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"I can't control my high moods"

The relationship between cognitions about internal states and adolescent bipolar symptoms

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Volume I

MAIN RESEARCH PROJECT

AND

SERVICE EVALUATION PROJECT

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PART 1:
MAIN RESEARCH PROJECT

**“I can’t control my high moods”: The
relationship between cognitions about
internal states and adolescent bipolar
symptoms**

Supervised by:
Dr Patrick Smith
Dr Eleanor Leigh

Discussant:
Dr Warren Mansell

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Abstract

Background: In adults, research has demonstrated that extreme appraisals of internal states and their consequences correlate with and prospectively predict mood symptoms. Consistent with a cognitive model of problematic mood swings, extreme, personalised, and conflicting appraisals of activated and depressed states discriminate individuals with bipolar disorder from individuals with unipolar depression and non-clinical controls. This study sought to examine whether these findings could be replicated in adolescents (aged 14-15).

Methods: A non-clinical sample ($n=98$) completed measures of mood symptoms, appraisals, risk for future mania, impulsivity, and responses to positive affect. At 3-month follow up, these measures were re-administered alongside a measure of negative life events.

Results: Extreme, personalised appraisals of internal states were significantly associated with activation (hypomania), depression and irritability symptoms. These associations were robust and maintained when controlling for impulsivity and responses to positive affect. Positive appraisals of activated (high) mood states were uniquely associated with hypomania, whilst negative appraisals of activated states were uniquely associated with depression and irritability symptoms. The interaction between positive and negative cognitions about activated internal states significantly differentiated individuals scoring more highly on an index of risk for bipolar disorder from those at low risk, such that individuals who appraised activated states as both extremely positive and extremely negative were more likely to be at high or moderate likelihood of caseness. However, appraisals did not prospectively predict mood symptoms.

Conclusions: This study is the first to demonstrate associations between appraisals of internal states, analogue mood symptoms and mania risk in adolescents. Further research investigating the role of extreme appraisals at different points of the bipolar spectrum and across a broader age range is warranted, to establish whether the cognitive model of problematic mood swings and corresponding psychological interventions for mood swings and bipolar disorder may be applicable to children and adolescents.

“I can’t control my high moods”: The relationship between cognitions about internal states and adolescent bipolar symptoms

1.1 Overview

Clinicians do not yet know which processes are most helpful to address in psychological therapy for adolescents with bipolar disorder (BD). Whilst there have been some useful research developments in this area these developments lag behind those observed for other disorders, and there has been even less progress in children and adolescents. A novel, integrative model of mood swings has been developed and tested in adult samples and the therapeutic approach based on this theoretical model has shown initial promise. This study represents the first attempt to test key tenets of this model in an adolescent sample. This chapter will review the existing literature on BD, psychosocial risk factors, theoretical models and psychological therapy approaches in adults and in children and adolescents. The rationale and aims of the current study will then be presented, justification of the methods will be provided, and the primary hypotheses will be stated.

1.2 Bipolar Disorder: Definition and Diagnostic Criteria

BD is a chronic and debilitating mood disorder with a cyclical and recurring course, and bipolar spectrum disorders affect 2-4% of the population (Merikangas et al., 2010). BD has a significant impact on functioning; individuals with BD frequently experience difficulties with employment, economic well-being, and marital stability (Leahy, 2007). BD is a leading cause of worldwide disability (Murray & Lopez, 1996). Of particular concern is the finding that lifetime rates of completed suicide are 60 times higher than in the general population, and the ratio of completed suicides for each attempt is greatly increased at 1:3 versus 1:30 in the general population (Baldessarini, Pompili, & Tondo, 2006). Leahy states that “bipolar disorder may prove to be the most difficult and serious mental disorder that the clinician may encounter” (2007, p. 418).

