Long-term Outcomes of Inattentive, Hyperactive and Impulsive Young Children

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Example of using NPD with other data sources

What impact does inattentive, hyperactive and impulsive behaviour in young children have on their long-term academic progress?

How many children are at risk?

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Behaviour difficulties in the classroom

Inattention

Hyperactivity/Impulsivity

Combined

Many young children exhibit these behaviours in the classroom to varying degrees.

At severe level , diagnosed with Attention Deficit Hyperactivity Disorder (ADHD)

Inattention

1. Makes careless mistakes
2. Difficulty sustaining attention
3. Does not seem to listen
4. Does not follow through instructions, fails to finish work
5. Difficulty organising tasks and activities
6. Reluctant to engage in tasks which require sustained mental activity
7. Loses equipment necessary for activity
8. Distracted by extraneous stimuli
9. Forgetful in daily activities

Hyperactivity/Impulsivity

1. Fidgets with hands or feet or squirms in seat
2. Leaves seat in classroom or in other situations where remaining seated is expected
3. Runs about excessively in situations in which it is inappropriate
4. Difficulty in playing quietly
5. Often 'on the go' as if driven by a motor
6. Talks excessively

1. Blurts out answers before questions have been completed
2. Has difficulty awaiting turn
3. Interrupts or intrudes on others e.g. pushes in

Prevalence of ADHD

- Estimated to affect 5% of school children
  - Polanczyk (2007)

Data Sources

- CEM Assessments
  - PIPS Baseline Early reading and mathematics at start of Reception (2000/01 academic year)
  - PIPS Baseline Follow-up Teachers' ratings of pupils' behaviour at end of Reception (2000/01 academic year)

- NPD
  - End of Key Stage 2 English and mathematics fine-grained levels
  - Gender, EAL, FSM & IDACI

- 46,369 children from 1812 schools

End KS2 assessment

Continuum of behaviour
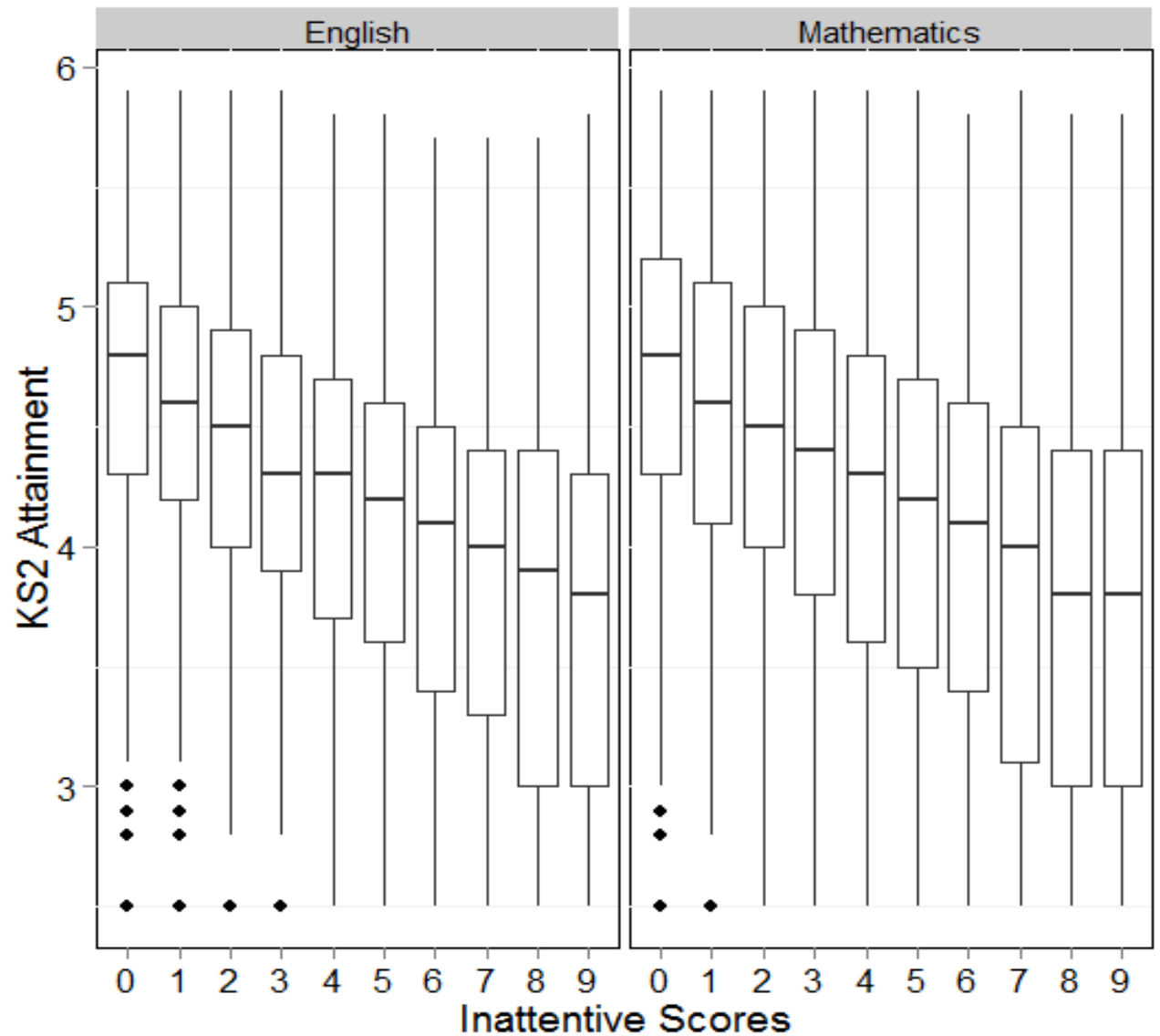
Multi-level models

