



The Association
for Child and Adolescent
Mental Health

THE BRIDGE

April 2019

Conduct Disorders and Aggression Edition

Aggression toward siblings
during the preschool years:
when does it become atypical?

Psychological interventions
have a small but significant
effect in young children with
conduct disorder

Also inside

Research
highlights from our
journals JCPP
and CAMH

@acamh
@TheJCPP
#JCPP60
@TheCAMH
www.acamh.org



Editorial

Guest Editor, Dr. Mark Lovell

This edition of The Bridge is on the topic of conduct disorders and aggression.

Behavioural difficulties are common presentations to child and adolescent mental health services. They also have impacts on the individual, their peers, family and the different environments that a child is exposed to e.g. home and school. Often behavioural difficulties are excluded from commissioned mental health services for children and young people. However, there are effective treatments and the longer a behavioural presentation is left untreated/unmanaged the more difficult it can be to change the entrenched behaviours.

Children and young people with conduct disorders often have additional comorbid learning difficulties, neurodevelopmental or mental health disorders, so it is important to be able to assess, recognise and offer appropriate interventions. The effects on a young person's future and society may be significant if not managed well.

In this edition of The Bridge there are summaries of research from ACAMH's journals written by the original authors and our in-house science writer; covering severe sibling aggression, delinquency and a review of the literature on psychosocial treatments for conduct disorder.

I hope that you enjoy reading them and please let ACAMH know your thoughts.

Dr Mark Lovell
Acting Editor



Research highlights in this edition are prepared by Dr. Jessica K Edwards. Jessica is a freelance editor and science writer, and started writing for 'The Bridge' in December 2017.

Abnormal visual fixation does not mediate deficits in emotion recognition in conduct disorder

By Dr. Jessica K Edwards

Studies have shown that conduct disorder (CD) is associated with impaired recognition of facial emotions¹, but whether the cause of this deficit is due to difficulties with attention, interpretation and/or appraisal is unclear. Now, researchers at the Universities of Southampton and Bath have addressed this question, by asking 50 adolescents (aged 13-18) with CD and varying degrees of callous-unemotional (CU) traits to report the emotion (anger, sadness, fear, happiness, surprise, disgust or neutral) represented in images showing dynamic and static facial expressions.

While the participants viewed the images, the researchers performed eye tracking to relate the categorization of each image to the participants' allocation of overt attention. They then compared the results to those of 51 typically developing controls. Adolescents with CD (particularly males) showed worse emotion recognition compared to controls, and fixated less on the eyes when viewing images depicting fearful and sad expressions.

Overall, higher levels of CU traits associated with deficits in fear recognition and reduced attention to the eyes of surprised faces; however, compared to those with CD and low levels of CU traits, individuals with high levels of CU traits showed better fear recognition. Because the group-level differences in fixation behaviour were small and did not explain the much larger group differences in categorisation performance, the researchers propose that CD-related deficits in emotion recognition are not mediated by abnormal fixation patterns.

Referring to:

Martin-Key, N.A., Graf, E.W., Adams, W.J. and Fairchild, G. (2017), Facial emotion recognition and eye movement behaviour in conduct disorder. *J. Child. Psychol. Psychiatr.* 59: 247-257. doi: 10.1111/jcpp.12795.

Further reading:

