



LECTURE 3

Disruptive behaviour disorders (ODD and CD)

Disruptive behaviour disorders

Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) are classed as disruptive behaviour disorders.



Children are more likely to require chronic clinical interventions as many of the symptoms persist over time.

In common – the presence of socially difficult and antisocial behaviour.



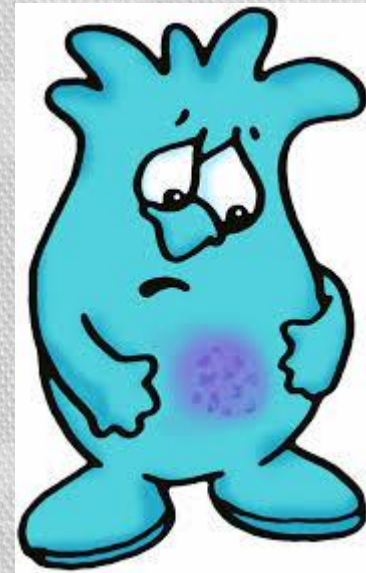
Classification of DBD

- ODD – a recurrent pattern of defiant and disobedient behaviour towards parents and other authority figures leading to impairment of day to day activities
- ODD – a milder condition than CD
- CD – behaviours which are pervasive across settings and against the law, such as physical assaults, serious theft and violations of societal norms (e.g. pathological lying or serious truancy).
- Often overlap between these conditions



Diagnostic Criteria: ICD-10

- Diagnostic and statistical manual of mental disorders (DSM-V: APA, 2013).
- International Classification of Diseases (ICD-10; WHO, 2016).
- Relatively similar in terms of emphasizing the persistent duration of the behaviours



Differ in that DSM-V considers ODD and CD as separate conditions Whereas the ICD-10 symptom criteria are similar to the combined criteria for both DSM-V CD and ODD disorders.

Developmental considerations

ODD – more characteristic of younger children

CD – more common in older children and adolescents (Loeber et al, 2000)

- Longitudinal studies that have followed children from a young age into adolescence and young adulthood have revealed that **many children who fulfil the criteria for ODD do not develop CD at a later stage**, whereas almost all of those who meet the criteria for CD previously fulfilled criteria for ODD.
- Considerable overlap between CD, ODD and ADHD (approx 50% with CD or ODD also meeting criteria for ADHD and vice versa (Kutcher et al, 2004))
- Therefore, ICD-10 includes a sub-group – hyperkinetic conduct disorder

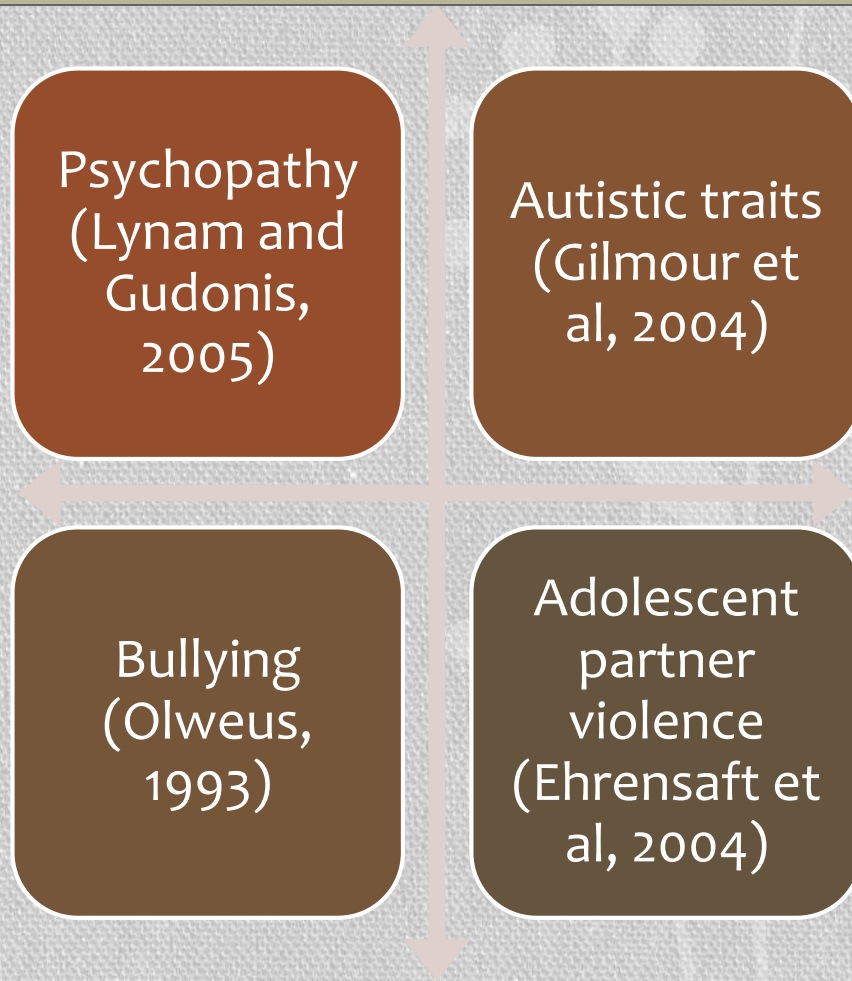
Co-morbidity

Half of those referred for ODD/CD have dual diagnosis of ADHD (Kazdin, 1995).

