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Can group-based parenting programmes reduce early child behaviour problems for reasonable costs?

A cost-effectiveness analysis of a Swedish RCT

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Background

- There are no studies have assessed cost-effectiveness of different parenting interventions targeted toward children with conduct problems in the same study

  - No studies that have looked at the differences between parenting programmes in the same study design, thus not being able to determine which programmes can be the most effective to reduce child conduct problems

  - Little is known on whether a book addressed to parents can work equally well as face-to-face group parenting programmes

Aim

- Cost-effectiveness of the four parenting programs in Sweden: ***Comet, The Incredible Years, Cope and Connect***, and ***a book on parent management techniques***

  - compared to a waitlist control condition at post-test (3-4 months after baseline), targeting conduct problems in children aged 3-12 years

Study design

- 4 most common parenting programs in Sweden evaluated within the same study design

- Target group: parents of children aged 3-12 who were "screened" for behavior problems at local health units

- Parents randomized to: program, book, waitlist control

Intervention

- Programs: Comet, Incredible Years, Cope, Connect,

- A book on parent management technique

- A 4-month waitlist control

Methods

Study population

961 parents with baseline data (1104 randomized):

- 635 started a program
- 165 started reading the book
- 159 placed in the waitlist control

Data collection

Questionnaires at baseline and post-test:

- Demographics
- Child behavior problems
- Child resource use (psych., counselor, social worker)

Health outcome

Instrument

Eyberg Child Behavior Inventory

- parental report measure of conduct problems in children aged 2-16 years

Outcome measure

Reliable clinical change (CS/RCI)

- Measure the reliability (RCI) and clinical relevance (CS) of the changes in child behavior

  Reliability – change not due to error

  Clinical relevance – child moved from dysfunctional to normal group

Coding categories RCI/CS

Coding categories for CS/RCI used on ECBI	Categories
RCI <=-1.96 and over cut-off score for CS	Recovered
RCI <=-1.96 but not over cut-off score for CS	Improved
RCI between <-1.96 and >1.96 independent of CS	Unchanged
RCI >=1.96 independent of CS	Deteriorated

Base-case – Recovered at post-test

Intervention costs

- **Training costs –** training course fee, travel costs, salaries

- **Running costs –** practitioners' time preparing and running the program, course material, rent of the venue

Other costs associated with the intervention

- Parents' time in attending the programs/reading the book (loss of leisure time)

Results - Costs

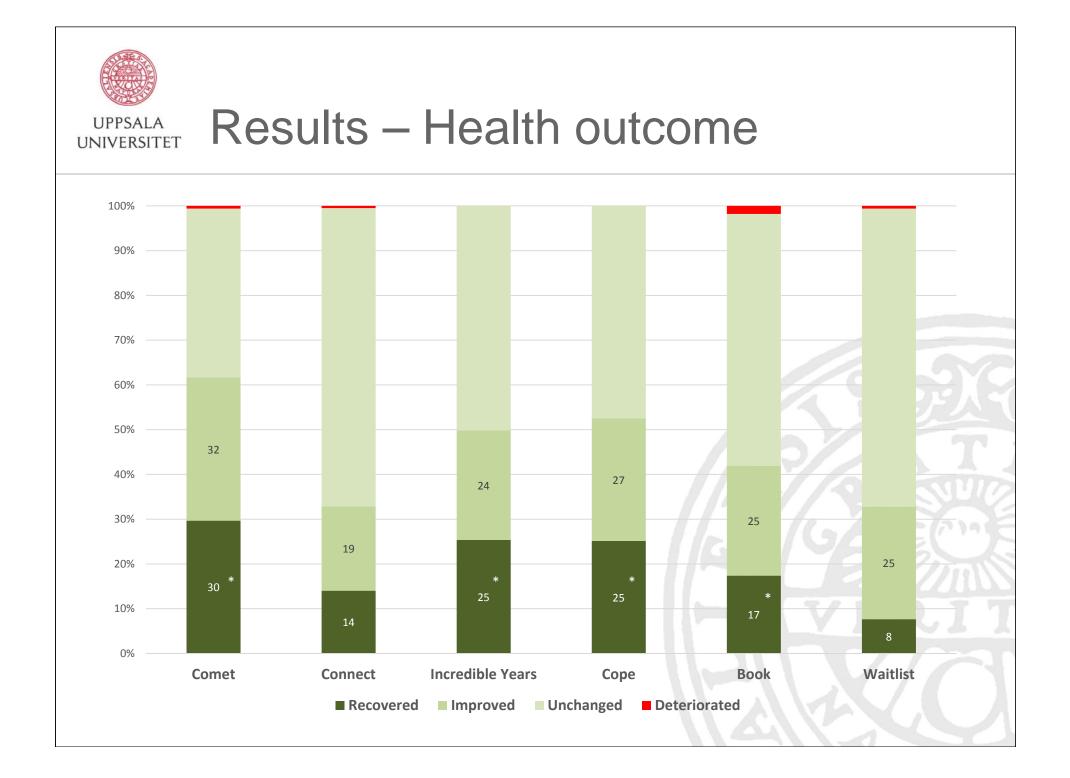|	Comet	Connect	IY	Cope	Book
Number of children	172	196	92	175	167
Total cost (training + running with parents' time costs)	**214,753**	**102,132**	**162,390**	**129,994**	**23,402**
Average total cost/child	**1,249**	**521**	**1,765**	**743**	**140**
Total cost (training + running without parents' time costs)	161,807	71,192	134,070	76,125	2,312
Average total cost/child	941	363	1,457	435	14
Total running cost (with parents' time costs)	169,979	80,288	153,643	118,273	23,402
Average running cost/child	988	410	1,670	676	140
Total running cost (without parents' time costs)	117,033	49,348	125,324	64,404	2,312
Average running cost/child	680	252	1,362	368	14