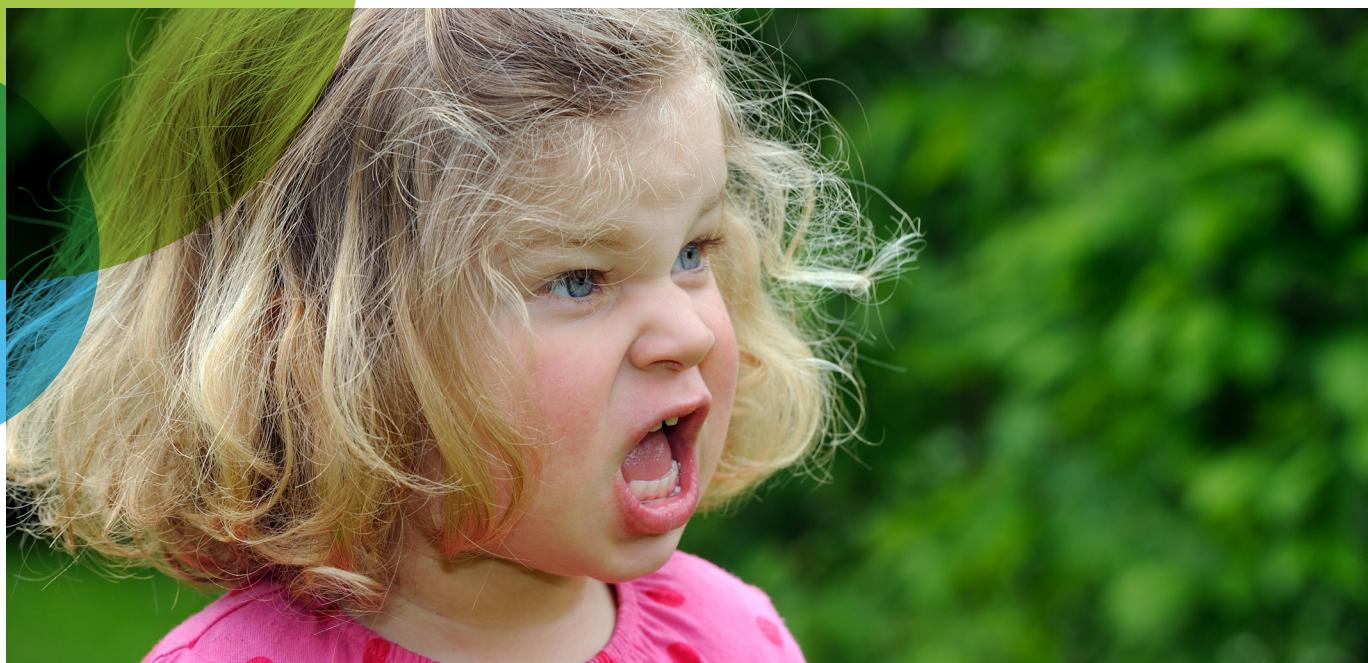
¹Short, R.M.L. et al. (2016), Does comorbid anxiety counteract emotion recognition deficits in conduct disorder? *J. Child. Psychol. Psychiatr.* 57: 917-926. doi: 10.1111/jcpp.12544.

Glossary:

Conduct disorder (CD): CD is characterized by behaviour that violates either the rights of others or major societal norms. To be diagnosed with conduct disorder, symptoms must cause significant impairment in social, academic or occupational functioning. The disorder is typically diagnosed prior to adulthood.

Callous unemotional (CU) traits: a dimension of psychopathy in which an affected individual displays low empathy, low guilt and no remorse.





Aggression toward siblings during the preschool years: when does it become atypical?

By Dr. Melanie Dirks

Dr. Dirks is Associate Professor in the Department of Psychology at McGill University, Montréal, Canada. Data for this study came from the Multidimensional Assessment of Preschoolers Study (MAPS), a National Institute of Mental Health study led by Dr. Lauren Wakschlag of Northwestern University.

This article is a summary of the paper published in JCPP – Dirks MA, Recchia HE, Estabrook R, Howe N, Petitclerc A, Burns JL, Briggs-Gowan MJ, Wakschlag LS. (2019). Differentiating Typical from Atypical Perpetration of Sibling-Directed Aggression during the Preschool Years. *Journal of Child Psychology and Psychiatry*, 60, 267-276. doi.org/10.1111/jcpp.12939



Most children grow up with siblings. During early childhood, siblings spend a great deal of time together and must navigate challenging situations such as sharing toys and parental attention, features that make conflict inevitable and often emotionally intense. Preschool-aged siblings have been observed to fight every 10 minutes, and these conflicts often escalate to include aggressive behaviours, such as hitting, name-calling, and exclusion. Aggression between siblings is so common that it is often viewed as a normative right of passage by parents and clinicians. Indeed, the DSM-5 criteria for oppositional defiant disorder state that children who demonstrate symptoms – including vindictiveness – only with a sibling do not meet diagnostic criteria. However, several recent studies conducted with large and representative samples have made it clear that these behaviours can be harmful for the victims.

