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Developmental differences in children who have experienced adversity: *Threat bias*

CFCA PRACTICE GUIDE
(DEVELOPMENTAL DIFFERENCES: 4 OF 4)

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Child Family Community Australia | information exchange



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Overview

Childhood maltreatment is a powerful predictor of poor mental health later in life. We need to better understand the ways in which childhood maltreatment imparts this vulnerability; so that we can develop more effective support. Emerging research suggests that childhood maltreatment may be related to four areas of developmental difference; which increase vulnerability to developing mental health and behavioural concerns. This series of practitioner resources describes these four areas of developmental difference and outlines principles for supporting affected children.

Key messages

- Childhood maltreatment may result in developmental differences in key areas of cognitive and social functioning.
- These developmental differences may carry latent vulnerability for the development of mental health concerns later on.
- These developmental differences include changes in the effectiveness of executive functioning and emotional regulation; and changes in the processing of social information related to social threat and social reward.
- There is a need to develop effective preventative approaches that can reduce the likelihood of mental health and behavioural concerns developing. Principles for supporting children are outlined in this resource.

Introduction

Childhood adversity and maltreatment affects children's development and increases a child's vulnerability for mental health concerns later in life (Anda, Felitti, & Bremner, 2006; Green et al., 2010; McCrory, Gerin, & Viding, 2017; McLean, 2016; Price-Robertson, Higgins, & Vassallo, 2013; Vachon, Krueger, Rogosch, & Cicchetti, 2015). The range and complexity of adverse circumstances is well known to practitioners and includes trauma, maltreatment, exposure to violence, bullying or victimisation, loss and bereavement, and relocation (McLean, 2016; Young Minds, n.d.). It has been suggested that a third of adult mental health conditions can be directly linked to adverse experiences in childhood (Young Minds, n.d.).

Until recently, the pathways by which early adversity makes children more vulnerable to poor mental health outcomes haven't been well understood (McCrory & Viding, 2015; McLean, 2016; Pineau, Marchand, & Guay, 2014). Recent research approaches have focused on dynamic and "real-time" brain responses to social stimuli; and have helped us develop a better understanding of the way that a child's brain responds to everyday events. These types of studies, called functional brain imaging studies, explore in real time how a child's brain *reacts* to the social world; giving a more accurate picture of the cognitive processes that underlie children's reactions to social stimuli and what children's experience of the social world might be.

This approach has identified some of the key *developmental differences* that may make children who have experienced adversity more vulnerable to mental health concerns over time (McCrory et al., 2017). These are diminished social reward; emotional dysregulation; difficulty with executive functioning; and enhanced threat bias (see Box 1). This series of practitioner resources looks at these developmental differences and is intended for professionals (psychologists, mental-health social workers, therapeutic specialists) supporting vulnerable children and families. Each resource addresses one of the developmental differences and provides suggestions for supporting children who are school age or older.

The focus of this practitioner resource is enhanced threat bias; which we believe may put a child at increased risk of developing an anxiety disorder over time.

Box 1: Childhood adversity and developmental differences



Emotional dysregulation

Children exposed to early adversity may not process and regulate emotions in the same way as others; leading to suppressed or intensified emotional expression. This developmental difference could lay the neural foundation for the development of mood disorders in adolescence and later life.



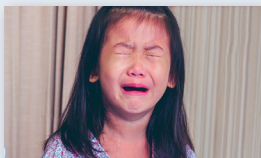
Diminished social reward

Children exposed to early adversity may not respond in the same way as non-abused peers to rewarding events or activities. This developmental difference could lay the neural foundation for the development of depression and addiction in adolescence and later life.



Difficulty with executive functioning

Children exposed to early adversity may not be able to plan, organise, execute and monitor their activities and their behavioural responses as easily as same age peers who have not experienced abuse. This developmental difference could lay the neural foundation for the development of learning and behaviour disorders in adolescence and later life.



Enhanced threat bias

Children exposed to early adversity can over-react to everyday events and stimuli; triggering an automatic “threat” bias. This developmental difference could lay the neural foundation for the development of anxiety disorders in adolescence and later life.

Source: McCrory et al., 2017

- * Children who have experienced adversity may benefit from professional psychological treatment. If you're concerned about a child, consider referring them to a general practitioner who can determine if the child should be referred to a psychologist.

What is threat bias?