A diagnosis of BD is made when an individual has a history of (or current) episode of depression and in addition has a history of (or current) manic (Bipolar Disorder I) or hypomanic (Bipolar Disorder II) episode. Lifetime prevalence rates vary according to diagnosis, with rates estimated at 1% for Bipolar Disorder I, 1.1% for Bipolar Disorder II, and 2.4% for ‘subthreshold BD’, which encompasses individuals

who experience recurrent diagnostic hypomania but not depression (Merikangas et al., 2010). According to the most recent edition of the Diagnostic and Statistical Manual (5th edition, American Psychiatric Association, 2013), a manic episode is defined as a distinct period of persistently elevated, expansive, or irritable mood, or significant increase in energy and activity levels, which lasts at least one week. There must be evidence of three of the following symptoms (or four if the mood is only irritable): inflated self-esteem or grandiosity, decreased need for sleep, more talkative than usual or pressured speech, flight of ideas or racing thoughts, distractibility, increase in goal-directed activity or psychomotor agitation, excessive involvement in pleasurable but risky activities (DSM-5; APA, 2013). For mania, the mood disturbance must cause significant functional impairment (or necessitate hospitalisation). Hypomania is literally translated as ‘below mania’, must last at least 4 days, and is defined by the same criteria except that marked social or occupational impairment is not required, and there must be no severe symptoms such as psychosis (DSM-5; APA, 2013). The episode must still be associated with a clear change from usual functioning. Within BD, an episode of depression is diagnosed using the same criteria as for unipolar depression, namely: depressed mood or loss of interest or pleasure, plus four or more additional core symptoms that co-occur (significant weight change, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive guilt, impaired concentration or indecisiveness, recurrent morbid or suicidal ideation). These symptoms must persist for at least two weeks, represent a change from usual functioning, and cause clinically significant distress or functional impairment. In DSM-5, the ‘mixed features’ specifier was added, to capture those episodes where both (hypo) mania and depression symptoms occur concurrently, but there are not sufficient symptoms present to diagnose an episode of hypomania or depression. It has frequently been observed that the most common experiences within mania and hypomania are irritability and psychomotor activation, not euphoria (e.g., Akiskal & Benazzi, 2003; Benazzi & Akiskal, 2001).

1.3 Brief and Sub-threshold Hypomania

Individuals can also experience symptoms of hypomania that are brief, that occur in isolation, or that do not represent a clear change in functioning. Individual symptoms of hypomania such as increased energy or decreased need for sleep are

relatively common in non-clinical populations (e.g., Udachina & Mansell, 2007), and some individuals report experiencing brief periods of hypomanic symptoms in the absence of a history of depression and without requiring psychiatric services or experiencing significant distress or impairment (Seal, Mansell & Mannion, 2008). Angst (1998) compared individuals reporting hypomania episodes, brief hypomania episodes, and a ‘sub-diagnostic’ group who reported fewer than 4 manic symptoms or reported no adverse social consequences or environmental feedback (e.g., received criticism). Sub-threshold manic symptoms were much more commonly reported (11.3%) than brief hypomanic episodes (2.8%) or hypomanic episodes lasting at least 4 days (5.5%), and were less likely to be associated with a history of depression. In addition, this sub-threshold group frequently reported increased drive and energy, but tended not to report irritability and impatience, or increased consumption of caffeine or alcohol (Angst, 1998). It may be that subthreshold hypomania of this form represents a normal and common part of the bipolar spectrum, and one which might be less likely to be problematic or lead to later difficulties for an individual.

In contrast, there is an emerging consensus that episodes of hypomania that meet diagnostic criteria but have a shorter duration (i.e., between 1-3 days) are less benign. Angst (1998) argued that brief hypomania episodes should be considered an important and valid part of the bipolar spectrum, and clearly when brief hypomania episodes are considered the prevalence of BD is substantially higher. In a large cohort, Angst (1998) identified recurrent or sporadic brief hypomanic episodes in around 3%, and found that both brief hypomania and hypomania lasting 4 days were associated with a family history of mood disorders, a history of suicide attempts, past treatment for depression, and comorbidity with anxiety disorders and substance abuse. Parker, Graham, Synott and Anderson (2014) argued that individuals who experience brief hypomania episodes do not differ on important illness correlates such as age of onset or depression history to individuals experiencing hypomania episodes of at least 4 days, and propose that the duration criterion is unhelpful and leads to misdiagnosis.

