I\ happy}$	3,915	1,522
$VAS2_{I\ sad}$	2,536	1,834
AFQ-Y17	25,435	10,903
EQI	112,72	15,197
Current Mood	6,23	0,996
General Mood	5,93	1,352
Grades	7,558	1,448

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Exploratory correlational analysis

Correlations between IRAP1 and IRAP2 scores.

- *$D_{happiness}$/$D_{I\ happy}$: r=.373
- **$D_{sadness}$/$D_{I\ happy}$: r=-.508

IRAP 1 with explicit and questionnaire measures

- **$D_{sadness}$/Mood-today: r=-.423

IRAP 2 with explicit and questionnaire measures

- *$D_{I\ happy}$/Mood-today: r=.398
- *$D_{I\ happy}$/$VAS_{I\ happy}$: r=.353

AFQ with other measures

- * Age: r=.353
- * EQI: r=-.428
- * $VAS_{I\ happy}$: r=-.335

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Discussion

The results in this study, confirmed the applicability of the IRAP with children.

A detailed explanation of instructions and a short pre-training sufficed to obtain low attrition rates (even better than in some studies with adults).

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Discussion

Participants in this study show an IRAP performance pattern that is indicative of PF.

Although they show a small relative preference for happiness over sadness, this is not due to a negative attitude to sadness. They show positive attitudes to both happiness and sadness, but more positive to happiness.

Additionally, they do not show any bias regarding whether being happy or sad affect valued acting. They deem both emotional states as equal conditions for valued acting. Neither of them is viewed as a barrier.

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Discussion

There is a clear discrepancy between the IRAP and the VAS. VAS scores are clearly pro-happiness and anti-sadness, and also show a perception of sadness as a barrier for valued acting.

Usually, research with implicit measures reports stronger implicit than explicit biases. Perhaps the issue explored here is not sentitive in terms of social desirability. Or social desirability here involves valuing happiness as better and sadness as worse than they are really experienced.

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Discussion

Finally, two results that deserve futher investigation:

1. The lack of correlation between AFQ-Y17 scores and IRAP 2 scores.

2. The positive correlation between age and AFQ-Y17 scores.

Further research should explore measures of PF in a broader age range.

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