Developmental differences in children who have experienced adversity: *Diminished social reward*

**CFCA PRACTICE GUIDE**
(DEVELOPMENTAL DIFFERENCES: 2 OF 4)

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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 diminished response to social reward; which we believe may put a child at increased risk of developing depression 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 diminished social reward?

Social rewards play an important role in social learning, both at the conscious and unconscious levels of awareness (McCrory et al., 2017). We learn to engage in social and goal-directed behaviour by the experience of social reward. Social reward networks in the brain can be separated into at least two different networks: one to do with social motivation (“wanting”) and one to do with the pleasure of reward (“liking”); each mediated by different neural and neurotransmitter pathways (Berridge, Robinson, & Aldridge, 2009). Each of these pathways stimulates biochemistry designed to reinforce behaviour—thereby strengthening behaviours that are related to feelings of satisfaction or pleasure. These social reward pathways appear to be less effective in some maltreated children and adults—their response to social reward is diminished (McCrory et al., 2017).

Depressed adults, and adults with substance abuse issues, have been found to have alterations in these brain reward pathways (Sinha, 2008). Differences in the functioning of specific sub-cortical reward-related brain areas are related to the onset of depression two years later, even if the participants were asymptomatic at the time of testing. This suggests that changes in reward responsivity could convey vulnerability for the development of depression and substance use later in life (McCrory et al., 2017). In animal models, this pattern of responsiveness was found in those animals exposed to stressful early environments.

Emerging research on diminished social reward

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 blunted neural responsiveness in anticipation of social rewards; a pattern of “diminished responsiveness to reward” that is consistent with that found in adult depression. This may reflect a developmental adaptation that, although initially useful in the context of scarce and unpredictable social rewards in early social interactions, could convey a “latent vulnerability” for the development of psychopathology later in life (McCrory et al., 2017).

The significance of diminished reward responsiveness for children

Studies of children exposed to confirmed maltreatment also appear to show they have decreased reward-related brain activity compared to controls. Increased responsiveness to rewarding social stimuli appears to offer children some protection against later psychopathology (McCrory et al., 2017). This suggests the need to support children to “recalibrate” their social reward systems in the context of a normative environment (McCrory et al., 2017).

How does depression affect children?

In children of all ages, depression can present as behaviour problems such as withdrawal but also aggression. Children who are depressed can experience a lack of positive emotions (known as anhedonia), decreased motivation for, and interest in, activities and lowered energy and mood. In more severe cases, children can also experience changes in sleep or appetite (American Psychiatric Association [APA], 2013).
In developmental terms, when a child withdraws from social interactions that are no longer experienced as rewarding or safe; it can precipitate a negatively reinforcing cycle in which children become less and less motivated to engage with others, participate in social exploration or seek out socially rewarding relationships. As a result, there may be little opportunity for children to experience positive and rewarding social interactions unless this is explicitly addressed.

Children in care are significantly more likely than other children to experience low mood and depression (Ford, Vostanis, Meltzer, & Goodman, 2007; Luke, Sinclair, Woolgar, & Sebba, 2014) manifesting in both internalised and externalised behaviour (Winsor & McLean, 2016).

If you are concerned that a child may have symptoms of depression, the child 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>.

Supporting children who do not experience social reward

The emerging evidence suggests that children who have experienced adversity may not experience social reward as readily as other children. This suggests the need to build resilience and the capacity to experience social pleasure in these young people. This may be achieved through the following evidence-informed principles (Reinecke, Dattilio, & Freeman, 2003).

1. Teach young people prone to depression about the link between social reward and depression

It is helpful to provide children of all ages with an age-appropriate explanation for the difficulties they may be encountering. Explain to children about how their brains have helped them by “learning not to expect good feelings”; and that this was a clever way to survive difficult circumstances. It can be important to acknowledge the past value of this strategy, while helping the young person to understand that this strategy may now no longer be needed. Education about brain development in the context of aversive relationships can provide children with a more realistic self-identity and a more optimistic outlook on their future. Offering an alternative and strengths-based narrative for depression can be extremely helpful in engaging children and their caregivers in a therapeutic plan.

