



Management
of child and
adolescent
aggression

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The Plan

- **Objective:** Aggression in children and adolescents presents a significant problem for mental health clinicians, services and society
- to selectively review the evidence-based management of child and adolescent aggression to inform clinical practice
- **Method:** Selective literature review

The scope of the problem

- Aggression occurs frequently and is problematic in C&A
- Aggression has a negative impact on the well-being of victims and those who witness aggression
- Major cost to society
- Australian data shows adolescents commit over 20% of offences
- Cost of youth crime in Australia conservatively over \$2 billion annually



Risk factors

- economic disadvantage
- parental criminality
- aggressive parental punishment
- violence in the home
- childhood maltreatment
- early caregiver disruption
- antisocial child behaviour
- childhood physical violence
- early initiation of violence
- past supervision failures
- history of self-harm
- school failure





Modifiable risk factors = potential treatment targets

- peer delinquency
- peer rejection
- poor coping
- poor parental management
- lack of social support
- attitudes condoning violence
- Impulsivity
- substance difficulties
- anger management problems
- low empathy/remorse
- attention deficit/hyperactivity
- poor compliance
- low interest in school



Not re-inventing the wheel

- **Treatment of Maladaptive Aggression in Youth: CERT Guidelines II. Treatments and Ongoing Management.** Nancy Scotto Rosato, Christoph U. Correll, Elizabeth Pappadopulos, Alanna Chait, Stephen Crystal, Peter S. Jensen, *Pediatrics* 2012;129;e1577
- **Canadian Guidelines on Pharmacotherapy for Disruptive and Aggressive Behaviour in Children and Adolescents With Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, or Conduct Disorder.** Gorman, D.A., Gardner, D.M., Murphy, A.L., Feldman, M., Bélanger, S.A., Steele, M.M., Boylan, K., Cochrane-Brink, K., Goldade, R., Soper, P.R. and Ustina, J. *The Canadian Journal of Psychiatry*, 2015; 60(2), pp.62-76.

Effect size (Cohen's d)

- = Standardised mean difference between the groups
- = $(X_a - X_c) / s$

- X_a = mean of active treatment arm
- X_c = mean of control group
- S = pooled standard deviation

Magnitudes of effect size (Cohen's d)

