Are earlier interventions more effective? Pooling data from 15,000 families taking part in parenting interventions

Frances Gardner
Professor of Child & Family Psychology
Centre for Evidence-Based Intervention
Dept of Social Policy & Intervention
University of Oxford
ACAMH Emanuel Miller meeting, March 2019
Is early intervention more effective than later?

Early intervention justified based on evidence from:
- Neuroscience - for sensitive periods in the early years, implying greater malleability (Wachs et al, 2014).
- Longitudinal, and economic studies
- Logically attractive [...prevention better than cure]

How strong is the evidence for superior effects?
- Surprisingly few studies directly test differential effects of interventions by age, using high quality RCT data from comparable interventions
- Other evidence non-randomised, or from extreme environments - eg orphanages
- Yet global policies recommend early intervention- esp in first 0-5 years - for enhancing child cognitive, emotional, behavioural outcomes
Economic argument- what data?

Heckman 2006 *Science*: Economic analyses of return on investment from early intervention -

Compared effects of different interventions, from birth thru adolescence, concluded there was hugely diminished cost-effectiveness with increasing age.
Heckman won the Nobel prize in Economics - data hugely influential, but has limitations:

- Compares good quality early interventions with ineffective later ones – e.g. preschool enrichment, vs ‘schooling’, vs teen bootcamps, job training;

- Timing effects may depend not only on developmental stage, but also on intervention goals, mechanisms and outcomes – Heckman mixes huge variety all together!

- Maybe better to examine one type of intervention – so keeping mechanisms & outcomes constant, whilst comparing across ages..

The extensive evidence base on parenting interventions provided the chance to test age effects in two complementary meta-analyses.....
Two complementary methods - both combine RCTs of parenting interventions, age 2-12 yrs

**Method 1:** 13 trials; 1700 kids, 6 countries

Combined individual-level participant data (IPD meta-analysis) from near-total sample of trials of Incredible Years (IY) parenting intervention in Europe

**Method 2:** 154 trials, 15,000 kids, 20 countries

Combined trial-level data (conventional meta-analysis) from systematic review of trials of all types of parenting interventions

NIHR Public Health Research: *The views expressed are those of the authors & not necessarily those of NHS, NIHR or DoH*
1) IPD meta-analysis of 13 Incredible Years parenting trials

Younger vs. older children, range 2-10 years --
- Will they benefit more or less, in terms of improvement in child conduct problems?
- Will cost-effectiveness differ by age?

- 1600 data points;
- Child age in months;
- Primary outcome: Eyberg child behaviour inventory

Source: Heckman (2008)
Effects on child outcomes don’t vary with age

No evidence intervention effect varies by child age (2-10 years) ($p=0.65$).

1600 data points
Cost effectiveness - increases with age

Cost-effectiveness went up with age – cautious conclusion, as based on subset of 5 UK trials (Bonin et al. 2019)

So- Heckman’s curve doesn’t seem to work for one very common intervention - parenting for behaviour problems ..
Very powerful test, no age effects

But....

• Maybe it's just this particular parenting intervention, IY - does the effect generalize?
• To check, we tested using a bigger set of 154 trials, including all parenting interventions this time, using regular meta-analysis – with data only at trial aggregate level
• Less powerful, 1 age point per trial; 154 data points (not 1600), but more generalisable
Can we replicate no age effect in wider range of interventions? -- 50 different parenting interventions, 20 countries

Found:

- No moderation of child conduct problem outcomes by (average) age of children in trial

- No moderation by age range - targeting a developmentally more specific stage was not more effective

- 154 trials, 15,000 families, trial-level meta-analysis

- Mean child age - range 2-10 (mean 5 years)

The Earlier the Better? Individual Participant Data and Traditional Meta-analysis of Age Effects of Parenting Interventions

Frances Gardner
University of Oxford

Patty Leijten
University of Amsterdam and University of Oxford

G.J. Melendez-Torres
Cardiff University

Sabine Landau and Victoria Harris
King’s College London

Joanna Mann
University of Oxford

Jennifer Beecham
London School of Economics and Political Science

Judy Hutchings
Bangor University

Stephen Scott
King’s College London
Video - ChildTrends in Washington

BBC news

It's 'never too late' for parenting advice, study says

By Katherine Selligren
BBC News family and education reporter

26 September 2018
Conclusions

• Contrary to common belief, we found no age effects in two large, complementary analyses of parenting interventions

• Study 1 - brings power & precision- first IPD meta-analysis (IY) in the field

• Study 2 - brings greater generalisability of finding across diverse interventions & places - regular trial-level meta-analysis
Limitations

• 2-10 years range, so doesn’t test if first 1000 days are more important
• Doesn't test other interventions in the first few years of life (e.g. attachment - but their effects don’t appear to be larger)
• No long term follow up
• Our data apply to one common problem, parenting interventions for child behaviour problems (2-10 yrs) – in other areas, we lack direct comparisons of effects by age- or find no age effects (eg language, ADHD, anxiety)
Implications

• Parenting interventions just as effective in school years as in preschool period (2-10)
• Fails to support important notion of greater malleability in early years- perhaps plasticity in this respect doesn’t vary with age?
• Policy and practice should invest in parenting interventions for older and younger children- both are vital
• Our data don’t mean intervention should be delayed for young children who need them
Frances Gardner
Centre for Evidence-Based Intervention
Dept of Social Policy & Intervention, University of Oxford

Special thanks to:

Authors: Frances Gardner, Stephen Scott, Patty Leijten, Jo Mann, GJ Melendez-Torres, Sabine Landau, Victoria Harris, Judy Hutchings, Jeni Beecham

Collaborators: Bram Orobio de Castro, Utrecht; Sinead McGilloway, NUI, Filomena Gaspar, Coimbra; Ulf Axberg, Gothenburg, Willy-Tore Mørch, Tromso, Vashti Berry, Exeter; Margiad Williams, Bangor

Funding: Swedish Board of Health & Welfare; NIHR Public Health Research-12-3070-04 The views expressed are those of the authors and not necessarily those of NHS, NIHR or Dept Health.
to do:

Video link
check points in ISRCAP talk
And paper- limitations?
test length
shorten!