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Mood regulation in youth: research findings and clinical approaches to irritability and short-lived episodes of mania like symptoms

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Abstract

Purpose of review—Mood regulation problems, such as severe chronic irritability or short episodes of mania like symptoms are common, impairing and a topic of intense recent interest to clinicians, researchers and the DSM-5 process. Here we review the most recent findings about these two presentations and discuss approaches to their treatment.

Recent findings—Longitudinal and genetic findings suggest that chronic irritability should be regarded as a mood problem that is distinct from bipolar disorder.

A proportion of children with short (less than 4 days) episodes of mania like symptoms seem to progress to classical (Type I or II) bipolar disorder over time in US clinic samples. In a UK sample, such episodes were independently associated with psychosocial impairment.

The evidence base for the treatment of either irritability or short-lived episodes to mania-like symptoms is still small. Clinicians should be cautious with extrapolating treatments from classical bipolar disorder to these mood regulation problems. CBT-based approaches targeting general mood regulation processes may be effective for cases with severe irritability or short episodes of mania like symptoms.

Summary—There is increasing research evidence for the importance of mood regulation problems in the form of either irritability or short episodes of mania like symptoms in youth. The evidence base for their drug treatment has yet to be developed. CBT-based interventions to modify processes of mood regulation may be a useful and safe intervention for patients with these presentations.

Introduction

In current diagnostic systems, mood disorders in children and adolescents refer to the classical forms of depression and bipolar disorder, i.e. those that are also typically seen in adults. However, clinicians are frequently asked to diagnose and treat young people who present with mood regulation problems that don't neatly fall under one of the accepted diagnostic categories. Mood regulation (a term used descriptively here, rather than implying common underlying aetiology) is impaired in two types of presentation that are common but don't have a diagnostic label: a) severely irritable mood; and b) short-lived (less than 4 days) episodes of mania-like symptoms (such as feeling "high", taking risks, and disinhibition).

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The importance of understanding irritable mood and short-lived episodes with mania-like symptoms became apparent through the *bipolar debate*—the scientific and public debate that has surrounded the substantial increase^{1, 2} in the diagnosis of youth bipolar cases and concomitant increase in the prescription rates of antipsychotic medication³ over the last two decades in the USA.

This review summarises the most recent evidence available on irritable mood and short-lived episodes with mania-like symptoms. We focus on their longitudinal outcomes, genetic and family studies and on their boundaries with other disorders (including bipolar). We discuss how the lack of a treatment evidence-base poses major challenges for clinicians treating children with either irritability or short-lived episodes of mania like symptoms. We end by proposing a general approach to these problems and by proposing that psychological therapies targeting general processes of mood regulation may be a safe and effective approach to treatment.

Irritability

Children with severe irritability that doesn't occur as part of a circumscribed bipolar episode but that is chronically present, are commonly seen in clinics (Stringaris 2011). In parts of the US, severe non-episodic irritability was used as the predominant mood criterion (i.e. A-criterion) to diagnose children with bipolar disorder⁴. To test the relevance of these presentations to classical bipolar disorder, Leibenluft and colleagues⁵ generated a putative diagnostic category of severe chronic irritability termed severe mood dysregulation (SMD). Comparing this category against classical bipolar disorder (i.e. bipolar cases with episodic mood changes) has shown that the two differ in their longitudinal course^{6, 7} family history⁸ and neural mechanisms⁹. Outside the US, children with severe irritability are more often diagnosed with oppositional defiant disorder (ODD), a label that implies a behavioural disturbance rather than a mood problem. However, recent research¹⁰⁻¹³ suggests that irritability may be a separable dimension with different long-term outcomes compared to other oppositional symptoms (termed headstrong and hurtful). Irritability seems to be a stronger predictor of depressive disorders¹⁴ and the overlap may be due to genetic factors¹⁵. A frequently expressed clinical concern is whether severe irritability is a predictor of later personality disorder. It is not uncommon that clinicians use the term emerging personality disorder (most often of the borderline type) to describe some adolescents with severe irritability. The relationship between irritability, variation in personality, and what is described as personality pathology has received little research. Clinicians will want to establish other core features of what is thought to be personality disturbance, such as difficulties in establishing enduring relationships since early in life, when using such a term. Such a comprehensive assessment will also help demarcate the problems from other pathology, such as bipolar disorder.