More than 90% meet the diagnostic criteria for other disorders (Moffitt, 2003)

Many with ODD also have emotionally labile temperament (irritability).

Difficulty regulating their emotions – turn to aggression.



Conduct disorder

Show persistent and serious patterns of misbehaviour.

Violate the rights of others (stealing, vandalism, and aggression).

Actively aggressive towards people (fighting with siblings and peers, sexually aggressive) and/or animals (engage in animal torture), commit vandalism, lie and steal from persons outside the home, and seriously violate society's moral codes.



Those who have a higher IQ are easier to treat, but are more imaginative and creative in acting out and evading detection.

Some may have a learning disability and lower average verbal skills. These kids have low self-esteem, become impatient easily, and seem reckless and accident-prone.

Those with CD do not show remorse unless it is to lessen their punishment. In fact, they enjoy telling about what they have done.

International Classification of Diseases (ICD-10; WHO, 2016) – ODD/CD.

Conduct disorder
confined to the
family context

Unsocialized
conduct
disorder

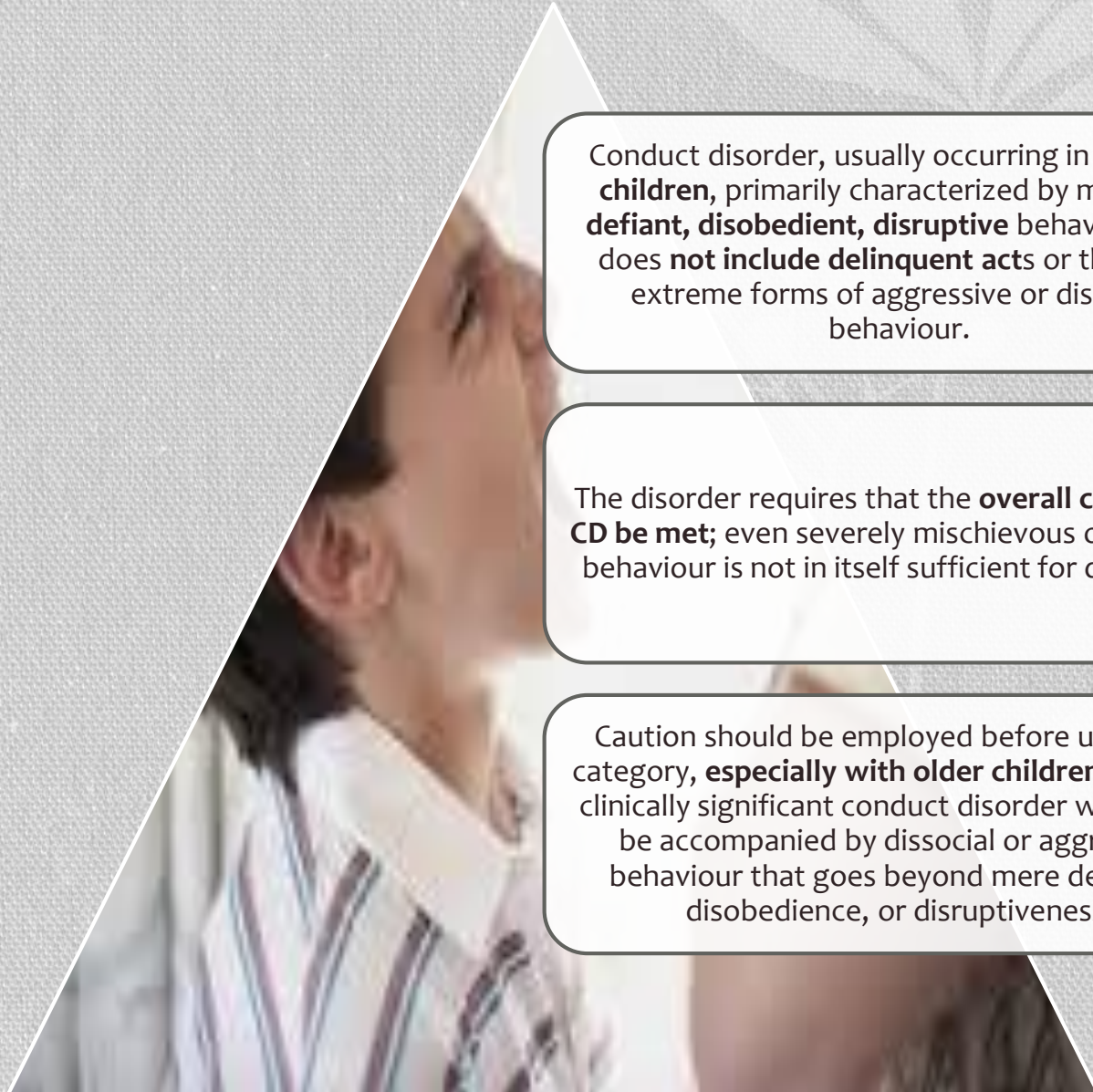
Socialized
conduct
disorder

Depressive
conduct
disorder

Conduct disorder, usually occurring in **younger children**, primarily characterized by markedly **defiant, disobedient, disruptive** behaviour that does **not include delinquent acts** or the more extreme forms of aggressive or dissocial behaviour.

The disorder requires that the **overall criteria for CD be met**; even severely mischievous or naughty behaviour is not in itself sufficient for diagnosis.

Caution should be employed before using this category, **especially with older children**, because clinically significant conduct disorder will usually be accompanied by dissocial or aggressive behaviour that goes beyond mere defiance, disobedience, or disruptiveness.



What is ODD?

(DSM V; Steiner & Remsing, 2007)

Usually first symptoms in preschool, rarely later than early adolescence

Provides later risks for antisocial behaviour, impulse control, substance use, anxiety and depression in adulthood

Often precedes Conduct Disorder (CD), often earlier onset

ODD, is a milder form and in contrast to children with conduct disorder, the behaviour of children with ODD does not involve serious violations of others' rights. It does, however, impair the child's family, academic and social functioning.

These children's anger is usually directed at authority figures. They are more willing to lose a privilege than to lose a battle, so discipline by withholding privileges often has no effect on their behaviour.



Children with ODD show extreme levels of argumentativeness, disobedience, stubbornness, negativity, and provocation of others.

Prevalence

ODD is a relatively common childhood disorder with an estimated prevalence of 2% to 10% (Maughan et al, 2004; Costello et al, 2003).