1.4 The ‘Bipolar Spectrum’

The concept of a bipolar spectrum was first introduced by Dunner, Gershon and Goodwin (1979), and numerous researchers have argued for a spectrum approach to BD over the subsequent decades (e.g., Akiskal & Mallya, 1987; Angst et al., 2003;

Klerman, 1981). Advocates of a broader spectrum approach to BD argue that the diagnostic criteria for BD are too strict and that a narrow concept of BD leads to misdiagnosis and delayed access to appropriate treatment (e.g., Angst et al., 2003). It has been argued that unipolar and bipolar depressive disorders exist on a continuum with one another, and researchers have identified that dimensional rather than categorical approaches better account for the differences between unipolar and bipolar depression (e.g., Akiskal & Benazzi, 2003; Judd, Hagop & Akiskal, 2003). In fact, Angst et al. (2003) argued that if the definition of hypomania were to be expanded, approximately half of those individuals with a diagnosis of unipolar depression might instead be diagnosed with BD.

It has also been suggested that bipolar disorders lie on a continuum with normal experience, from the extremes of psychotic manic-depression to individuals with temperamental mood dysregulation and a tendency towards depression (Akiskal, 1996). Angst et al. (2003) also proposed extending the bipolar spectrum to encompass ‘soft bipolar disorders’, including those who experience mild depressive episodes and hypomanic symptoms, and those who experience ‘pure hypomania’.

1.5 Bipolar Disorder: Diagnosis in Children and Young People

Bipolar disorder is very rare in young children but commonly develops in late adolescence (Alloy, Abramson, Walshaw & Neeren, 2006; Kennedy et al., 2005; Kessler, Rubinow, Holmes, Abelson & Zhao, 1997; Weissman et al., 1996), referred to as a critical period in the development of bipolar disorder (Findling, Kowatch, & Post, 2002). Perlis et al. (2004) found that the majority of individuals with bipolar disorder could date the onset of their illness before adulthood, and earlier onset predicts a more severe illness course (Alloy et al., 2005; Perlis et al 2004). Birmaher et al. (2006) identified that compared to adults, children and young adolescents with BD tended to experience more mood switching, be unwell more often, and experience more mixed episodes. In addition, individuals with early-onset bipolar disorder are at greater risk for attempting suicide than those whose symptoms start in adulthood (Bellivier, Goldmard, Henry, Leboyer & Schurhoff, 2001; Perlis et al., 2004). In one large, multi-site longitudinal study of pediatric BP, more than one-third of the children and adolescents with BD made at least one serious suicide attempt (Goldstein et al., 2005). Unfortunately however, there is often a considerable lag of up to 10 years between the

first emergence of symptoms and initiation of treatment (Egeland, Hosetter, Pauls & Sussex, 2000), meaning that adolescents might experience a number of untreated episodes, which further increases the likelihood of poorer prognosis (e.g., Kendler, Thornton & Gardner, 2000).

Children and young people are assessed for BD using the same diagnostic criteria as for adults. However, the National Institute for Clinical Excellence clinical guidelines for BD (NICE, 2006) make some specific recommendations. For both prepubescent children and adolescents they recommend using the adult criteria but state that for a diagnosis, elevated or expansive mood must be present most days, most of the time for 7 days. They advise that irritability should not be a core diagnostic criterion, but state that for adolescents irritability can be helpful in determining diagnosis if it is episodic, severe, impairs function and is out of character. In addition, NICE (2006) recommend that clinicians do not diagnose Bipolar II in children and young adolescents because the diagnostic criteria are unreliable, but recommend that children and young adolescents who do not fully meet diagnostic criteria (e.g., the duration criterion) are followed up closely. This recommendation not to use the Bipolar II diagnosis is likely due to the challenges of diagnosing hypomania in young people (which does not require significant impact on functioning to meet criteria), and therefore the high potential for false positive diagnoses. Moreno et al. (2007) argue that BD is commonly over-diagnosed in young people. It could be considered normative for young people to experience periods of increased activity or irritability that do not cause distress or impairment, and it can be difficult to ascertain whether a behaviour or mood is a symptom or is developmentally appropriate (Parens & Johnston, 2010). Other diagnoses such as attention deficit hyperactivity disorder (ADHD) or conduct disorder also share some of the same symptoms as hypomania, providing a further challenge. Moreover, children and younger adolescents might find it difficult to notice and describe symptoms and their duration (Parens & Johnston, 2010). Episodes of mania, by contrast, might be more validly and reliably recognised because of the requirement for one-week duration and for a significant impact on the child's normal functioning.