Aggression toward siblings may also be a marker of clinical risk for the perpetrator. Given how common sibling-directed aggression is, for most children it will be part of a typical developmental trajectory. For some children, however, these actions may indicate significant behavioural or emotional dysfunction that will escalate with time. It is critical that we identify markers that allow us to differentiate typical and atypical sibling aggression, particularly during the preschool years, when aggressive behaviours are much more modifiable. In some cases, qualitative features of the behaviour may mark it as severe. For example, few preschoolers engage in aggression that is purposefully intended to harm another, and this behaviour is worrisome even if it occurs rarely. Other, more common misbehaviours, such as teasing a brother or sister or excluding them from play, may also be atypical when exhibited very frequently.

In other words, many preschoolers will taunt a sibling sometimes, but few preschoolers will do it a lot, and those children may be at risk for emotional and behavioral disorders.

In this study, we identified the frequencies at which sibling-directed aggression became atypical; that is, fewer than 5% of preschoolers were reported to be engaging in the behaviour that often. Data were obtained from the MAPS Study, a NIMH-funded investigation directed by Lauren Wakschlag of Northwestern University. An ethnically and socio-economically diverse sample of more than 1500 parents of 3- to 5-year-olds reported on their children's aggressive and disruptive behaviour. Typically, researchers ask parents to provide general judgments about how often their children engage in a given behaviour (e.g., "never", "sometimes", or "a lot"). In contrast, we asked parents to provide precise frequency estimates (i.e., "never in the last month," "rarely [less than once per week]," "some [1-3] days of the week," "most [4-6] days of the week," "every day of the week," "many times each day"). Doing so allowed us to generate thresholds of practical concern; that is, exactly how often must a behaviour be occurring before it becomes atypical? In general, we found that aggression toward brothers and sisters – including hitting, shoving or kicking them, saying or doing mean things behind their back, and teasing or taunting them – became atypical when it was occurring most days. In contrast, the same behaviours, when they were directed toward a peer, became atypical when they occurred some days.

Several limitations of our study must be kept in mind when interpreting the results. First, our finding that sibling aggression becomes atypical when it occurs most days is based on parent reports of their children's behaviour. These cut-off points should not be applied to estimates of the frequency of sibling aggression obtained using other types of measures (e.g., observation). Nonetheless, parents are excellent informants of their children's behaviour, and parent-report instruments can be used in many health-care settings, making them an ideal tool for identifying children who are demonstrating clinically concerning behaviours. Second, we did not examine positive features of the sibling relationship, such as warmth between brothers and sisters. It may be that even frequent sibling-directed aggression is less concerning when it occurs in the context of a generally loving relationship. It will be important for future studies to examine this possibility.

These findings are a first step toward specifying features of sibling-directed aggression that may be markers of clinical risk for the aggressor. The critical next step is to determine whether the frequency with which children engage in sibling-directed aggression is linked to subsequent behavioural and



emotional problems. Ultimately, this research may provide empirically-based guidelines that will help practitioners identify children who would benefit from early intervention. Many 3- and 4-year-olds do not attend preschool, which limits opportunities to observe their aggression toward peers. However, parents are well-positioned to report on behaviours occurring between brothers and sisters. In addition, many parents are concerned about fighting and aggression between their children, and as a result, they may be likely to mention these behaviours to health-care practitioners and to seek guidance as to whether these behaviours are clinically concerning.

