

Cognitive functioning and development among young children in Israel- Across cultural study

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Introduction

- Cultures differ by beliefs, norms, values, religiosity etc.. which may contribute in various ways to the developmental trajectories of their members' cognitive functioning.
- Cultural differences in cognitive functioning were documented around the world (Freire & Pammer, 2020; Kö Ster et al., 2018; Sobeh & Spijkers, 2013a).
- Children from collectivistic cultures are more context sensitive than children from individualistic cultures (Imada, 2013).
- Religious people manifest lower cognitive flexibility than non-religious (Zmigrod et al., 2019)
- Surprisingly, although Israel is a unique multi-cultural country, as far as I know, no previous studies investigated the effects of cultural factors on cognitive functioning (attention, cognitive flexibility, response inhibition) and development among children.

Goal and Hypothesis

This study aim to examine cognitive functioning and development among young children from different cultures in Israel taking into account how they prioritize values and the level of religiosity at home.

Hypothesis:

Stronger religiosity will be related to lower cognitive flexibility among children across cultures. In the absence of previous relevant studies, religiosity will be also investigated in relation to other cognitive functions such as sustained attention and inhibitory control.

Methods

A. Participants:

60 children aged 5-8 years (mean= 6 years+ 9 months (6.67), SD=1.078);

Table 1: Participants

Age/culture	Jews	Arabs
Pre-school	8	28
2 nd grade	7	17

Results

A. Comparison between cultures in context sensitivity :

Arab children showed slightly higher context sensitivity than Jewish children but it was not significant.

Both groups got negative mean scores reflecting a tendency to be more sensitive to the object than to the context.

Table 2: Comparison between cultures in context sensitivity

	Jewish culture	Arab culture
N	14	40
Context sensitivity	-4.36	-3.62
t-test	t(52)= -0.536, n.s	

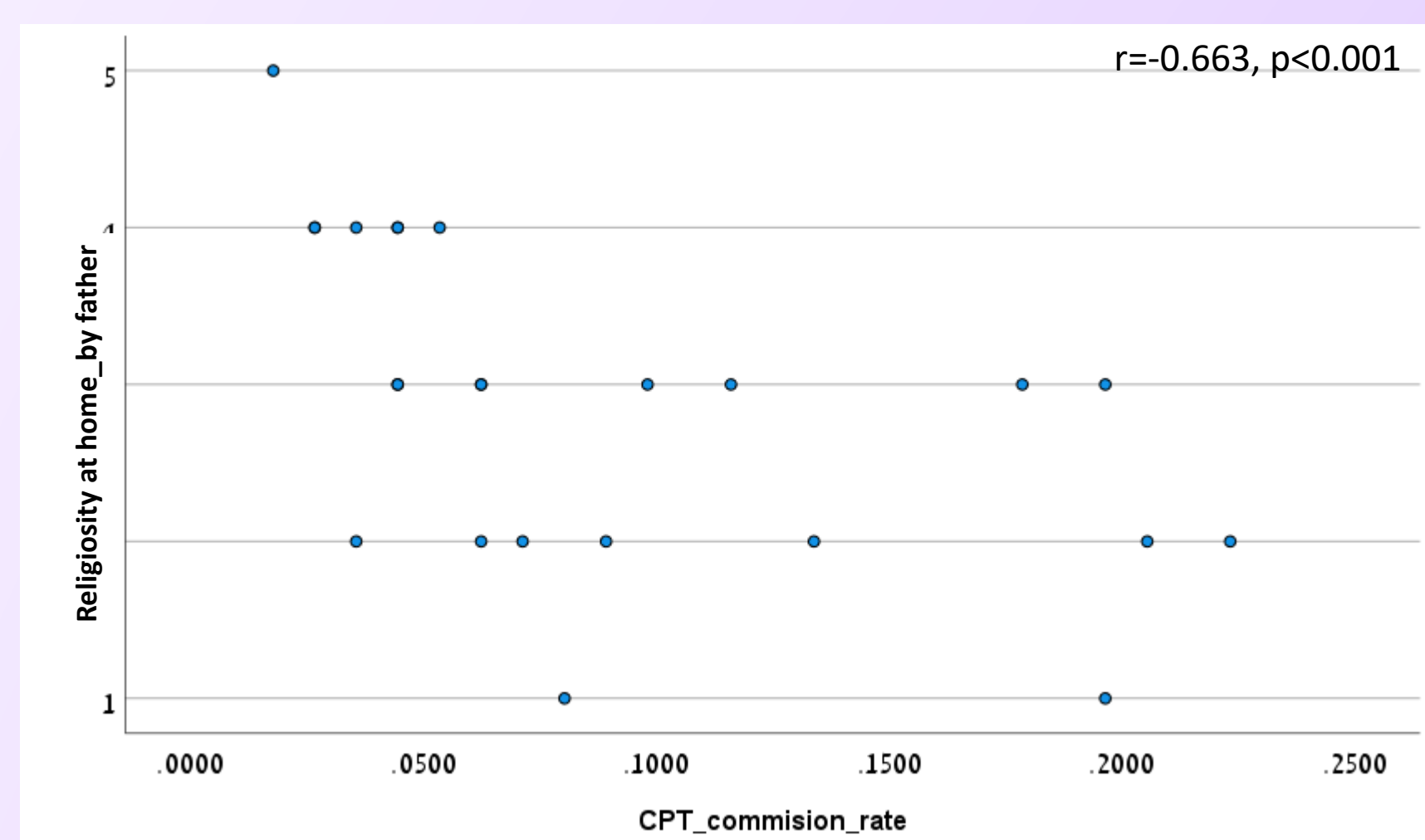
B. Religiosity and cognitive flexibility