In those children and adolescents who meet full diagnostic criteria for BD, research has suggested that mixed episodes predominate and that classic biphasic presentations with clearly demarcated episodes of mania and depression are rare

(Biederman et al., 2005). In line with research in adults, irritable hypomania is more common than euphoric hypomania but irritability is not specific to BD and also occurs in other disorders (e.g., Leibenluft, Charney, Towbin, Banghoo & Pine, 2003). There has been controversy about the diagnosis of BD in children and young people who experience severe irritability, fueled by steep increases in the number of children aged 12 and under given a diagnosis of 'paediatric BD' in the US in recent years. Some researchers argued that irritability and 'temper tantrums' were early manifestations of BD, but in fact children described as chronically irritable are instead more likely to experience depression as adults (Stringaris, Cohen, Pine & Liebenluft, 2009). In the DSM-5 (APA, 2013), a separate new diagnosis of disruptive mood dysregulation disorder (DMDD) describes children up to age 18 who experience severe and frequent temper outbursts and persistent anger, irritability, or sadness which is not episodic and in the absence of mania.

1.6 Brief Hypomania and Bipolar Disorder Not Otherwise Specified

Research suggests young people are more likely to experience hypomanic symptoms of short duration (Akiskal et al., 1985), but there is controversy over the relevance of sub-threshold symptoms of mania in young people. The Longitudinal Assessment of Manic Symptoms Study (Findling et al., 2011) found that mood swings and high energy are very common in children and adolescents and do not necessarily develop into BD. Of a large sample of children referred to general clinics, those children experiencing elevated mania symptoms were significantly more likely than children not experiencing mania symptoms to develop BD, 75% of those who were experiencing elevated mania symptoms did not go on to develop BD. However, those children and adolescents who experience brief hypomanic episodes are likely to later experience longer episodes which meet diagnostic criteria for bipolar I or II (Axelson et al., 2006). For this reason, in practice children who report manic episodes of a short duration are often diagnosed with BD not otherwise specified (BD-NOS). Birmaher et al. (2006) proposed that a diagnosis of BD-NOS should be given where there is a hypomanic episode that does not last at least 4 days or where the hypomanic symptoms persist for 4 days but there are an insufficient number of manic symptoms to diagnose a clinical episode. As in adults, hypomanic episodes which meet diagnostic criteria but are brief (less than 4 day duration) do seem to represent a risk

factor for later BD in children and adolescents. The Course and Outcome of Bipolar Illness in Youth (COBY) study, a large, naturalistic, prospective study of a cohort (mean age 13) with Bipolar I and II and BD-NOS found that over a 2 year period, 25% of the children and adolescents with BD-NOS went on to meet full diagnostic criteria for Bipolar I or II, and around 20% of those with Bipolar-II converted to Bipolar-I (Birmaher et al., 2006). This would suggest that over time children and adolescents might progress from the sub-syndromal to fully syndromal end of the bipolar continuum, and that BP-NOS might represent a bipolar prodrome. Axelson et al. (2006) argue that those experiencing brief hypomanic episodes are very likely to later experience episodes of a longer duration, and thus suggest that BP-NOS is a valid and useful diagnostic category.

Table 1

Diagnostic criteria for bipolar spectrum disorders

	Bipolar I	Bipolar I children and adolescents*	Bipolar II	BD-NOS	DMDD
(Hypo) mania criteria	Past or current episode of mania, i.e., elevated, expansive, or irritable mood, or significant increase in energy and activity levels	Past or current episode of mania, i.e., elevated or expansive mood (<i>not irritable mood alone</i>), or significant increase in energy and activity levels	Past or current episode of hypomania, i.e., elevated, expansive, or irritable mood, or significant increase in energy and activity levels	Past or current episode of (hypo) mania, may not be sufficient symptoms to meet criteria for episode (Elated mood +2 DSM-IV symptoms or irritable mood +3 symptoms)	Severe and frequent temper outbursts and persistent anger, irritability, or sadness <i>in the absence of mania.</i>
Duration	Lasting ≥ 7 days	Lasting ≥ 7 days	Lasting ≥ 4 days	May last < 4 days (≥ 4 hours within a 24-hour period, ≥ 4 cumulative lifetime days)	
Impact	Symptoms of psychosis or causing impairment to functioning or hospitalisation	Symptoms of psychosis or causing impairment to functioning or hospitalisation	Change from usual functioning but no significant functional impairment	Not specified (Change from usual functioning)	Significant functional impairment
Depression	Past or current episode of depression	Past or current episode of depression	Past or current episode of depression	May be past or current episode of depression	Persistent sadness may be present
Age	All ages	Children/ 'less developmentally advanced' adolescents	All ages	All ages	Children up to age 18 only