These results and the fact that adolescent irritability is an independent predictor of suicidality even at 30-year follow up¹⁶ in the Isle of Wight study have made clear its significance for clinicians and researchers alike. However, several questions remain unresolved.

The first question is whether irritability should become a diagnostic category? Clearly, many clinical decisions, particularly those about treatment are binary ("to I treat or not to treat?"). The DSM-5 task force has recently proposed a category of disruptive mood dysregulation disorder (DMDD) to diagnose children with severe irritability. DMDD would capture an important clinical phenomenon: children with frequent temper tantrums occurring against the background of a chronically irritable mood. Also, part of the reason to introduce DMDD was to prevent the over-diagnosis of bipolar disorder in the USA. DMDD has not been

systematically studied so far, although findings from research in SMD could be extrapolated to it. One of the concerns with DMDD is that it could label temperamental variation as a psychiatric condition. Studies addressing the prevalence of DMDD in community samples could provide an answer to this.

The second question is how independent irritability is from other disorders? Irritability was once thought to be merely secondary to other disorders. There is little support for this view as detailed in the research above. However, children's irritability may be influenced by the presence of other disorders. For example, children with ADHD will be more likely to become irritable, than those without any psychiatric disorder. Also, children with ADHD and irritability may be more impaired than those with ADHD only¹⁷.

The third question is whether irritability should be a treatment target in its own right? It is far from clear whether the research on the effects of Risperidone on children with ASD can be extrapolated to typically developing children. A trial in children with ADHD¹⁸ showed that Sodium Valproate may be useful for those children whose aggression did not respond to a trial of stimulants. However, these were hospitalized children and the results may not generalize to the children commonly seen in community settings. A trial of Lithium in children has shown no effects¹⁹. The results of an ongoing trial using Citalopram in children with SMD are currently awaited. Indirect evidence from the treatment of OCD, suggests that temper outbursts improve along with depressive and anxiety symptoms using Cognitive and Behavioural Therapy (CBT; Krebs et al, personal communication).

Short-lived episodes of mania like symptoms

Diagnosing mania in DSM-IV²⁰ or ICD-10²¹ requires that a set of clinically significant symptoms have been present for at least 7 days (or shorter if hospitalization is required). A four-day duration qualifies for hypomania in the DSM-IV. These thresholds are arbitrary. In adults shorter episode durations of hypomania (one to three days) are thought to represent a bipolar spectrum.²²

In youth, the status of brief duration hypomania remains uncertain. The most compelling clinic-based data on the significance of short-duration episodes of mania-like symptoms comes from the Course and Outcome in Bipolar Youth (COBY) study²³. Children with manic symptoms and associated impairment were diagnosed as having Bipolar Disorder Not Otherwise specified if these symptoms lasted for a period of 4 hours within a 24-hour period, and at least 4 cumulative lifetime days²⁴. Several findings indicate that BP-NOS may be on a continuum with classical bipolar disorders. Cross-sectionally, BP-NOS was similar to BP-I and BP-II with regards to: the age of onset, duration, severity of illness, comorbidity pattern, family factors and the presence of depression and suicidal ideation²³. Longitudinally, youth with BP-NOS progressed to BPI or BPII at a rate of 38% over 4-year follow up²⁵. Also, BP-NOS has been found to be one of the most common early forms of mood disorder in children of parents with classical bipolar disorder²⁶, contributing to their significant impairment²⁷.