No significant correlations were found between religiosity and cognitive flexibility on this sample

C. Religiosity and response inhibition (n=24)

Negative Spearman correlation was found between the level of religiosity at home as perceived by the father and response inhibition (commission errors) .

Figure 1: Correlation between religiosity at home (by the father) and response inhibition



Methods - continue

B. Tools

Level of religiosity was assessed by a scale from the Social Survey of the CBS (2002) and by the Daily Spiritual Experience Scale (DSES questionnaire; Underwood, 2011) for parents.

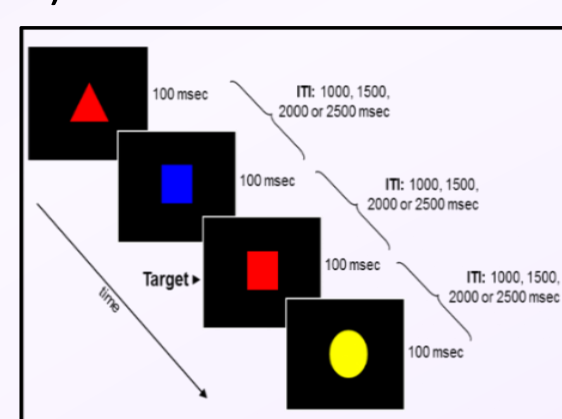
Values – were assessed by the Picture- Based Value Survey for Children (PBVS-C; Döring et al., 2010). In this task participants are presented with pictures describing different values based on Schwartz's theory (Schwartz, 1999, 2009, 2012)



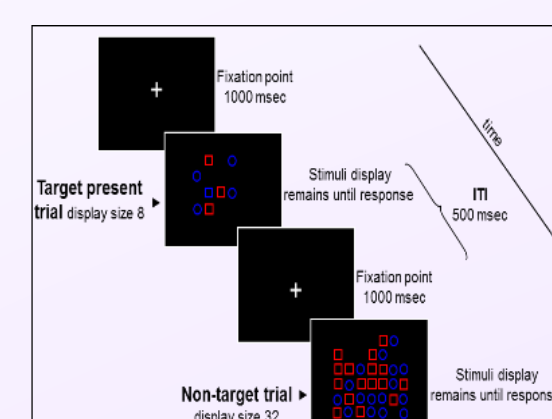
Context- sensitivity was measured by 'Free-description' task adapted from (Imada et al., 2013)- participants will be presented to 14 still pictures for 15 seconds each. After the presentation of each picture participants will be asked to freely describe what have they seen in the picture. Measures: (1) the first object mentioned (number of focal vs. background objects mentioned first),(2) descriptive accounts (number of descriptives of focal vs. background objects mentioned) and (3) relational accounts (number of statements describing the relations between focal and background) . Higher score represents higher context-sensitivity (related to collectivistic cultures)