Effect size (ED)	d
Small	0.2
Medium	0.5
Large	0.8
Very large	1.2

Psychosocial interventions

- Parenting, infancy
- Preschool and primary school years
- Adolescence

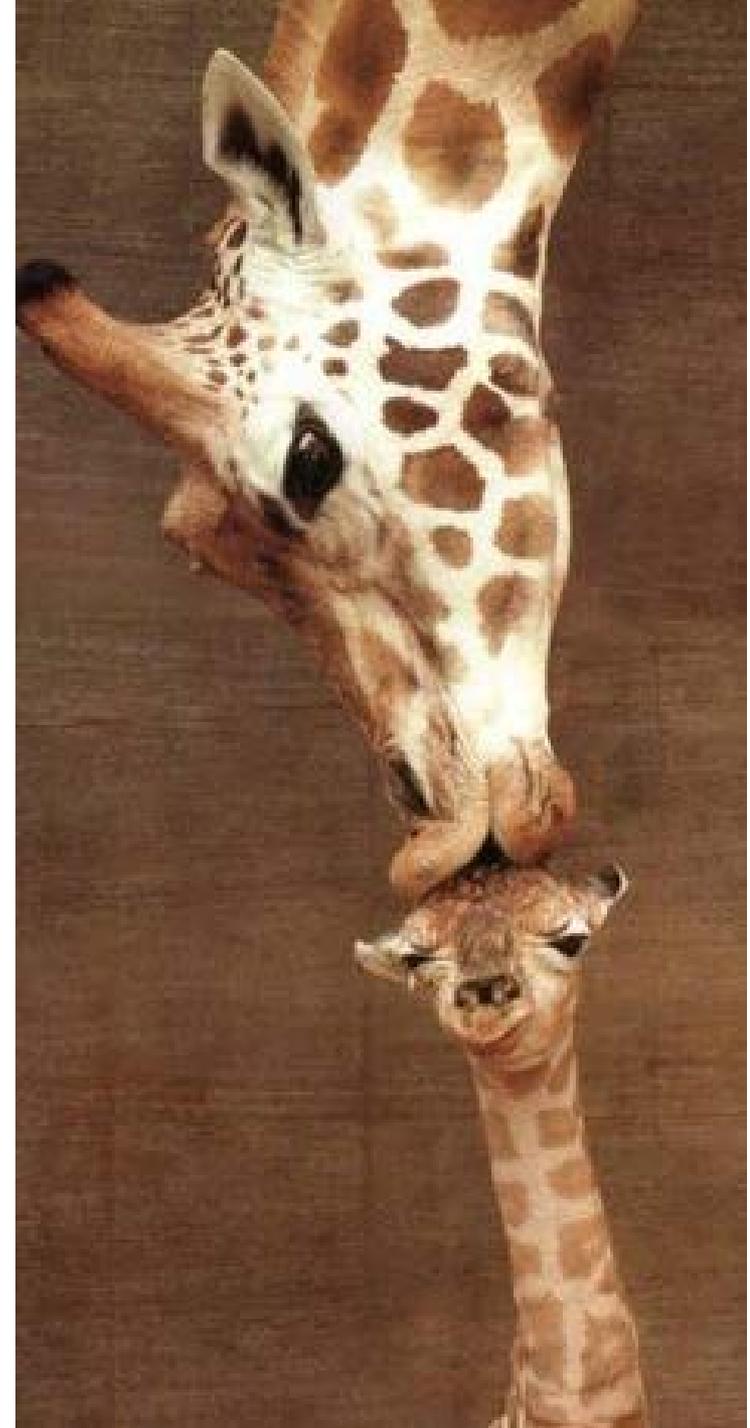
Parenting, infancy

- **Rochester University Nurse Home Visitation Program** randomly assigned 400 pregnant high-risk mothers to one of four interventions:
 - level 1 provided basic support on child development,
 - level 2 added free transport to prenatal care,
 - level 3 added nurse home visits and,
 - level 4 continued home visits until children were two years

- Level 4 groups had 50% fewer arrests than levels 1 and 2

Circle of Security

- A parenting program for 0-3 years
- Grounded in attachment theory and child development principles
- Though no studies are yet available on its effect on later aggression, there are promising indicators of effectiveness



Preschool and Primary school age

- NICE (2013) recommends **parenting training** programs for children aged 3-11 years, as well as child-focused social and problem-solving programs using CBT
- Preschool prevention programs targeting risk factors of low educational attainment and weak parental involvement were shown to be effective
- High/Scope Perry Preschool Project children 3-4 years with poor IQ from low-income families were randomly allocated to intervention and non-intervention
 - Intervention comprised daily children education classes and home visits encouraging parental involvement
 - By ages 19 and 24, the intervention group had less chronic offending (7% vs 17% for controls) and fewer violent offences.

- Problem-solving and parenting skills interventions during preschool and primary years demonstrated positive, continued change in behaviour
- Successful programs have in common
 - parent management training (PMT), and
 - child social competence training (CSCT)



PMT teaches parents to discipline effectively, monitor and supervise children and reward prosocial behaviour

CSCT relies on evidence that aggressive children poorly interpret social cues, often assume harmful intent, believe aggression is acceptable and have poor social problem-solving

CSCT teaches children how to solve problems, control anger and interact effectively with others.

Effect sizes?

- Two RCTs on group PMT demonstrated a modest to large effect size for aggression (ES = 0.50 to 0.83)
- Multicomponent approaches of both PMT and CSCT (i.e. Multimethod Psychoeducational Parent-Teacher Training program, Fast Track, Incredible Years and Dinosaur School program) showed low to moderate effects (mean ES = 0.23 to 0.38)
- Incredible Years involved 3 components: PMT for parents, CSCT for children and classroom management for teachers – of these PMT consistently had the largest treatment effect

Down under?

- Positive Parenting Program (Triple-P) for preschool and early primary children has five levels of intensity:
 - level 1 offers self-help information
 - level 2 adds minimal therapist contact
 - level 3 adds active skills training
 - levels 4 and 5 add increasing therapist expertise for more disruptive behaviour and complex parental risks such as depression and domestic violence
- Recent meta-analysis found medium to large improvements ($ES = 0.5$ to 2.2) in child negative behaviors for both PCIT and Triple P, however there no RCTs yet on PCIT or Triple P that measured aggressive behaviour

Adolescence

- Two approaches frequently demonstrate reduction of adolescent aggression:
 - functional family therapy (FFT) and
 - multisystemic therapy (MST)