Note. *NICE (2006) recommendations. DSM criteria for BD-NOS are vague; criteria for BD-NOS in parentheses are operationalised criteria utilised by the COBY study (Birmaher et al., 2006).

1.7 Diagnosis: Summary

Bipolar disorder is characterised by periods of high and low mood and significant detriment to health and well-being. Researchers have proposed that BD is best understood as a spectrum of disorders existing on a continuum with unipolar depression and normal experience. Whilst BD tends to onset in late adolescence or early adulthood, brief mood episodes can occur much earlier. Research suggests that over time children and adolescents can progress from the sub-syndromal to fully syndromal range of the bipolar continuum, indicating that sub-threshold symptoms might represent a risk factor for later bipolar spectrum disorder.

1.8 Risk Factors for Bipolar Disorder

Early research into risk factors for BD predominantly focused on biological risk factors and tended to neglect psychosocial factors, leading to a long accepted “wisdom” that BD is a purely biological illness (Leahy, 2007). Researchers focused on the heritability of BD (e.g., Grunze et al., 2013) and family, twin, and adoption studies have converged to provide strong evidence for a genetic contribution to the development of BD. Yet, whilst a number of candidate genes have been identified, these have not been consistently and robustly demonstrated (Cherlyn et al., 2010), and it has been suggested that environmental factors are likely to explain at least 50% of the variance in risk (Berrettini, 2000). Structural abnormalities in the brain have also been identified in individuals with BD. Abnormalities have been identified early in the course of illness, including those in prefrontal cortical areas and the amygdala, which potentially precede the onset of BD. The brain structures involved in BD are considered part of the brain’s affective circuitry (e.g., Yurgelun-Todd et al., 2000), including areas related to problem-solving (Perlstein, Elbert & Stenger, 2002) and modulating affective response (Mayberg, 1997). However, research suggests that other abnormalities, for example abnormalities in the lateral ventricles and other left inferior prefrontal regions, develop with repeated illness episodes and may be consequences of illness progression and other related factors (Strakowski, DelBello & Adler, 2005). In addition, neurotransmitters such as serotonin have long been implicated in BD and in the mechanism of action of mood stabilising medication (Shiah & Latham, 2000). Tsuchiya, Byrne and Mortensen (2003) systematically reviewed research addressing associations between environmental factors and risk for

BD. Suggestive findings were identified for biological factors such as pregnancy and obstetric complications, season of birth, traumatic brain injuries and multiple sclerosis, but also for psychosocial factors such as stressful life events. The authors concluded that a lack of research has precluded risk factors other than family history from being either confirmed or excluded, and called for further research.

1.9 Psychosocial Risk Factors for Bipolar Disorder in Adults

There has however been increasing research into psychosocial factors related to BD over the past decade, and parallel efforts to develop psychological models and treatments. This shift towards a focus on psychosocial factors can be attributed both to the failure of genetic and biological factors to fully account for differences in symptoms and expression and to the evidence that the prophylactic effects of lithium and other mood stabilising drugs are limited (Alloy et al., 2005). Psychosocial risk factors for BD that have received research attention include expressed emotion within families, stressful life events, coping strategies, sleep disturbances, and disruptions to routines and social rhythms. The evidence for these factors will be briefly reviewed.