In evolutionary terms, the ability to rapidly detect and respond to potential danger is critical to our survival; it is a built-in survival mechanism across many different species. In most cases, the appraisal and response happens almost instantly and below the level of our conscious awareness—it is a rapid, automatic and powerful response that can trigger a cascade of “fight or flight” survival responses within the human brain (McCrory et al., 2017; Öhman, 2009; Öhman, Carlsson, Lundqvist, & Ingvar, 2007).

The amygdala in the brain is centrally involved in the initial response in the detection and appraisal of potential threats. It is also intricately connected with other sub-cortical structures in the brain that are associated with fear “conditioning” (pairing stimuli with fear responses at a subconscious level). Threat bias occurs when we consistently respond to both threatening and benign events as though they were dangerous.

Emerging research on enhanced threat bias

In a recent comprehensive review of functional brain imaging studies published in the *Journal of Child Psychology and Psychiatry* that summarised the emerging evidence for developmental differences in brain development and their significance, McCrory and colleagues (2017, p. 352) cautioned that:

There is almost no provision for those children who have experienced maltreatment but who do not present with a manifest psychiatric disorder; indeed, such children have generally not been viewed as the concern of mental health professionals at all despite a compelling evidence documenting the significantly elevated risk of future disorder that characterise these children.

Collectively, the research on brain development suggests that predictable developmental differences in brain functioning precede the development of mental health and behavioural concerns. This argues for the provision of evidence-based *preventative* mental health protocols for all children who have experienced maltreatment.

McCrory and colleagues (2017) concluded that children who experience childhood maltreatment demonstrate altered neural responsiveness in threat detection pathways in anticipation of social stimuli; a pattern of “threat bias” that is consistent with that found in anxiety disorders. This may reflect a developmental adaption that, although initially useful in the context of frightening and unpredictable early social interactions, could convey a “latent vulnerability” for the development of psychopathology later in life (McCrory et al., 2017).

The significance of threat bias for children

Enhanced threat bias is when a child responds to everyday innocuous events as though they were dangerous. It occurs at a neural response level and involves heightened and persistent brain reactivity to both neutral and “dangerous” emotional stimuli (McCrory et al., 2017).

Inconsistent and frightening caregiving and neglect may be especially likely to lead to this cognitive vulnerability in children. We now believe that enhanced threat bias may lay the neural foundation for the later development of anxiety disorders (McCrory et al., 2017), by fostering an automatic avoidance response in young people’s developing neural circuitry (McCrory et al., 2011; Sheridan & McLaughlin, 2014). In this way, threat bias arising in the context of early caregiving may convey a vulnerability for development of anxiety and avoidance behaviours.

How does anxiety affect children?

An anxiety disorder is a form of mental health disorder characterised by: 1) feelings of worry, anxiety or fear that are *disproportionate to the objective reality* of the situation; and 2) anticipatory behavioural attempts to avoid the feared object or situation (American Psychiatric Association [APA], 2013). An anxious child *consistently perceives* that feared events, situations or objects are *more threatening* than they actually are. As perceptions underpin feelings of anxiety, young people who have developed a threat bias may be more likely to develop an anxiety disorder over time (McCrory et al., 2017).

These feelings of fear, worry or panic are persistent, and trigger avoidance behaviours that are pervasive enough to interfere with a child's capacity to participate in daily activities. Anxiety disorders are common among children in out-of-home care (approximately 11%; Ford, Vostanis, Meltzer, & Goodman, 2007; Luke, Sinclair, Woolgar, & Sebba, 2014). Some of the common anxiety disorders documented among children in care include:

- social phobia (a persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others (APA, 2013));
- generalised anxiety disorder (excessive anxiety and worry (apprehensive expectation) on more days than not for at least six months, about a number of events or activities (such as work or school performance) (APA, 2013));
- obsessive compulsive disorder (recurrent and persistent thoughts, urges or images that are experienced as intrusive and inappropriate, and that cause marked anxiety and distress (APA, 2013)); and
- post-traumatic stress disorder (symptoms of intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity following exposure to a traumatic event (APA, 2013)).

All children who have experienced adversity may be “wired” for threat bias; even if they do not present as anxious. Although anxiety is typically associated with withdrawn, internalised behaviour, it is now recognised that the relationship between anxiety and behaviour is complex. Anxiety disorders often precede the development of behaviour disorders and aggression (Bubier & Drabick, 2009); which can be viewed as of the “fight” component of the “flight or fight” response. We now recognise that internalised emotional disorders can and do present as challenging behaviour (Winsor & McLean, 2016).

