1. BACKGROUND

Growing up in underprivileged conditions is associated with reduced academic achievement but little is known about the underlying cognitive mechanisms responsible for this effect. This study explores the effects of poverty on children’s executive function (EF) development. The objectives were: (1) to specify how the executive system is organized in young children from a wide range of socioeconomic status groups (SES); (2) to explore the impact of SES on different EFs.

Participants

Children were recruited from Year 1 and Year 2 of 17 schools from different SES neighborhood around the cities of São Paulo and Salvador in Brazil. Exclusion criteria included: maternal alcohol or drug use during pregnancy; severe pregnancy or birth complications; history of head injury, epilepsy, or hearing problems; stunting or wasting; severe health problems or developmental delays; special educational needs; and bilingualism. The data of 121 was excluded and for 13 children testing was discontinued. Complete data on 355 children was obtained and constitute the subjects in the analyses presented below.

Children had a mean chronological age of 89.11 months (SD = 7.84). 51% were girls: 10% of the children lived in extreme poverty; 5% in poverty; 19% were low income; 2% were median income; and 64% wealthy.

Measures

- Short term memory
  - digit recall (DR) & dot matrix (DM)
- Working memory
  - counting recall (CR), odd one out (OOO), & Mr X
- Cognitive Control
  - map mission (MM); sky search (SS); Simon task
- Switching
  - duck task; opposite world (OW)
- Motor inhibition
  - Go-no/go (GNG); Simon says (SSays)

Analyses

Latent variable analyses

Confirmatory Factor Analyses to explore the structure of EFs in young children and links with SES

2. METHOD

Participants

Measures

Analyses

3. RESULTS - Structure of executive functions in young children

Hypothetical model

Preferred model

Performance of children from poor and wealthy families

Note: Wealthy = families earning more than 50% above the median income; Poor = below median equivalised income

4. RESULTS - SES and EF

5. CONCLUSION

- EFs are clearly distinguishable but also share some underlying commonality in 7-year-old children from poor and wealthy backgrounds.
- Some EFs are more sensitive to SES than others: in contrast to working memory, switching, and cognitive control, motor inhibition did not seem to be influenced by SES.
- SES and some EF are strongly related sharing approximately 30% of their variance.
- Growing up in underprivileged socioeconomic conditions constitutes a serious risk factor for children’s EF development.

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