Prevalence estimates may vary depending on factors such as informant source (e.g., parent vs. child) type of report (e.g., concurrent vs. retrospective) and whether or not children meeting criteria for conduct disorder are included.

ODD is diagnosed more rarely in older children, partly in order to avoid labelling normative discord between children and their parents during adolescence.

ODD is significantly more common in boys than girls. Symptoms are relatively stable between the ages of five and ten, but are thought to decline after that point.

Diagnosing ODD: DSM V Symptoms

Criterion B: Associated with distress for individual or others, or impacts negatively on education, social occupation, or other areas

Criterion C: Symptoms do not occur only during course of a psychotic, substance use, depressive, or bipolar disorder. Individual does not meet criteria for disruptive mood dysregulation disorders.

Severity

Criterion A: At least 4 symptoms throughout past 6 months (not only with siblings)

- Angry/Irritable Mood
 - Often loses temper
 - Often touchy/easily annoyed
 - Often angry/resentful
- Argumentative/Defiant Behavior
 - Often argues with authority or adults
 - Often actively defies rules and requests
 - Often deliberately annoys others
 - Often blames others for own mistakes
- Vindictiveness
 - Spiteful or vindictive 2+ times in past 6 mos.

Mild: 1
setting

Moderate:
2 settings

Severe: 3+
settings

ODD DSM V Risk and Prognostic Features

- Emotional regulation problems
 - High levels emotional reactivity, low frustration tolerance

Temperamental



- Harsh, inconsistent, or neglectful child care

Environmental



- Low heart rate, low skin conductance, reduced basal cortisol reactivity, abnormalities in prefrontal cortex and amygdala

Genetic/Physiological



Temperament

Temperament will make a difference to how children view the world and conversely how they are viewed.

- ODD/CD children are hard to parent – often result in coercive (hostile) parenting (Patterson, 1982).
 - Can lead to **parental exhaustion** - leads to behaviour being **negatively reinforced** when the parent fails to follow through with their promised consequences.
 - The **parent backs down** = the child learns they can manipulate the parent.



Rule-breaking and apparent disobedience in children with poor listening skills and poor ability to predict the consequences of their behaviour can lead to punishment and negative reinforcement = inappropriately sensitive to criticism and cry easily = teased/scapegoat.

Genetics and ODD

Genetics/Comorbidity:
ODD, CD, ADHD

Shared genetic
influences

Dick et al. (2005),
Tuvblad et al. (2009),
Eaves et al. (2000)

40-50% of variance in CD/ODD
explained by heritable factors, and a
large contribution of shared
environmental factors relative to
other psychiatric disorders (Rhee and
Waldman, 2002).