Supporting children who have experienced adversity

Taken as a whole, the emerging research on neural differences and threat bias among children of any age who have experienced adversity suggests that it is important to address emerging anxiety using evidence-based principles. Some evidence-informed principles for supporting anxiety-prone children include:

1. Provide physical and emotional safety to children in care

When children are provided with psychological safety, it reduces the need for constant vigilance and scanning for threats. Psychological safety occurs when the child believes that their emotional and physical needs will be reliably met. Psychological safety is different to providing physical safety, and can take time to develop (McLean, 2016). Providing safety from physical harm is a necessary, *but not sufficient*, step in supporting children that are “wired” for the detection of threat. Many aspects of the out-of-home care environment can fundamentally jeopardise a child's psychological safety—these include placement with strangers; co-placement with aggressive, abusive or volatile children; or abrupt and unplanned placement changes (McLean, 2016).

2. Teach young people about threat bias and anxiety

It is helpful to provide children with an age-appropriate explanation for the difficulties they may be encountering (Donkers, Griffiths, Cuijpers, & Christensen, 2009). Explain to children how their brains have helped them by becoming “wired for threat”; and that this was a clever way to survive difficult circumstances. It can be important to acknowledge the value of attending to danger; a strategy that was once based in reality but that may now no longer be needed. Offering an alternative and strengths-based narrative for anxiety can be extremely helpful in engaging children and their caregivers in a therapeutic plan for addressing anxiety and reactive aggression.

There are many tools available for explaining to children how their clever brains and their threat bias has helped them to survive difficult circumstances. Several websites offer free educational materials that you could provide to caregivers regarding anxiety and avoidance:

- See the Children's Anxiety Institute website for free resources developed by caregivers for caregivers of children with anxiety <childrenwithanxiety.com>.
- Visit the Child Mind Institute for information about how cognitive behavioural approaches can be used to address childhood anxiety <childmind.org/article/behavioral-treatment-kids-anxiety>.

3. Take steps to ensure vulnerable children receive evidence-based preventative supports

By applying the following evidence-based principles, children who experience mild anxiety may be supported.

Practise relaxation training

Children preschool age and older can benefit from relaxation training, especially where children have developed anxiety that is accompanied by physical symptoms (stomach ache, nausea, etc.). There are several forms of relaxation training for children, including progressive muscle relaxation, guided breathing techniques, guided imagery, mindful visualisation and cued relaxation. It is important to check with children if you are intending to use imagery or physical touch with them, in case there is an association with past trauma. Relaxation techniques lower overall arousal and can be used as coping strategies when children are feeling unsafe.

The following websites have examples of free relaxation training scripts:

- Children with Anxiety <childrenwithanxiety.com/how-to-teach-children-progressive-muscle-relaxation.html>; and
- Therapist Aid <therapistaid.com/therapy-worksheet/progressive-muscle-relaxation-script/none/children>.

Teach children to be thought “detectives”

School-aged children who are prone to anxiety can also benefit from learning “thought challenging” exercises. The core experience of anxiety involves the child’s magnified perception of threat in any given situation. This anxiety is commonly associated with distorted thinking; or “thinking traps”. Engaging in these patterns of thinking helps fuel the perception that the world is a dangerous place. In “thought detective” exercises, children are taught to identify these thinking traps and to weigh up the evidence for, and against, these thought distortions (this is the basis for cognitive behaviour therapy). Anxious children often engage in fortune telling, over-generalisation and catastrophising (Muris & Field, 2008). (See Box 2 for a description of these and other unhelpful thinking styles.)

Box 2: Common thinking distortions associated with anxiety

Some of the unhelpful thinking styles that are commonly associated with the development of anxiety include:

Black and white thinking: Sometimes called “all or nothing thinking”, this involves always only seeing one extreme or another (e.g., seeing something as all bad or all good). In black and white thinking there are no “shades of grey”.

Catastrophising: Occurs when we “blow things out of proportion”; imagining that events are terrible, disastrous or irreversible, when in reality the impact of a feared event will be quite minimal.

Filtering: This is like having “tunnel vision”; excessively focusing on the negative aspects of a situation, and dismissing or not noticing the positive aspects of that situation.

Fortune telling: Fortune telling is when we automatically make predictions about what will happen in the future, typically based on an imagined “worse-case scenario”, rather than being based on facts.

Labelling: We use labelling when we make global judgements about ourselves that are based on specific situations but become entrenched beliefs about ourselves (e.g., “I’m stupid”). These labels persist, despite multiple examples of behaviours that aren’t consistent with our self-labels.