Expressed emotion (EE) refers to the level of criticism, hostility, or emotional over-involvement of an individual's family or their caregivers. Miklowitz, Goldstein, Nuechterlein, Snyder and Mintz (1988) proposed that stressful life events, coping, expressed emotion (EE), and unhelpful family communication styles can all influence the course of BD, for example by determining relapse. One study identified that individuals with BD were 2 to 3 times more likely to relapse if they returned to a high EE family than if they returned to a low EE family (Kim & Miklowitz, 2004). A large meta-analysis of research across different psychiatric disorders found that levels of relapse are approximately 65% for individuals returning to families with high levels of EE, compared to approximately 35% for individuals in low EE families (Butzlaff & Hooley, 1998).

In addition, Alloy et al. (2005) reviewed the empirical evidence for psychosocial factors and BD and concluded that there was convincing evidence that stressful life events impact upon the onset and recurrence of mood episodes in BD. Goal attainment life events in particular, for example academic examinations or applying for a promotion, and consequent increased goal-directed activity, have been

shown to precede episodes of mania and hypomania (Johnson et al., 2000; Nusslock, Abramson, Harmon-Jones, Alloy & Hogan, 2007).

The way that individuals cope with stressful events and with mood symptoms can also impact on recurrence of mood episodes. Lam and Wong (1997) identified that protective coping strategies for preventing relapse include modifying excessive behaviour and taking time for rest and engaging in calming activities, whilst less helpful strategies included enjoying the feeling of the high and continuing to engage in more tasks.

Sleep patterns and social routines are also highly relevant. Sleep disruption has been shown to be a prodromal feature of mania (e.g., Jackson, Cavanagh & Scott, 2003), although sleep disturbance is not specific to mania or BD and is frequently observed in other psychological disorders. Research has identified that life events that disrupt normal circadian rhythms often precede episodes of mania (Ehlers, Kupfer, Frank & Monk, 1993; Frank et al., 1994; Malkoff-Schwartz et al., 1998). Daily routines; for example meal times; can help to maintain circadian rhythms, and disruptions to social rhythms and daily routines can therefore represent triggers for mood episodes or relapse. For example, one study identified that over the month of Ramadan, when daily routine and meal times are altered significantly, 45% of fasting BD patients relapsed (Kadri, Mouchtaq, Hakkou & Moussaoui, 2000).

Finally, specific thinking styles have also been investigated as potential risk factors for BD, including depressogenic thinking styles (e.g., Lam, Wright & Smith, 2004), specific mania-related beliefs (e.g., Beck, Colis, Steer, Madrak & Goldberger, 2006), and cognitions about life events (Alloy, Reilly-Harrington, Fresco, Whitehouse & Zechmeister, 1999).

1.10 Psychosocial Risk Factors for Bipolar Disorder in Children and Adolescents

It is important to ascertain whether psychosocial factors also represent risk factors for BD in children and adolescents. Jones (2008) argues that identifying modifiable psychological risk factors for this group would open up the possibility of interventions for high-risk or prodromal individuals which might prevent or mitigate the impact of mood episodes, analogous to those developed for people at risk of schizophrenia (e.g., Morrison et al., 2004). These might include primary prevention interventions (which would aim to prevent the development of mood episodes in

individuals at risk), or relapse-prevention interventions (which may be more effective following the initial mood episode or for individuals with early BD) (e.g., Jones et al., 2012).

One risk factor that has been studied in children and adolescents is negative or stressful life events. As in adults, stressful life events seem to represent risk factors for BD and for mood episodes in children and adolescents. Tillman et al. (2003) found that children and early adolescents with BD tended to have experienced more independent life events (i.e., life events that were not a result of their mood symptoms or behaviour) relative to controls and to those with attention deficit hyperactivity disorder. Hillegers et al. (2004) found that adolescent offspring of individuals with BD who experienced negative life events were at a 10% higher risk for subsequent mood disorder than those who had not experienced negative life events, although the impact of life events diminished over time.

There has also been research investigating the role of family support and EE in child and adolescent mood disorders. Expressed emotion within the family predicted time to recovery for depressed children (Asarnow, Goldstein, Thomson & Guthrie, 1993). Family relationships and EE have been found to exacerbate symptoms and increase risk of relapse in adolescents with BD, leading to the development of family-focused interventions for adolescent BD (e.g., Milkowitz, 2002), and levels of EE were found to mediate the effect of family-focused therapy on symptom improvements for adolescents with BD (Milkowitz, Buickians & Richards, 2006).