Genetic
heritability
estimates:

Dick et al.
(2005),
Tuvblad et al.
(2009)

influences, unique environmental

Burt et al.
(2001)

Shared environmental influences
also shown to be important

Eaves et al.
(2000)

Evidence that ODD and CD
shared more genetic
influences than with ADHD

Heritability is even higher
60-70% for aggressive forms
of CD and for CD with high
levels of callous-
unemotional or
psychopathic traits (Viding
et al, 2005)

Wide range of results

- 21-65%, 39%
- Eaves et al. (1997), Burt et al. (2001)



Aetiology - Specific gene

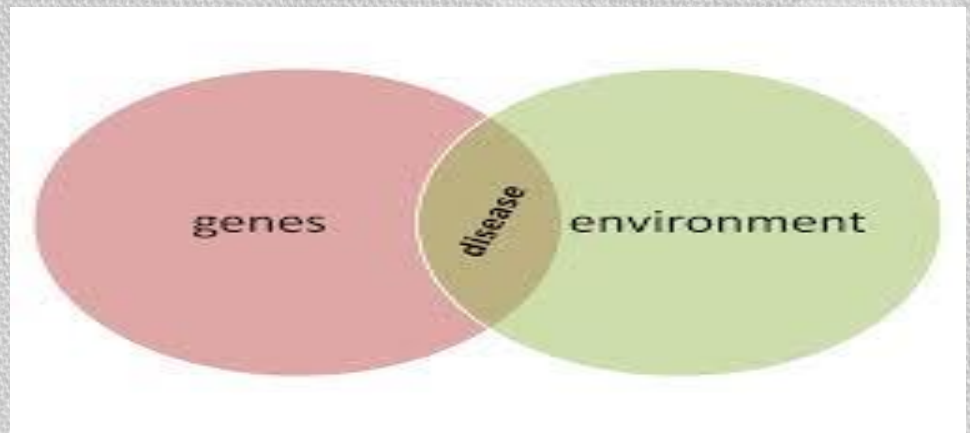


A functional polymorphism in the monoamine oxidase A (MAOA) – warrior gene.

Only weak effects on the risk of developing CD when it occurs in isolation – but increases susceptibility when combined with exposure to **maltreatment**

(Caspi et al, 2002).

As with other psychiatric disorders – many genes are involved and complex interactions between genes and environment are likely to explain aetiology.



Neuropsychology - Neuroimaging

CD – increased rates of verbal and language-based deficits and poor executive function (Moffitt, 1993).



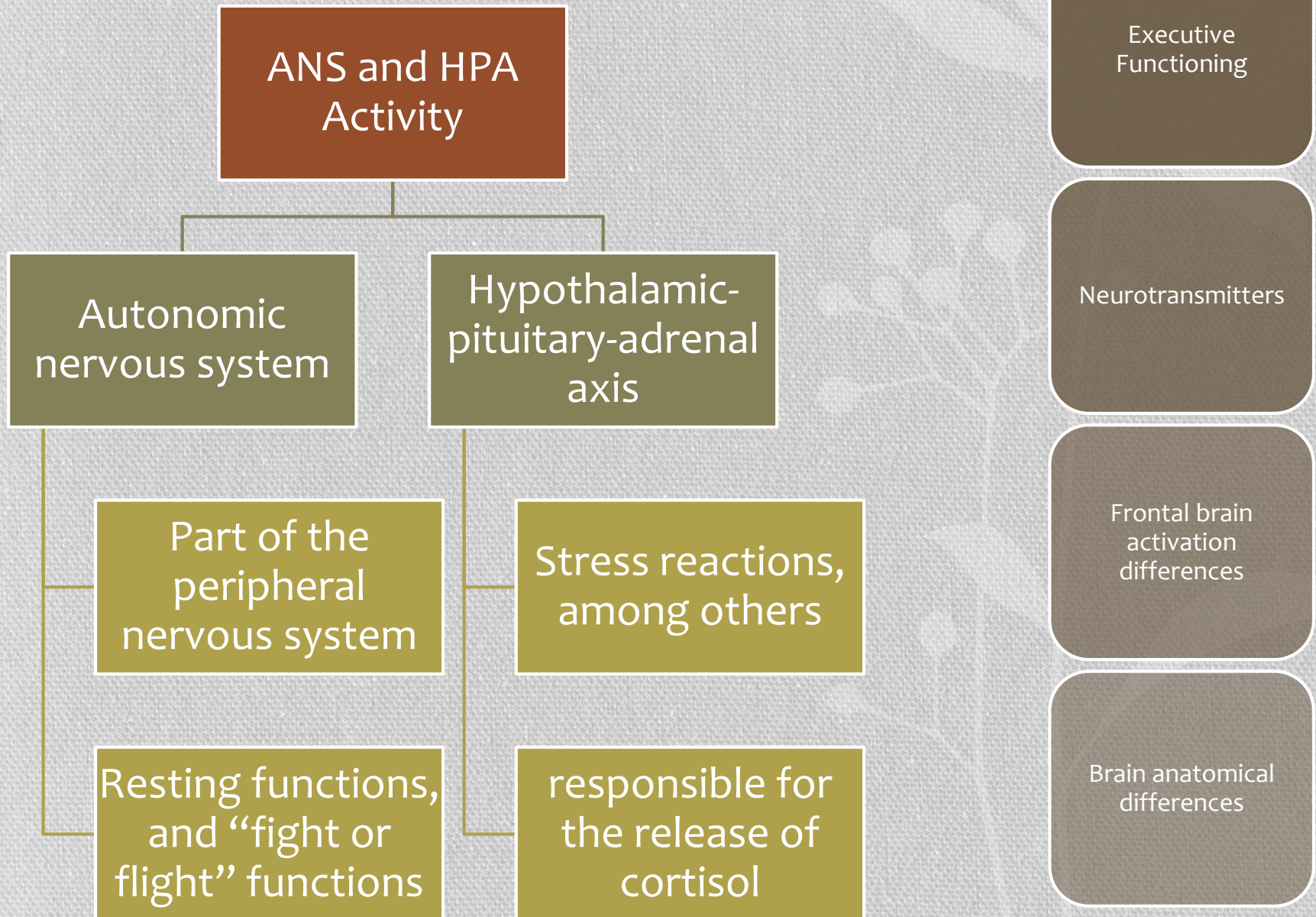
More sensitive to positive/rewarding stimuli, and less sensitive to negative or punishing stimuli (Fairchild et al, 2009)