Recovered cases of behavior problems

	Comet n (%)	Connect n (%)	Incredible Years n (%)	Cope n (%)	Book n (%)	Waitlist n (%)
Post-test						
Recovered	51 (29.7)	27 (14)	23 (25.3)	44 (25.1)	29 (17.4)	12 (7.6)
Unadjusted Exp (B)	5.093*	1.965	4.087*	4.059*	2.539*	Reference
Adjusted Exp (B)	5.037*	2.026	3.958*	4.088*	2.371*	Reference

*Significance found at p<0.05 with logistic regression

Results – Health outcome

Cost-effectiveness at post-test

- All interventions were effective compared to the waitlist apart from Connect.

- Pairwise comparisons showed differences: Book vs Comet

- Cost-effectiveness: book vs Comet

	Comet n=172			Book n=167			Waitlist n=159			ICER (95% CI)
	Average costs M	SD	Recovered cases	Average costs M	SD	Recovered cases	Average costs M	SD	Recovered cases	(Comet vs Book)
Primary analysis	1157.37	361.03	0.2965	101.51	34.0	0.1737	0	0	0.0764	
										8,594
Boostrapped	1157.40	27.5	0.2970	101.44	2.62	0.1751	0	0	0.0754	
										8,666 (5,264 to 29,794)

- Cost-minimization: book vs Cope vs IY

- **Cost-min** – Book is the cheapest, **485** USD per one recovered case

- Recovered + improved

Programme	Average cost	Average effect	Average CER
Incredible Years	1,674	0.500	3,348
Comet	1,157	0.616	1,878
Cope	615	0.526	1,169

- Study completers

Programme	Average cost	Average effect	Average CER
Incredible Years	2,059	0.217	9,488
Comet	1,294	0.287	4,509
Cope	746	0.311	2,399

- Only IY, Cope, Comet effective vs waitlist (not the Book!)
- No differences between programmes
- **Cope is the cheapest option**

- The book is the cheapest option, 485 USD per one recovered case

- ICER Comet vs Book 9,000 USD (5,264 USD – 29,794 USD) per one additional recovered case

- Choice of intervention depends on decision-maker´s threshold.

- The book is no longer effective in the secondary and sensitivity analyses, Cope, IY and Comet have the same effect. Cope is the cheapest option.

- The societal yearly cost to support a child with conduct problems children aged 5-12 years : 12, 000 USD

  - Per one "recovered" child:

	USD
Book	485
Cope	2,012
Comet*	4,000
IY	5,450

* Are we willing to pay additional 9,000 USD /recovered child?