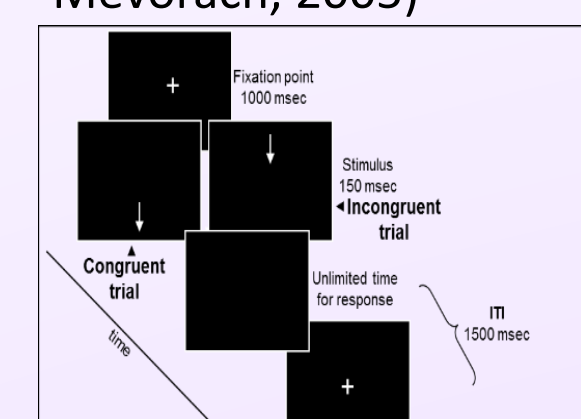
Sustained attention: Conjunctive Continuous Performance Task (CCPT) (Tsal, Shalev and Mevorach, 2005)



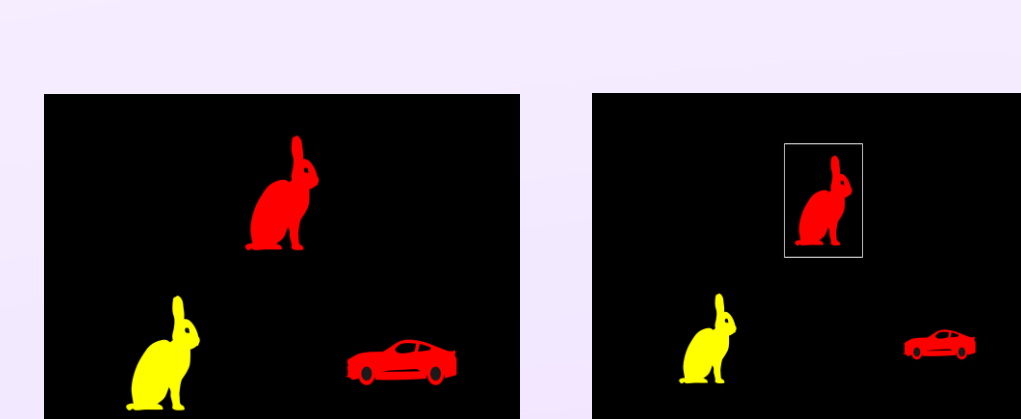
Selective-spatial attention: Conjunctive search task (Tsal, Shalev and Mevorach, 2005)



Executive attention was assessed using the Location task (Tsal, Shalev and Mevorach, 2005)



Cognitive flexibility Computerized task based on the Dimensional Change Card Sort (DCCS; Zelazo, 2006)



C. procedure:

Parents completed religiosity questionnaires (computerized versions).

Cognitive performance was assessed in the preschool/ school class by the researcher (Hebrew speaker) or by Arabic speaker research assistant. Assessments was individually administered, researcher and participant face to face. Each child completed two assessment sessions in order to prevent too long assessment meetings. The attention tasks and the cognitive flexibility task was presented on a laptop.

This study is still running. The preliminary results of the pilot are presented here and should be treated very carefully

Results - continue

D. Correlations between universalism value ranking and sustained attention (n=54)

Negative Spearman correlation was found between the rank of universalism and response latency in the sustained attention task Higher ranking of universalism value is related to faster response latency (r=-0.348, p=0.01) and to lower variability of RTs (r=-0.367, p=0.006). Taken together, higher ranking of universalism is related to better sustained attention