Key points:

- Sibling aggression can be harmful for victims; it may also indicate that the perpetrator is experiencing or at risk for emotional and behavioural disorders.
- It is therefore critical to differentiate typical from atypical sibling aggression, particularly during the preschool years, when aggressive behaviour is more modifiable.
- Working with reports from more than 1500 parents of preschoolers, we identified the frequency at which sibling-directed aggression became atypical (i.e., less than 5% of children were reported to engage in the behaviour that often).
- Most aggressive behaviours directed toward siblings – including hitting, name calling, and excluding a sibling – were atypical when they occurred most days; the same behaviors targeted at peers were atypical when they occurred some days.
- Results are a first step toward identifying features of sibling aggression that may be markers of clinical risk for the aggressor.

Comorbid anxiety disorder has a protective effect in conduct disorder

By Dr. Jessica K Edwards

The presence of comorbid anxiety disorders (ADs) counteracts the effects of conduct disorder (CD) on facial emotion recognition, according to new research by Roxana Short and colleagues. In their 2016 study, the researchers compared the abilities of adolescents aged 12-18 years with CD (n=28), AD (n=23), co-occurring CD with AD (n=20) and typically developing controls (n=28) in recognising various emotions (anger, fear, happiness, sadness and disgust) in images of faces representing different levels of emotional intensity.

They found that adolescents with CD had a generalised impairment in emotion recognition compared to the other two groups, but this may have been mediated by group differences in IQ. By contrast, adolescents with AD alone showed increased sensitivity to low-intensity happiness, disgust and sadness, indicative of an enhanced performance over the other two groups. Most interestingly, the comorbid AD plus CD group showed a similar overall performance in facial emotion recognition ability as the control group. Based on these findings, the researchers propose that AD has a potentially protective role in CD, and that targeted interventions, such as emotion training, may be more effective in those with CD alone than those with comorbid AD.

Further research is now needed to examine the contribution of IQ and gender to these described effects.

Referring to:

Short, R.M.L., Sonuga-Barke, E.J.S., Adams, W.J. and Fairchild, G. (2016), Does comorbid anxiety counteract emotion recognition deficits in conduct disorder? *J. Child. Psychol. Psychiatr.* 57: 917-926. doi: 10.1111/jcpp.12544.

Glossary:

Conduct disorder (CD): CD is characterized by behaviour that violates either the rights of others or major societal norms. To be diagnosed with conduct disorder, symptoms must cause significant impairment in social, academic or occupational functioning. The disorder is typically diagnosed prior to adulthood.

Parenting practices that support the sensation-seeking child

By Mayumi Okuda



Mayumi Okuda has expertise in the epidemiology of addiction, childhood abuse and intimate partner violence. She works with the Department of Psychiatry and currently directs the Gambling Disorders Clinic. She has previously worked with the Mayor's Office to Combat Domestic Violence (OCDV) in an initiative focused on integrating mental health care at a non-specialty setting (the Family Justice Centers in NYC).

This article is a summary of the paper published in JCPP - Okuda M, Martins SS, Wall MM, Chen C, Santaella-Tenorio J, Ramos-Olazagasti M, Wei C, Canino G, Bird HR, Duarte CS. (2018). Do parenting behaviors modify the way sensation seeking influences antisocial behaviors? *Journal of Child Psychology and Psychiatry*, 60, 169-177. doi: [10.1111/jcpp.12954](https://doi.org/10.1111/jcpp.12954)



Sensation-seeking is a personality trait of people who go after varied, novel, complex and intense situations and experiences. Sensation-seekers are even willing to take risks in the pursuit of such experiences. Until now, research has primarily focused on how sensation seeking relates to the development of undesirable behaviours, including drug and alcohol abuse, high risk sexual behaviours (like unprotected sex or having multiple partners), gambling and delinquency. However, some studies have also suggested that sensation seekers tend to favour the arts as well as adventurous sports, hobbies and jobs, and are also known to prefer complex and creative occupations. Unfortunately, this research focusing on sensation-seeking and its positive outcomes has received far less attention. This is unfortunate given that it appears that high sensation-seekers that live in resourceful backgrounds are more likely to engage in positive and stimulating activities, while those from disadvantaged backgrounds are more likely to end up engaging in illicit drug use or delinquency. Our hope is that by learning more

about the strategies that protect sensation-seekers from engaging in problematic behaviours, we may be able to help guide them so that they can express these personality traits in a healthy and productive manner.