Weaker psychophysiological responses to punishing or painful stimuli (Luman et al, 2010).

Reductions in amygdala and anterior insula grey matter which explains **deficits in empathy and facial expression recognition** (Fairchild et al, 2011).

These go some way to help explain social difficulties – but longitudinal studies are needed – cause or contribute?

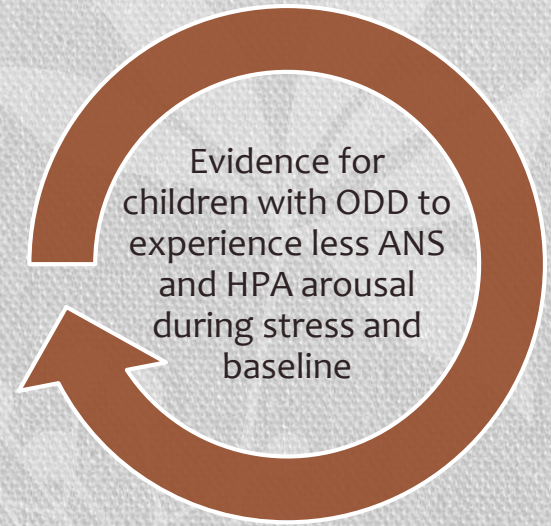
Neurobiological Underpinnings



ANS and HPA Activity

Snoek et al. (2004) Measured cortisol, heart rate, and skin conductance level (SCL) during baseline and stress in 95 children, 7-12 years old.

Comparing children with ODD, ADHD, ADHD/ODD vs. Control group on ANS and HPA axis activity



Stress phase

- Stress task: response perseveration task- money could be won or lost
- Completed difficult computer task under time pressure against videotaped "opponent"
- **received criticism from opponent** to perform better. Opponent then made participant complete task again.
- Participant then controlled whether reward signals or white noise signals would be played as opponent completed task (measure of aggression)



Results

Baseline

- Cortisol: no differences
- Heart rate: no differences
- SCL: Control group (CG) lower

Many ADHD patients were taking methylphenidate, affecting heart rate

- **Cortisol: ODD and ODD/ADHD weaker response to stress** vs. ADHD and CG (declined throughout test as opposed to increasing or staying the same)
 - **More extreme differences with increased severity of symptoms**
- **Heart rate: ODD lower throughout test**
- **SCL: CG lower**
- **ODD and ODD/ADHD showed highest levels of aggression**

Stress



- differences in ANS (heart rate and skin conductance) and HPA (cortisol) found for clinical vs. control participants. ODD participants generally less aroused, and more aggressive.

Van Goozen et al. (2000)

- Comparing children with DBD vs. CG on ANS and HPA axis activity
 - Measured cortisol, heart rate, skin conductance, feelings of control, and negative feelings during stressful and non-stressful activities

Baseline

Cortisol: no differences

Heart rate: lower in DBD (DBD Mean=87.3; NC Mean=95.5)

SCL: lower in DBD, especially comorbid ADHD

Negative mood and feelings of control: no difference

ODD participants generally less aroused during baseline and stress, and also report more negative feelings and display more aggression during stress.