FFT

- Premise is that problem behaviours serve a function within families
 - encourages families to understand reinforcements of problem behaviours, examine cognitive attributions, alternative ways of understanding the problem and new reinforcements are tested:
 - better communication, problem-solving and privilege exchange
- Brief Strategic Family Therapy (which shares commonalities with FFT) was effective in reducing anger and bullying behaviours in youth aged 8 to 18 (mean $ES = 0.66$)
- Largest effect size at 12 month follow-up: $ES = 1.5$

MST

- MST demonstrated decreased re-arrests (25%-70% less), improved family relations, school attendance, decreased psychiatric symptoms and cost-effectiveness
- The net gain per MST case was US\$31k–131k.
- present-focused, action-orientated and targets specific well-defined problems for 3-5 months
- Interventions involve daily or weekly effort, monitoring, feedback and adjustment of hypotheses and plans. Low caseloads (3-6 families), are available 24 hours, 7 days/week, and attend homes, schools and neighbourhoods
- However, the pooled effects of several RCTs that examined specific reductions in aggression were small (mean $ES = 0.25$)

Anger management via individual CBT

- The youth is assumed to lack the social problem-solving necessary to deal with everyday problems
- Intervention focus is changing maladaptive cognitions
- Core components
 - exposure to provocation leading to emotional arousal
 - cognitive change
 - self-management skills
 - relaxation to reduce arousal and manage stress
- Four RCTs examining CBT in youth ages 10 to 16 years demonstrated significantly reduced anger and aggression (mean $ES = 0.58$),
- Two studies showed sustained reduction in anger episodes several months after intervention (12 months FU mean $ES = 0.63$)
- Group CBT generally not supported, one RCT report minimal effects



Pharmacotherapy

Pharmacotherapy

- A recent review identified 29 RCTs of pharmacotherapy for aggressive youth that included direct measures of aggression or anger
- Weighted mean age was 9.5 years
- 81.6% of subjects were boys
- 66.4% were white
- All trials were placebo-controlled
- Most studies included youth with a primary diagnosis of disruptive behaviour disorder, including ODD, CD or ADHD
- All but 3 studies were acute intervention trials



Antipsychotics

- Compared with placebo, antipsychotics provide the largest efficacy for aggression
- Greatest evidence for risperidone
- across 10 acute studies of risperidone vs placebo, the mean **ES = 0.72** (n=698, mean 8.3 weeks duration)
- Maintenance risperidone had mean **ES of 0.40** (n=391, mean 13.3 weeks duration)

- Less efficacy data for olanzapine, quetiapine and clozapine
- A single small inpatient study of haloperidol vs placebo, the **ES was 0.83** (n=40, 4 weeks duration)

Aggression in autism

- Aggression in autism that has not responded to behavioural interventions, may respond to risperidone or aripiprazole
- For two trials of aripiprazole in autism, no ES could be calculated



Stimulants

- Stimulants demonstrated the next largest mean $ES = 0.60$ (n=907, mean duration 6.2 weeks)
- Methylphenidate had slightly higher mean $ES = 0.63$ compared to mixed amphetamine salts ($ES = 0.42$).

Mood stabilisers

- For mood stabilisers, most in inpatient settings, the mean **ES = 0.47** (n = 208, mean duration 5.3 weeks)
- The one outpatient study, an 8-week trial with valproate in 30 youth, found an **ES of – 0.13**, inferior to placebo
- ES for carbamazepine (n = 24, duration 6 weeks) was indistinguishable from placebo (**ES = 0.06**)

Lithium

- In contrast, a moderate mean **ES = 0.63** for 4 trials was observed with lithium (n = 164, mean duration 4.5 weeks)
- The evidence for mood stabilisers is only for lithium

NNT for medication

- Across drug classes, the NNT was most beneficial for second-generation antipsychotics (NNT = 3)
- Followed by an NNT = 4 for lithium and for stimulants

Pooled effect of psychosocial therapies

- Psychosocial therapies had an overall effect size of 0.36 in the acute phase (range: 0.09–0.98)
- NNT of 4 (range: 2–12) for response
- NNT of 16 (range: 9–77) for treatment continuation

Pooled effect of pharmacological Therapies

- Pooled effect size was 0.61
(range: -0.13 to 0.83)
- NNT for treatment response of 4
(range: 3–12)
- NNT for treatment continuation of 8
(range: NNH = 46 to NNT = 5).



Concluding thoughts

- Mental health clinicians and services have a responsibility to make an effective contribution to one of society's most costly community problems – child and adolescent aggression
- Effective management has the potential to alleviate direct and indirect costs for individuals, families, potential victims, governments and the taxpayer