Childhood and adolescence are crucial periods for the development of delinquent behaviours, and these behaviours can affect children's abilities to thrive. Researchers of child psychology and psychiatry have been studying the interplay between "nature" and "nurture." Instead of merely focusing on the influence of certain individual characteristics (like genetics or personality) and how these can lead to mental health problems or undesirable behaviours, these research fields are now examining how these characteristics interact with the larger environment in order to create such social or mental health problems. Parenting continues to receive significant attention as it is one of the most important environmental factors for both child and adolescent development of problematic behaviours.

Areas of parenting that appear to be key in this area include:

- 1) parental monitoring (supervision and knowledge of a child's friends, activities and whereabouts),
- 2) parental warmth (involvement in a child's life, and expression of acceptance, approval and affection), and
- 3) coercive discipline (using different forms of punishment to discipline your child).

Until now, however, few studies have focused on sensation-seeking children and adolescents, and how parenting behaviours might affect their likelihood of developing delinquent behaviour.

Knowing which specific parenting factors are relevant and what their impact is on delinquent behavior—while focusing on sensation-seekers in particular—could help us to better develop programs or strategies that if implemented earlier on would have a greater impact on a child's future.

In this study, Okuda et al. analysed data from a large study of Puerto Rican children and adolescents, aged 5 to 13, (known as "The Boricua Youth Study") growing up in two different environments (San Juan, Puerto Rico and the South Bronx, NY). The Boricua Youth Study was conducted in three yearly assessments from 2000 to 2004 and included a total of 2,491 of children. During each assessment, parents responded to questions measuring delinquent behaviours, some of which differed across age groups. Questions for younger children included behaviours like stealing, intentionally damaging others' property and shoplifting. Questions for the older children included carrying a weapon, snatching a purse or wallet, pickpocketing, throwing rocks or bottles at people, and so on.

The study found that although sensation-seeking increased the risk of engaging in delinquency, the sensation-seekers that had parents that monitored them were largely protected from developing delinquent behaviours. The study also found that children and adolescents who did not receive adequate levels of parental warmth were more likely to end up engaging in delinquent behaviours, even if they were not sensation-seekers. Finally, the study also found that even though the sensation-seekers who had warm parents did engage in some delinquent behaviours, the levels of delinquency were much lower than for the children that did not receive comparable parental warmth.

The study did not show any effect of the location (Puerto Rico vs New York) on the interaction between parenting behaviours and sensation-seeking. Therefore, the study highlights the instrumental

influence of parenting behaviors above factors that have been typically associated with delinquency, such as neighbourhood conditions. By showing that there is an interaction between sensation-seeking and parental monitoring and warmth, the study emphasises the importance of intervening in childhood and adolescence. Therefore, it can be concluded that support for parenting interventions instead of punitive measures may be a powerful target for changing adolescent behaviour. Fortunately, there are several family interventions that have been proven to be effective for children and families that are already struggling (Triple P, Familias Unidas). Some of these interventions emphasise positive parenting practices.

The findings of this study highlight the importance of considering modifiable parenting practices to continue developing interventions for at-risk populations. It is important to focus on strategies that can foster resilience in families and maximise the potential of all individuals.

Key points:

- Parenting can affect the effect that sensation seeking has over delinquent behaviours in children.
- In a group of children ages 5 to 13, a higher level of sensation seeking was associated with delinquent behaviours.
- Parental monitoring protects children with high sensation seeking from developing delinquent behaviours.
- Even in children with low sensation seeking, lack of parental warmth was associated with high levels of delinquent behaviours.
- Interventions should focus on the way individual vulnerabilities and the family context interact.