Aggression: DBD administered more punishment

Negative moods: DBD more intense

SCL: lower skin conductance levels for DBD throughout task

Same stress test administered

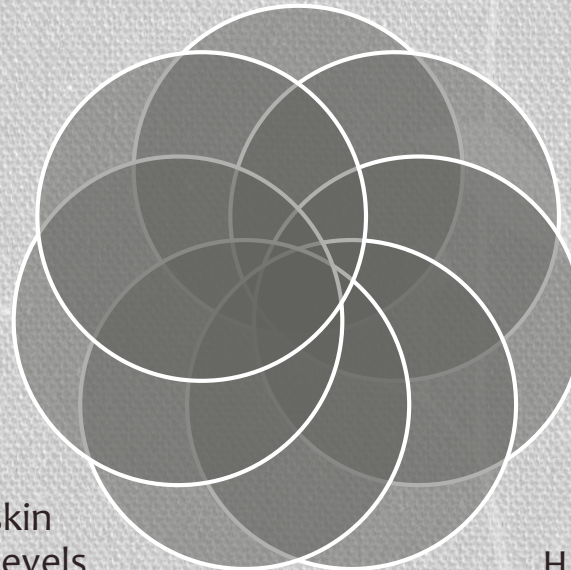
64 children, 8-12 years old

Group breakdown:

ODD group consisted of ODD or CD (19 ODD, 7 CD); 12 comorbid with ADHD

26 DBD, 38 (CG) (12 non-stress control)

Test:



Cortisol: more rapid decline in DBD children (no difference regarding comorbid ADHD)

Heart rate: lower in DBD (no difference regarding comorbid ADHD)

HR increased for both groups during stress

Executive Functioning Deficits?

Mixed evidence for executive functioning deficits

Van Goozen
et al. (2004)

- Compared ODD, ODD/ADHD and CG
- 77 participants, 7-12 years old.
- Group breakdown: 15 ODD (or CD), 26 ODD (or CD)/ADHD, 36 CG

Measured:

- Set shifting: Trail-Making Test Forms A and B (visual attention and task switching).
- Planning: Tower of Hanoi
- Working memory: Self-ordered pointing
- Inhibition/attention: Stroop, Continuous Performance Test
- Perseveration of responses: Door opening task
- Impulsivity/Delay aversion: Delay of gratification task

Results:

ODD/ADHD performed worse on set shifting (Trail B)

ODD/ADHD performed worse on response perseveration task

ODD opened more doors than CG

No differences from CG on other tasks (including Delay of Gratification task)

authors conclude results point not to deficit in executive functioning, but to inhibition, especially with regard to monetary reward (“more motivational than executive in nature”)

Response Perseveration Continued

Evidence for reduced punishment sensitivity
in boys with ODD

Matthys et al. (2004)



Comparing boys with ODD and CG
on response perseveration task

- Response perseveration: “the tendency to continue a response set for reward despite punishment”
- Measured reward sensitivity, punishment sensitivity, heart rate (HR), skin conductance level (SCL)

7-12 years old: 20 “ODD” (12 ODD, 8 CD, 12/20 comorbid ADHD), 20 CG

ODD group opened more doors ($M=99.4$)
vs. CG ($M=62.8$).

Punishment sensitivity: ODD took less time
to open next door after losing ($M=1.1$) vs.
CG ($M=4.1$).

SCL during task: lower for ODD ($M=12.4$)
NC ($M=18.9$)

Reward sensitivity and HR during task: no difference.
No differences between ODD and ODD/ADHD on any
measure

Door opening
task

Participant opens doors sequentially.
They see either a happy face on the
screen and receive a dime, or see a sad
face and has to give back money.

Ratio of winning to losing
doors decreases over time

Can stop game at any
point

Sensitivity to punishment:
how long it takes to open a
new door after losing

Sensitivity to
reward: how
long it takes to
open a new door
after winning

Neurobiological Underpinnings-Review

ANS and HPA Activity

- Evidence for underarousal during baseline and stress
 - E.g. heart rate, cortisol

Executive Functioning

- Mixed evidence for EF deficits
- Evidence for lower punishment sensitivity

Neurotransmitters

- Possible role of serotonin 5-HT receptors explored

Frontal brain activation differences

- Oppositional boys and girls show differing patterns of frontal brain activation symmetry/asymmetry compared to normal counterparts

Brain anatomical differences

- Oppositional children show different patterns of gray matter and white matter density in various brain regions compared to normal counterparts

BREAK



Task

Read the paper provided - write a **summary** (800words) on the following:

- What is CD?
- Characteristics
- Causes/aetiology
- Prevalence
- Outcomes
- Assessment
- Interventions

Are Prevention Programs Effective?

Prevention programs have demonstrated small effect sizes in preventing symptoms of ODD and CD

- Preventing property violation, oppositional behaviour, and aggression
- Effect sizes highest when records (i.e. from schools, police, or courts) as opposed to teacher, parent, or self reports used to determine effectiveness of programs (more implications for CD than ODD?)