Figure 2: Correlation between universalism value rank and RT on CCPT

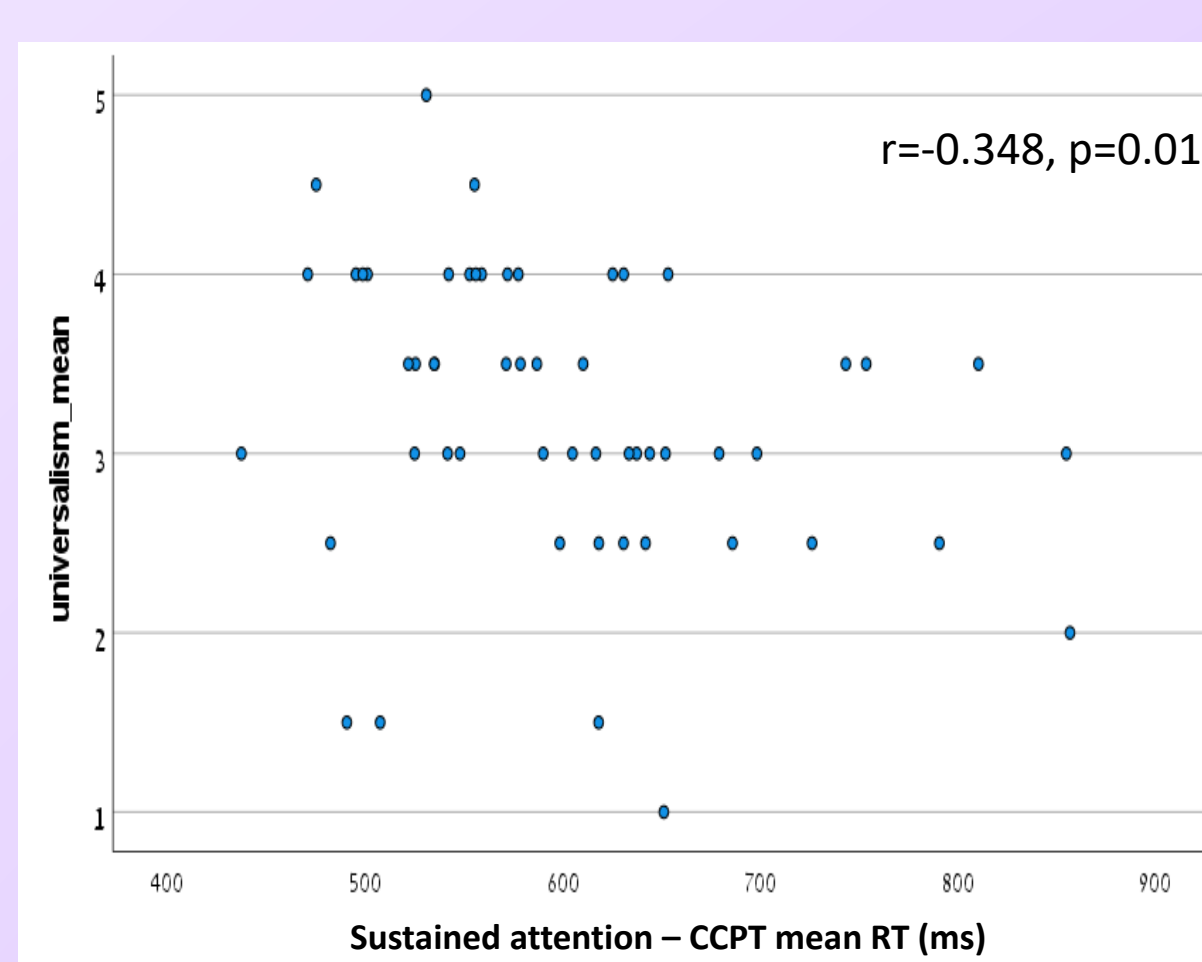
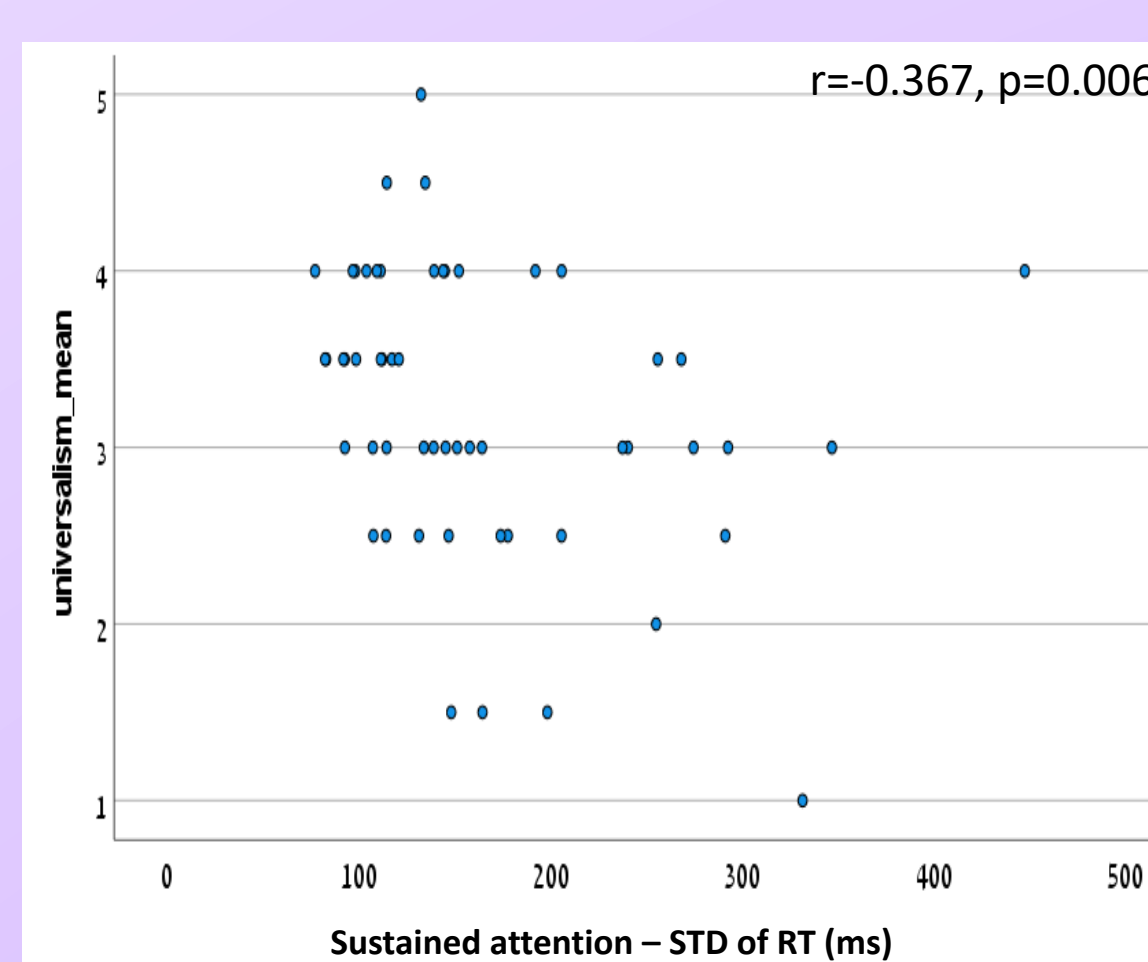