Cortical thickness can differentiate conduct disorder subtypes

By Dr Jessica K. Edwards

A study by Graeme Fairchild and colleagues has used a neuroimaging approach to compare the structural organization (or “covariance”) of brain regions between youths with different subtypes of conduct disorder (CD) and healthy controls (HC).

The researchers focused on inter-regional correlations in cortical thickness as a measure of coordinated brain structure development to investigate how different brain regions develop in CD and whether this measure can differentiate between childhood-onset (CO) and adolescence-onset (AO) CD subtypes. They enrolled male youths (aged 13-21 years) from two independent sites, totalling 56 with CO-CD (onset <10 years-of-age), 39 with AO-CD (onset >10 years-of-age) and 32 HC. Each participant underwent structural magnetic resonance imaging, and the reconstructed cortical surface images were analyzed for correlations in cortical thickness across the entire cortex.

The researchers found that participants from both sites with CO-CD showed a higher number of significant inter-regional correlations in cortical thickness than HCs and those with AO-CD. By contrast, participants with AO-CD showed fewer significant inter-regional correlations in cortical thickness than HCs. They also found that both CD subgroups showed marked differences in the overall number and strength of inter-regional correlations in cortical thickness, across the frontal, temporal, parietal and occipital regions compared to HCs.

The researchers propose that such structural covariance methods might help researchers diagnose CD, classify CD subtypes and characterize the neurodevelopmental basis of CD.

Referring to:

Fairchild, G., Toschi, N., Sully, K., Sonuga-Barke, E.J.S., Hagan, C.C., Diciotti, S., Goodyer, I.M., Calder, A.J. and Passamonti, L. (2016), Mapping The structural organization of the brain in conduct disorder: replication of findings in two independent samples. *J. Child Psychol. Psychiatr.* 57: 1018-1026. doi: 10.1111/jcpp.12581.

Glossary:

Conduct disorder (CD): CD is characterized by behaviour that violates either the rights of others or major societal norms. To be diagnosed with conduct disorder, symptoms must cause significant impairment in social, academic or occupational functioning. The disorder is typically diagnosed prior to adulthood.

Magnetic resonance imaging: a non-invasive technique that uses a strong, static magnetic field and radio waves to measure brain activity.

Psychological interventions have a small but significant effect in young children with conduct disorder

By Dr. Jessica K. Edwards

In 2017, Mireille Bakker and colleagues performed a systematic review and meta-analysis for the *Journal of Child Psychology and Psychiatry*, of the currently available psychological treatments for children and adolescents with conduct disorder problems. Here, we summarise the researcher's key findings and the potential clinical implications for this field.

Conduct disorder (CD) problems are characterised by repetitive and persistent antisocial and rule-breaking behaviours. While treatment options include pharmacological and non-pharmacological approaches, no first-line medication is licensed for use in children and adolescents. The medications that are thus predominantly used off-label include stimulants, alpha-2 agonists and atypical antipsychotics, but these are used secondary to psychosocial interventions. In their 2017 Practitioner Review, Bakker and colleagues evaluated the 17 identified studies of psychological treatments for children and adolescents with CD, to determine their efficacy to treat CD and clinical CD problems, including oppositional defiant disorder (ODD) and disruptive behaviour disorder (DBD).

The 17 identified studies described 19 non-pharmacological interventions for CD and involved a combined 1,999 participants (73.4% boys) with a mean age of 7.5 years (range 2.8 to 16.8 years). The studies mainly focused on either group or individual interventions, or both, and a minority of the interventions permitted the participants to use medication. The majority of the interventions provided parent-reported information, while others provided teacher-reported, self-reported and/or observer-reported information. Bakker and colleagues first analysed the effect sizes (ES) for these 19 interventions by the type of reported information.