Grove et al. (2008)

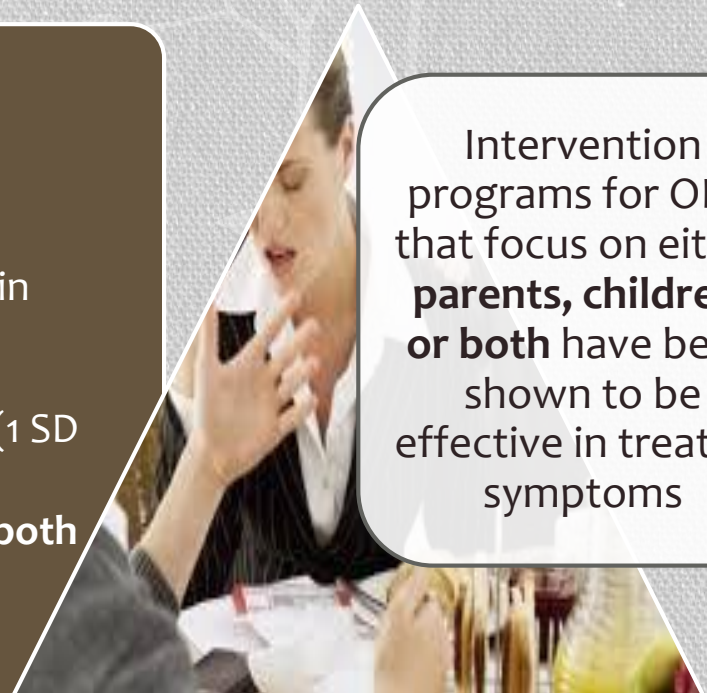
Bradley &
Mandell (2005)

Metanalysis of 7 studies focused on interventions for ODD (not CD)

Characteristics of included studies

- Children were diagnosed before inclusion in the study, based on any version of DSM (5 studies) OR had a T score of 55 or higher (2 studies) on CBCL aggression scale of CBCL (1 SD above norm)
- **Treatments targeted parents, children, or both**

Intervention programs for ODD that focus on either **parents, children, or both** have been shown to be effective in treating symptoms



Results

Symptoms at Home:

- Treating parents (SMD = 1.06) and children (SMD = .93) alone were more effective than treating both together (SMD = .25)

Symptoms at school:

- No significant effects

Academic Functioning

- No significant effects

Social functioning

- Treating children alone (SMD = .55) vs. SMD = .20 for treating parent and child

Parental stress/strain

- Treating parents (SMD = .88)

Parenting environment ("the nature of the parenting relationship")

- Treating parents (SMD = 0.85)

Interventions: A Focus on Parents

Kazdin (1997)

Intervention programs for parents can be particularly helpful in treating ODD

Reviewed parent management training (PMT) as an intervention for oppositional, aggressive, and antisocial behaviour in children

PMT: “treatment procedures in which parents are trained to alter their child’s behaviour at home”

Uses social learning principles

Aims to increase positive and decrease deviant behaviours

Focuses on “ABC’S”

Operant conditioning

Does it work?

Yes, **effects can sometimes be seen for years**

Improvements on parent and teacher reports

Improvements to non-clinical range

Has performed better than wait-list control and other treatments

Treatment outcome affected by: Home life factors E.g. high parent stress, harsh punishment, parent history of antisocial behavior.

Antecedents, Behaviours, Consequences

- Positive reinforcement especially crucial (mild punishment sometimes also helpful)
- Most effective when contingent and timely
- Most effective when parents truly understand principles

Challenges:

drop out rates

cultural considerations

Neglected differences between children and adolescents

less training opportunities for professionals

Parent Interventions Continued

Some treatments focus on teachers, in addition to parents and children. Targeting any combination of parents, teachers, and children may result in fewer conduct problems later on.

Reid et al. (2003) “Incredible Years Intervention”

- 2 year follow up data on a 6 month intervention for ODD
- 159 children
 - 4-8 years old with ODD (or CD) as defined by DSM IV
 - Scored more than 2 SD above mean on Eyberg Child Behavior Inventory
- Conditions
 - Parent training (PT)
 - Parent and teacher training (PT+TT)
 - Child training (CT)
 - Child and teacher training (CT+TT)
 - Parent and child and teacher training (PT+CT+TT)
 - Wait-list control (CON)

At conclusion of 6 month intervention:

- **All treatment condition children had fewer conduct problems with mothers, teachers, and peers vs. controls**
- More prosocial behavior with peers in CT condition ($d=.35$) and PT+CT+TT condition ($d=.46$) vs. control
- Negative behaviour with fathers lower in all PT conditions vs. control (d ranging .51-.63)
- Less negative parenting for mothers in all PT conditions, and CT condition vs. control (d ranging .51-.81)
- More positive parenting for mothers in all PT conditions vs. control (d ranging .46-.51)
- Less negative parenting for fathers in all PT conditions vs. control (d ranging .51-.91)