In a community-based study, Stringaris and colleagues showed that BP-NOS defined in a similar way to the one described above was common and led to functional impairment beyond what could be accounted for by other DSM-IV diagnoses²⁸. Latent class analysis in the same sample²⁹ identified a small group of children scoring high on a range of manic symptoms and suffering from severe psychosocial impairment and morbidity. However, the particularly poor agreement between parent- and child-reported episodes and the fact that they did not increase in duration with advancing age cast some doubt on the validity of BPNOS and whether it was on a continuum with BP-I and BPII²⁸.

The data presented above leave little doubt that clinicians need to take seriously cases of children presenting with mania-like episodes lasting less than the DSM-IV specified duration. It is also clear from the COBY studies that some of these children may be at increased risk to develop later bipolar disorder. However, important questions remain unanswered.

Firstly, the minimum duration of clinically relevant short episodes has not yet been established. The phenotype defined in COBY is wide and it is unclear whether hourlong presentations should be given the same weight as presentations that occur continuously over a period of one or two days.

Secondly, it is far from clear that anti-manic medication is beneficial either in treating such episodes or in preventing progression to full-blown mania.

How to deal with mood regulation problems

Pharmacological and psychological treatment of bipolar disorder³⁰ and depression³¹ have trial-evidence in their favour and are the subject of ongoing trials. There are, however, insufficient evidence-based treatments to treat either irritability or short-lived episodes of mania-like symptoms as we have also pointed out in the previous sections. Importantly, it is not yet clear that extrapolating the treatment recommendations from classical bipolar disorder is appropriate, given the potential side effects of anti-manic medication. Clearly further trials are needed in this regard.

In our clinic, we tend to reserve dopamine-antagonists, or mood stabilizing (i.e. Lithium or anti-epileptic) medication for patients who either fulfill DSM-IV criteria or are closest to them. For example, we would hesitate less to treat with medication children with mania-like symptoms which lasted for, say, 3 days (and who have suffered significant impairment as a result of these symptoms), than we would for children with a few scattered episodes lasting each for only a few hours. For all our cases, we try to ensure that other treatable co-occurring conditions have been adequately addressed. A case in point is the treatment of ADHD. In our experience, this leads to improvement in mood symptoms in a subset of children. Moreover, evidence from treatment trials suggests that oppositional problems (which may serve as a proxy measure for mood instability) improve significantly after treatment with methylphenidate³². Also, the available evidence indicates that treatment with methylphenidate does not lead to deterioration of mania like symptoms³³.

All our patients are offered a CBT-based approach that targets core components of mood dysregulation. It should be noted that psychoeducation and family involvement (which may in certain cases require targeted specific family interventions^{34, 35}) are essential components of our approach. Below we describe some of the evidence that is emerging for targeting mood regulation in CBT and how it is used in our clinic.

CBT to target problems with mood regulation

We use CBT to target cognitive and emotional processes that seem common to a range of mood disorders³⁶ and may therefore be seen as core components of mood regulation more generally. A prototypical example of such a process is *repetitive thinking* (RT)^{37, 38}. RT is described as a relatively uncontrollable or passive repetitive thinking process³⁹ in which an individual focuses on their symptoms or mood and the causes and consequences of this. For example, individuals with depression may experience thoughts such as “Why do I feel this way?”; “Why do things like this keep happening to me?”, whilst an individual with manic symptoms may experience positive ruminations of the type “Why am I feeling so full of energy and happy?”; “I could achieve anything right now.” This type of RT can be unhelpful

as it intensifies the particular mood state and is associated with a worsening of unhelpful behavioral consequences³⁸, such as increased withdrawal in depression⁴⁰ and aggression in angry rumination⁴¹.

Such repetitive thoughts seem to maintain dysphoric mood in depression and lead to negative overall outcomes⁴⁰. They are also evident in adults with bipolar disorder⁴², and in people suffering from irritability and aggression⁴¹. An emerging evidence base indicates that RT are also critical for mood regulation in youth^{43, 44} particularly in relation to depressive⁴⁵⁻⁴⁷ and angry rumination^{48, 49}. The role of RT in young people with bipolar disorder is not known, but is a promising area for future investigation.