Parent report: 17 interventions used parent report information, for which the majority focused on parent management skills and psychoeducation. The mean ES for these interventions in reducing CD problems in children and adolescents was significant but small (0.36 , 95% CI = 0.27 - 0.47).

Teacher report: While seven interventions used teacher-reported information, the teacher was not always directly involved in the intervention itself. Regardless, the ES was again significant but small (0.26 , 95% CI = 0.12 - 0.49).

Observer report: Three interventions used blinded observers to score CD problems in children and adolescents. Bakker and colleagues determined a moderate and significant effect in reducing CD problems in these studies (0.26 , 95% CI = 0.06 - 0.47).

Self-report: Only two interventions used self-reported information. These interventions were multimodal programmes that involved children and parents, family, school and/or courts. The interventions used cognitive behavioural therapy for training in specific skills or improving motivation. Here, the ES did not support that these interventions reduced CD problems (-0.01 , 95% CI = -0.25 - 0.23).

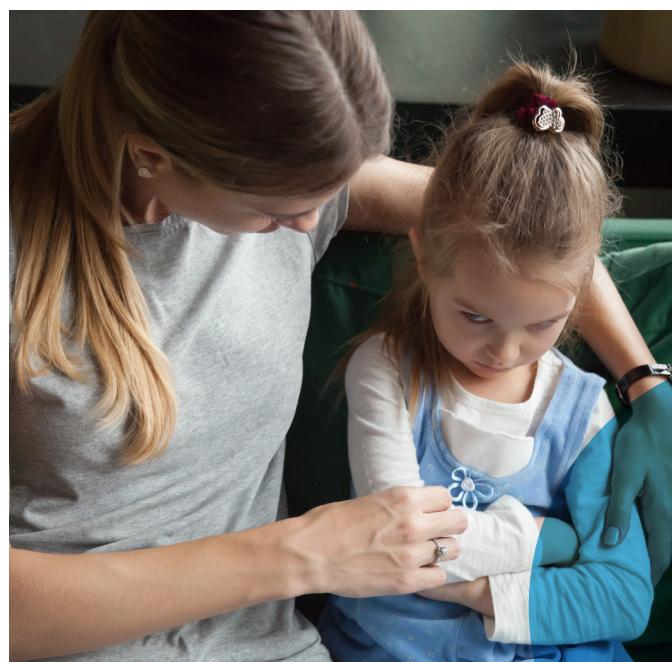
Based on these findings, Bakker and colleagues make the conclusion that while psychosocial interventions seem to have a small but significant effect in reducing CD problems in children and adolescents when considering teacher, parent and observer information, they were not effective when considering the children and adolescents' ratings. They propose that this discrepancy may either be because children and adolescents are usually less inclined to report on their externalising behaviour, or because they are simply better at hiding their antisocial behaviours from parents, teachers and schools.

Bakker et al. then addressed the potential moderators of treatment effect to explain the mixed outcomes. Interestingly, they found that comorbidity, gender, age, type of control (e.g. waiting-list control, treatment-as-usual or active control), number of sessions, duration of sessions, intervention type (e.g. parent-focused, child-focused or multimodal), group size, setting

(e.g. school, clinic, home or a combination), timing of treatment and drop-out percentage had no effect. Treatment efficacy was also not influenced by whether CD had been formally diagnosed as early or late onset. However, although individual studies did not report the time of onset of CD, the researchers did find a trend towards smaller ESs in studies involving children ≥ 10 years old compared to those involving children < 10 years old. For example, based on parent-reported information, the mean ES in children < 10 years was 0.52 whereas the mean ES in children > 10 years was 0.21 . Similarly, using teacher-reported information, the mean ES in children < 10 years was 0.32 and in children > 10 years was 0.11 .