Additional treatment and services obtained in-between intervention and 2 year follow up

- **49.5% ADHD medication**
- **39.6% special education**
- 26.7% child therapy
- 12.1% family therapy

2 Year follow up results:

Determining clinical significance

- At home: 20% reduction on ECBI scores
- At school: moved below clinical threshold on TRF ($X > 63$)

Predictors of Outcomes

Conduct problems at home

~75% were treatment responders at home

PT+TT fared significantly better than PT alone

Conduct at school

No significant differences between treatment groups

50-58% of children who had shown problems at school were treatment responders (only about 50% of original had baseline school problems, so around 25% of total sample were nonresponders at school)

• *Problems at home*

- PT and PT+TT greater rates of treatment success
- More positive parenting (mother and father) at baseline and 1 year follow up (mother only) predictive of success
- Higher level of depression in mothers related to having non-responder child
 - Father's predicted in opposite direction

• *Problems at school and home*

- 26% treatment responders, 29% home only responders, 15% school only responders, 29% non-responder
- **PT+TT most likely to respond in both environments**
- Mother positive parenting at baseline was higher for overall responders rather than home-only responders. Marital discord predicted nonresponse at home

PMT Limitations

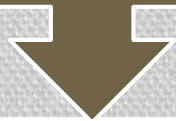
Some families do not learn social learning principles.



Some families will not implement these principles.



This includes behavioural observation and recording, attending therapy sessions and returning clinic phone calls.



But parental behaviour can be shaped in the same way that child behaviour can be shaped.



There are few training opportunities to learn PMT

Managing ODD- Medication

Spencer
et al.
(2006)

- looked at Mixed Amphetamine Salts Extended Release (Adderall XR) in ODD and ODD/ADHD children
- Participants: 308 children
 - 6-17 years old
 - Met DSM IV criteria for ODD
- Conditions
 - MAS XR 10 mg, 20 mg, 30, mg, 40 mg, and placebo
 - Excluded for CD
- Measured symptoms using the ODD subscale of the Swanson, Nolan, and Pelham-IV (SNAP IV) parent and teacher ratings
- Participants completed 1-4 week washout phase, then randomly assigned to one of the five conditions, then 4 weeks of medication

Adderall XR shown to be helpful in reducing ODD symptoms as rated by parents and teachers

ODD SNAP IV Parent Rating (PP-per-protocol analysis and ITT-intent-to-treat analysis)

ITT - MAS XR 30 showed greater improvement vs. placebo

PP - MAS XR 30 and 40 showed greater improvements vs. placebo

ODD SNAP IV Teacher Rating

ITT - MAS XR 10, 20, and 30 greater improvements vs. placebo

PP - MAS XR 10, 20, 30, 40 greater improvements vs. placebo

Results

Results cont...

ADHD Snap IV Parent Rating

- ITT
 - MAS XR 10, 30, and 40 greater improvements vs. placebo
- PP
 - MAS XR 10, 20, 30, 40 greater improvements vs. placebo

ADHD Snap IV Teacher Rating

- ITT
 - MAS XR 10, 30, 40 greater improvements vs. placebo

Clinical global impressions scales for ODD (completed by investigator and caregiver)

- Baseline: 88.3% placebo and 89% treatment were “moderately” or “markedly” ill.
- Improvements for 20 mg, 30 mg, and 40 mg vs. placebo to “very much improved” or “much improved”
 - 20 mg: 55.4%
 - 30 mg: 40.61%
 - 40 mg: 61%
 - Placebo: 26.7%

Prevention programs have shown small effects in preventing symptoms of ODD

Intervention programs may involve children, teachers, and parents

- Interventions involving parents are particularly effective

Medication may also be effective in treating ODD

ODD Research Challenges



Comorbid CD and ADHD (lack of individual studies and metaanalyses focusing on ODD alone)	• Many DBD studies focus mostly on CD, and features relating primarily to CD (e.g. aggression)
Less data on mood/temperament	
Medication confounds	
Small sample sizes	

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Small sample sizes

What Does the Future Hold?



It was once thought that most children would outgrow ODD by adulthood.



While some of the symptoms of ODD can go away over time, and many children outgrow the disorder, some children with ODD will continue to experience the consequences of ODD during their later years.



For those who do not receive treatment, ODD can develop the more serious CD.



Of those with CD, almost 40 percent will develop antisocial personality disorder in adulthood (Zoccolillo et al, 1992).

What Does the Future Hold?

Early diagnosis and treatment can help these individuals learn how to cope with stressful situations and manage their behavioural symptoms.

Psychotherapy, parent-management training, skills training, and family therapy work.

Research shows that children and adolescents respond well to therapy for ODD. In fact, for those who receive treatment, many are symptom-free once therapy has concluded and will go on to lead rewarding and happy lives.

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