The key role that RT plays in mood regulation has made it an explicit target across a range of disorders in “third wave” CBT treatments that include mindfulness-based cognitive therapy (MBCT) and Behavioural Activation (BA). MBCT has been shown to reduce relapse in depression among adults in at least three randomized controlled trials⁵⁰⁻⁵². The effects of MBCT may be mediated by an increased awareness of dysfunctional negative thinking patterns⁵³. Instead of engaging in habitual negative RT—typical of depression—patients improve their mood regulation by becoming increasingly attentive to their negative thinking. In patients with bipolar disorder, MBCT also reduces anxiety and depression as well as manic symptoms^{54, 55} probably through similar mechanisms involving changes in RT. MBCT may also reduce anger and aggression in adults and young people^{49, 56, 57}.

Another approach to mood regulation is through BA. BA includes techniques aimed at reducing depressive RT, which is understood as a form of avoidance similar to behavioural or social withdrawal. Engaging in RT is seen as analogous to, say, avoiding responding to a friend’s text message or not going out for a walk. BA is an effective treatment for depression in adults^{58, 59}, and we use it to target RT in adolescents with depression and irritability (in the latter targeting aggressive RT).

The first step in the treatment we offer aims at helping young people (often with the help of their parents) learn about mood recognition and about how to monitor changes in their mood by using daily diaries (or Smartphones if preferred). Young people are asked to rate their mood and the associated physical sensations and thoughts/memories whenever they notice a mood shift. They also complete a detailed record of: a) the antecedents of the mood change, which includes proximal factors (e.g. arguments, sitting alone listening to sad music), and more distal factors (e.g. poor sleep, missed meals, alcohol or substance use, parental discord); b) the responses to the mood change. Importantly, responses frequently include RT. Young people are often initially unaware of their own habitual negative thought processes and it is therefore crucial to direct their attention to these; and c) the consequences of the response (e.g. increase/decrease in the mood, further familial discord, missed school). Once the young person has become skilled in detecting these mood changes, RT is targeted as a key unhelpful response to a mood change. Through guided discovery and behavioural experiments, young people are helped to understand this style of thinking and its consequences. For example, we ask young people to focus their attention for 5 minutes in two different ways. In the first self-focused condition, we ask them to engage in RT (e.g. focus on why they feel as they do whether that is irritable, sad or intensely happy mood). In the second, externally-focused condition, we ask them to spend 5 minutes memorizing all they can see around them in the clinic room. Mood ratings taken before and after each of these conditions typically show that mood is worse in self-focused RT in contrast to the externally-focused condition. Once the unhelpful function of RT in some contexts is established with the young person, then alternatives to RT are taught.

Conclusions

There is mounting research evidence for the importance of mood regulation problems in the form of either irritability or short episodes of mania like symptoms in youth. CBT-based interventions that target general processes of mood regulation may be a useful and safe intervention for patients with these presentations. The evidence base for their drug treatment should be a topic of future research.

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Key points

- Mood regulation problems, such as severe chronic irritability or short episodes of mania like symptoms are common, impairing and a topic of intense recent interest to clinicians, researchers and the DSM-5 process.
- Longitudinal and genetic findings suggest that chronic irritability should be regarded as a mood problem that is, however, distinct from bipolar disorder.
- Some children with short (less than 4 days) episodes of mania like symptoms progressed to classical (Type I or II) bipolar disorder over time in a US sample. In a UK epidemiologic sample, such episodes were associated with impairment that is not accounted for by other common diagnoses.
- Clinicians should be cautious with extrapolating treatments from classical bipolar disorder to these mood regulation problems and make judicious use of pharmacotherapy.
- CBT-based approaches targeting general mood regulation processes may be effective in dealing with irritability or short episodes of mania like symptoms.