Variables	Mean or %	SD	Range
End of Key Stage 2 Maths	4.51	0.80	2.50 to 5.90
End of Key Stage 2 English	4.48	0.72	2.50 to 5.90
Inattention at age 5	1.47	2.25	0 to 9
Hyperactivity at age 5	0.57	1.20	0 to 6
Impulsivity at age 5	0.36	0.81	0 to 3
Start of school academic attainment	49.66	9.67	18.94 to 89.98
IDACI Score	0.22	0.18	0.01 to 0.99
Male gender	50.88%		
Entitled to free school meals	14.77%		
English additional language	7.19%		

Comparison of sample with national data

Variables	Sample Mean or %	Sample SD	National Mean or %	National SD
End of Key Stage 2 Maths	4.51	0.80	4.50	0.83
End of Key Stage 2 English	4.48	0.72	4.47	0.76
Start of school academic attainment	49.66	9.67	50	10
IDACI Score	0.22	0.18	0.22	0.18
Entitled to FSM	14.77%			16.4%
EAL	7.19%			15%

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Model

Variables	End of KS2 Mathematics Estimate (95% CI)	End of KS2 English Estimate (95% CI)
Inattention	-0.075(-0.078, -0.072)**	-0.064(-0.067,-0.061)**
Hyperactivity	-0.007(-0.014, 0.001)	-0.005(-0.012, 0.001)
Impulsivity	0.035(0.026, 0.045)**	0.024(0.016, 0.032)**
Male gender	0.233(0.221, 0.244)**	-0.086(-0.096, 0.076)
IDACI Score	-0.234(-0.276, -0.192)**	-0.271(-0.308, -0.234)**
Free school meals (yes)	-0.085(-0.102, -0.068)**	-0.121(-0.136, -0.106)**
EAL (yes)	0.314(0.284, 0.344)**	0.288(0.262, 0.314)**
Start of school academic attainment	0.044(0.043, 0.045)**	0.040(0.039, 0.041)**
Variance of Random Effects		
Schools (between school variability)	0.045	0.038
Pupils (within school variability)	0.348	0.266

Effect Sizes (Adjusted) for each additional point on the behaviour scales

Behaviour	End of KS2 Maths	End of KS2 English
Inattention	-0.10(-0.15,-0.06)	-0.10(-0.14,-0.06)
Hyperactivity	-0.01(-0.05, 0.03)	-0.01(-0.05, 0.03)
Impulsivity	0.05(0.01, 0.09)	0.04(0.00, 0.08)

Importance of these findings

- Considered full range of ADHD symptoms

- Implications for policy & practice

  - Children with moderate levels of inattention are at risk

  - Such children might not be perceived by class teachers as having difficulties

- Next steps

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Value of combined data sources

- CEM had detailed data on large sample of young children but less information at age 11

- More or less complete set of background variables at age 11

- Largest study of this type on a school based sample

  - Others include ALSPAC study but sample size was smaller and less detailed measures

- Need large sample when investigating small groups of children

- CEM has large successive cohorts with reliable and detailed data at the start and end of reception from before the introduction of the EYFSP

Thank You

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