There are several Australian websites that offer free educational materials on depression and worksheets for practitioners explaining various principles for supporting children whose social enjoyment may be diminished. For more information, see the range of resources available from:

- Beyond Blue <beyondblue.org.au/health-professionals/working-with-young-people>
- Raising Children Network <raisingchildren.net.au/articles/depression_teenagers.html>
- Kids Matter <kidsmatter.edu.au/health-and-community/enewsletter/understanding-symptoms-depression-children>; and
- Reach Out Parents <parents.au.reachout.com/common-concerns/mental-health/depression-and-teenagers>

For worksheets tailored to working with children of all ages, see <therapistaid.com/therapy-worksheets/none/children>

2. Introduce preventative protective strategies to minimise the risk of developing depression

Children who don’t find social relationships enjoyable or have difficulty in experiencing pleasure from social interactions may be supported by applying the following principles:
Teach children to be thought “detectives”

The core experience of anhedonia involves the child’s magnification of the negative aspects involved in any given situation, coupled with a minimisation of the positive aspects. This perception is associated with distorted thinking, or “thinking traps”. These automatic patterns of thinking fuel the perception that social relationships are unrewarding.

Children who are prone to low mood may benefit from structured “thought challenging” exercises in which children act like “thought detectives”; weighing up the actual evidence for and against thought distortions such as black and white thinking, labelling, over-generalisation, filtering and should statements (this is the basis for cognitive behaviour therapy). (See Box 2 for a description of these thinking styles.)

Box 2: Common thinking distortions associated with depression

Some of the unhelpful thinking styles that are commonly associated with the development of depression 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>.

For further guidance for helping children to challenge unhelpful thinking styles see <anxietybc.com/parenting/childhood-anxiety>. The Western Australia Centre for Clinical Interventions also offers a range of free resources for mental health professionals that focus on the rationale and process of supporting clients who may be prone to depression and anhedonia. Although designed for adult consumers, many of the resources can be adapted for use with children and young people. See <cci.health.wa.gov.au/about/index.cfm>.

Schedule enjoyable activities

It can be helpful to schedule regular daily social activities that the child experiences as at least somewhat enjoyable. It may be necessary to start with brief activities and build up to more prolonged social experiences. This can be used as an opportunity to challenge children’s implicit beliefs about how social relationships are experienced. Exposure to social relationships can be gradually increased; allowing the child to build “tolerance” for happiness in the context of social relationships. This can be a relatively safe way for maltreated children to learn that social relationships can be rewarding and do not need to be avoided.
Use coaching techniques to build the habit of paying attention to positives

There are several coaching techniques that can be used to support children to develop the habit of attending to positive aspects of social interaction. One example of this is gratitude journaling (or a visual analogue such as video journaling for children with literacy issues) where young people are encouraged to notice and record positive aspects of their daily social activities and interactions (e.g., Froh et al., 2014). Journaling should focus on noticing rewarding aspects of relationships, and on identifying safe and nurturing relationships. Other positive psychology skills that can be coached and contribute to mental wellbeing include practising kindness; and identifying and aligning daily activities with personal values and strengths (Seligman, Ernst, Gillam, Reivich, & Linkins, 2009; Weare & Hind, 2011).

Similarly, counselling should focus on daily rituals for attending to and seeking out positive social interactions; this can help children to develop an alternative belief about social relationships that may have been punitive or unrewarding in the past.

3. 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.

4. Consider referring the child for professional psychological treatment

If you suspect or are concerned that a child has developed depression, low mood, anhedonia or decreased motivation for engaging in social activities that is persistent and interferes with their capacity to take part in daily activities, the child should be referred to a general practitioner, who can determine if the child should be referred to a psychologist. Moderate or severe mood disorders warrant a professionally formulated intervention such as cognitive behavioural therapy (Kangas, 2014). Children who meet the criteria for depression can receive subsidised treatment delivered 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>.

Conclusion

Emerging research suggests that children who have experienced early life adversity can experience reduced responsiveness to social reward; an under-registration of positive social stimuli. We believe that this may lay the foundation for the development of depression and withdrawal from social relationships. Children who have experienced early adversity and maltreatment may benefit from professional psychological treatment. These children can also benefit from a range of caregiver or professionally delivered strategies to address depression-proneness; through activity scheduling, thought challenging and psycho-education about the link between maltreatment and the diminished experience of social reward.

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References