The researchers highlight some limitations to their study that should be considered when interpreting their findings. Firstly, they could not control for potential modifying factors, such as effects of psychiatric medication, gender effects, blinded versus un-blinded raters, callous-unemotional traits or onset of CD, because of a lack of information or the small number of studies conducted. Secondly, the researchers used the Jadad scale to assess the quality of the studies based on the information provided in the individual study reports; however, this approach may not have fairly represented the trials themselves.

Bakker et al. affirm that future studies must integrate information from multiple informants and assess CD problems in more than one environment to avoid "rater" effects. They also explain that randomised controlled trials should be more precise when reporting the methods of randomisation, blinding, the fate of all patients and the medication used by participants. They believe that new studies that consider these points will be more useful in determining whether treatments are more effective in certain subgroups (classified by the time of onset, presence and severity of CU



traits and the subtype of aggression) and optimising psychological treatment efficacy and maintenance. Finally, the researchers consider that investigations into the effectiveness of other non-pharmacological interventions, such as dietary interventions and cognitive training, are warranted.

In summary, Bakker and colleagues confirm that the available data support the use of psychological treatments for CD, but that evidence is still lacking as to which treatment is best. The data thus far tentatively suggest that treatment may be less effective in older children (>10 years): one explanation for this finding may be that interventions for young children involve parents and/or guardians, who can ensure that the child attends the treatment sessions. This explanation may also explain why Bakker and colleagues found a higher dropout rate among older children. Overall, the researchers were unable to find evidence to support one type of psychological treatment over another, in part because critical details regarding the study participants were often lacking from many of the published studies. More high quality and adequately powered studies are thus urgently needed.

Referring to:

Bakker, M.J., Greven, C.U., Buitelaar, J.K. and Glennon, J.C. (2016), Practitioner Review: Psychological treatments for children and adolescents with conduct disorder problems –a systematic review and meta-analysis. *J. Child. Psychol. Psychiatr.* 58: 4-18. doi: 10.1111/jcpp.12590

Implications for healthcare policy and clinical practice:

- Psychological interventions have modest efficacy in reducing conduct disorder (CD) problems in affected children and adolescents, and seem to be more effective in children <10 years old.
- The parent-child-based intervention “Parent-Child Interaction Therapy”, the multi-component intervention “Incredible Years Program plus Child Literacy Program”, and the parent-focused interventions “Parent-Training Hitkashrut” and “Project Support” may be especially effective in reducing CD problems.
- Psychological interventions have a modest effect on both CD symptoms and CD-related problems, such as academic performance, in both the home and school environments, which suggest that these interventions have broad benefits.

Glossary:

Effect size (ES): The ES emphasises the magnitude of a difference between groups, or the strength of the relationship between two variables.

Conduct disorder (CD): CD is characterised by behaviour that violates either the rights of others or major societal norms. To be diagnosed with conduct disorder, symptoms must cause significant impairment in social, academic or occupational functioning. The disorder is typically diagnosed prior to adulthood.

Oppositional defiant disorder (ODD): ODD is a less severe form of conduct disorder characterised by a pattern of negativistic, hostile and defiant behaviour. The disturbance in behaviour causes clinically significant impairment in social, academic or occupational functioning and the behaviours do not occur exclusively during the course of a psychotic episode or mood disorder.

Disruptive behaviour disorder (DBD): a group of behavioural disorders that are characterised by ongoing patterns of uncooperative, hostile and defiant behaviours that children and adolescents direct towards authority figures.

Callous-unemotional traits: a dimension of psychopathy in which an affected individual displays low empathy, low guilt and no remorse.

Jadad scale: a procedure to independently assess the methodological quality of a clinical trial. The Jadad score ranges from 0 (very poor) to 5 (rigorous) and is derived from a three-point questionnaire that asks whether a study is described as (i) “randomised”, (ii) “double blind” and (iii) if there is a description of withdrawals and dropouts.

Randomised controlled trial: an experimental setup whereby participants are randomly allocated to an intervention/treatment group or a control/placebo group; randomisation of participants occurs after assessments for eligibility, and is used to minimise selection bias.