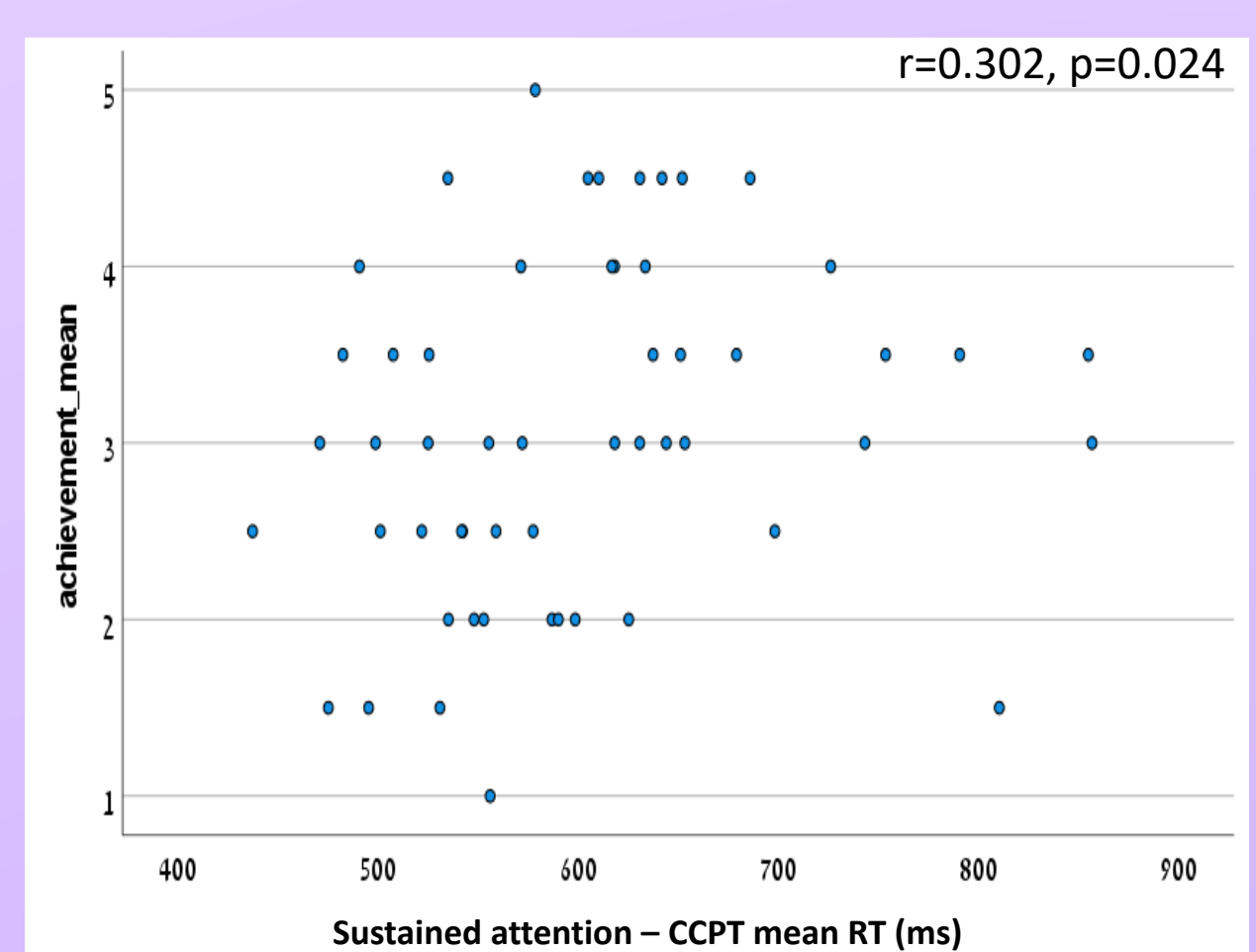
Figure 3: Correlation between universalism value rank and STD RT on CCPT



E. Correlations between the rank of achievement value and sustained attention (SA; n=54)

Positive Spearman correlation was found between rank of achievement and response latency in the SA task. Higher ranking of achievement is related to slower reactions (r=0.302, p=0.024).

Figure 4: Correlation between achievement value rank and RT in CCPT



Summary & Discussion

- Level of religiosity was not associated with cognitive flexibility in this pilot study. This is not consistent with previous studies.
- Level of religiosity at home as perceived by the father seem to be related to better response inhibition. The daily routines of religious families may emphasize rules and rituals that require the inhibition of various responses.
- Children from both cultures are sensitive to the object and less to the context.
- Universalism, a value related to collectivism found to be related with better cognitive flexibility and with better sustained attention.
- Achievement, a value related to individualism was related to slower but more accurate response in the sustained attention task.

Challenges

- Expand the recruitment of the Jewish sample, including religious participants.
- Compare the cognitive flexibility data with previous studies that used the same paradigms (i.e., DCCS) to ensure that the lack of correlation with religiosity is not a result of a ceiling/floor effect in different age groups.
- Increase the cooperation of parents to complete the parents' questionnaires

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