Over-generalisation: This involves taking one event from the past and imposing it on all current or future situations. This is often signalled by a child saying “you always ...”, or “I never ...”.

“Shoulding” and “musting”: This is when we put unreasonable demands on ourselves by thinking “I should ... do/say/ be” or “I must ...”; by using these statements we often create unrealistic demands on ourselves.

For more information about these and other unhelpful thinking styles, see <cci.health.wa.gov.au/docs/BB-5-Unhelpful%20Thinking%20Styles.pdf>.

Help children overcome avoidance

Another important feature of anxiety is the child's *avoidance* of relatively harmless situations that they perceive as dangerous. Avoidance behaviour reinforces the idea that situations are dangerous or threatening. Avoidance behaviour can be associated with behavioural problems, especially oppositional behaviour, placing considerable stress on families. For this reason, it is helpful to address this avoidance behaviour when it is affecting other family members. This can be done through developing a program of gradual exposure to a feared event or activity. This is done in consultation with the child; who helps develop their hierarchy or "ladder" of feared situations, and these are tackled one by one, from least to most threatening.

The "ladder" approach allows a child to experience and tolerate feared activities; beginning with less anxiety-provoking situations and building up to more feared events. For example, a socially anxious child might start with saying hello to a child they know, and progress in increments to introducing themselves to unknown children. Each step of the "ladder" involves progressing to more difficult tasks, and before each task is attempted, the child practises coping and tolerance skills. Referral to a psychologist is indicated when a child has longstanding avoidance or when their fears are so generalised and extensive that it affects their ability to participate in school and community activities.

This approach offers a relatively safe way that children can experience the success of coping with fears, and develop the understanding that fears do not need to be avoided. The key to developing an anxiety ladder is to make sure that each incremental step is only slightly harder than the last. For more about using anxiety ladders, see <raisingchildren.net.au/articles/anxiety_stepladder_approach.html>.

Build children's distress tolerance

Another key feature of anxiety is the child's perception that they are unable to tolerate distressing feelings. At some level, many children have formed the belief that anxiety is intolerable (a child may indeed have experienced overwhelming anxiety earlier in life). For this reason, an important part of supporting an anxiety-prone child will often be to include activities that gradually increase the child's "window of tolerance" for distress, coupled with coping self-statements and mindfulness coping techniques.

For free resources on building coping skills and tolerance for strong emotions, see:

- the Anxiety BC guide to developing coping cards <anxietybc.com/sites/default/files/coping_cards.pdf>; and
- the Anxiety Network <anxietynetwork.com/content/coping-statements-anxiety>.

4. Consider referring the child for professional psychological treatment

If you are concerned that a child has developed anxiety that is persistent and interferes with his or her capacity for participating in daily activities, a professionally formulated cognitive behavioural treatment may be warranted (Kangas, 2014). Children should be referred to a general practitioner, who can determine if the child should be referred to a psychologist. Children that meet the criteria for post-traumatic stress disorder (PTSD), anxiety or depression can receive subsidised treatment by a psychologist, under the Better Access to Mental Health Care initiative (see <psychology.org.au/for-the-public/Medicare-rebates-psychological-services/Medicare-FAQs-for-the-public>).

5. Consider using mental health treatment apps

There is an emerging body of research documenting the potential effectiveness of mental health apps for mobile phones and tablet devices (see Bakker, Kazantzis, Rickwood, & Rickard, 2016). These offer a portable means for accessing low-cost, easy-to-follow resilience enhancing exercises and activities. Available research suggests that apps that use a combination of attention training, thought challenging and behavioural activation are most effective (Bakker et al., 2016). Attention training involves using high-repetition stimuli that train the child to attend more to positive (social) stimuli and less to adverse stimuli. Behavioural activation involves scheduling activities that involve real-life exposure and practise of coping skills. See also <theconversation.com/how-to-find-a-good-app-for-mental-health-67787> for some tips on choosing the right app.

Conclusion

Emerging research suggests that children who have experienced early life adversity can experience a persistent and enhanced threat bias. This is an orientation to, and over-estimation of, social danger. This may lay the foundation for the development of anxiety disorders, particularly social anxiety and generalised anxiety disorder. Children who have experienced adversity may benefit from professional psychological treatment. These children can also benefit from engaging with evidence-based strategies to address anxiety through relaxation exercises, structured thought challenging exercises, and the provision of predictable, safe and nurturing care.

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