A number of the psychological factors highlighted in the adult literature might be expected to impact on adolescents, but research has not yet examined their relationship to child and adolescent BD. For example, for example disruptions and changes to social rhythms and routines might be common in adolescence. Adolescents are likely to be given increasing levels of independence, which might impact upon social rhythms and routines such as mealtimes and bedtimes, and adolescents may be less involved in family routines and more involved in activities with peers. These changes may be relevant to adolescent BD but have been understudied. In addition, goal attainment life events have such as examinations or University applications abound during adolescence and it might be expected that as in adults, these life events might represent triggers for cycles of mood escalation. In addition, the specific types of cognitions about life events, mood states and the self, which have been found to be

relevant to BD in adults (e.g., Alloy et al., 1999), may develop in adolescence. It might be expected that the way in which adolescents think about and make sense of life events, their mood, and their sense of self might impact upon mood symptoms and the development of mood disorders. Whilst these factors have been shown to be important in adult BD and might be expected to represent risk factors for adolescents, social rhythm disruptions, goal attainment life events, and specific cognitive styles have not been widely studied in adolescent BD.

1.11 Treatments for Bipolar Disorder: Adults

The predominant treatments for BD in adults are pharmacological, and NICE (2006) recommends that medication is the treatment of choice for acute episodes and for long-term management of mood. Advice should also be provided about monitoring mood and symptoms, including triggers and early warning signs; lifestyle factors, including sleep hygiene and work patterns; and coping strategies. NICE also recommend that patients be provided with psychoeducation about BD, and recommend involving family members or carers where possible. After an acute episode, for those individuals who are relatively stable but who continue to experience mild to moderate affective symptoms, the NICE guidelines recommend that individual structured psychological interventions, such as cognitive behavioural therapy or interpersonal and social rhythm therapy (IPSRT; Frank et al., 1994), or family-focused interventions (FFI), be considered, in addition to medication. NICE (2006) does not recommend individual psychological therapy as a first-line treatment, and there is a lack of guidance about treatment for those individuals who do not find pharmacological treatments acceptable or cannot tolerate these treatments or their side effects. However, further randomised controlled trials and meta-analyses have been conducted since the latest NICE guidelines for BD were published (e.g., Lam, Burbeck, Wright & Piling, 2009; Scott, Colom & Vieta, 2007), and the guidelines are due to be updated in 2014.

When compared to other disorders, the literature on psychosocial therapies for BD is in its infancy. However, researchers have shown that Cognitive Behaviour Therapy (CBT; e.g., Lam et al., 2003; Newman, Leahy, Beck, Reilly-Harrington & Gyulai, 2002; Scott et al., 2006) and Family-Focused Therapy (FFT; e.g., Miklowitz, George, Richards, Simoneau & Suddath, 2003), in conjunction with medication, can

improve symptoms and reduce the risk of relapse. The largest randomised controlled trial of psychosocial interventions for BD to date was a multi-site trial across 15 clinics involving 293 patients with BD I and BD II, which compared CBT, IPSRT and FFT. In this trial, psychosocial treatments as an adjunct to medication were found to be superior to medication alone, and intensive psychotherapy was found to be superior to brief psychotherapy in enhancing stabilization from bipolar depression (Miklowitz, Otto, Frank, Reilly-Harrington, Kogan et al., 2007). However, no statistically significant differences in outcome were observed for the different forms of intensive psychotherapies; outcomes were equivalent for CBT, FFT and IPSRT with no one treatment emerging as superior (Miklowitz, Otto, Frank, Reilly-Harrington, Wisniewski et al., 2007). A meta-analysis of eight maintenance psychotherapy trials, including individual, family and group interventions (CBT, FFI, and IPSRT), found that rates of relapse (any type of mood episode) were reduced by approximately 40% for individuals who received psychotherapy, and there were small beneficial effects on social functioning for individuals who received psychotherapy (Scott et al., 2007). Overall, psychotherapy was most effective if individuals were euthymic when commencing treatment, and least effective if individuals had a history of multiple mood episodes. A second meta-analysis of ten psychotherapy trials also found an overall reduction in risk for relapse for those who received psychotherapy (Lam et al., 2009).

Psychological therapies for BD are often not based on fully-developed and empirically-supported explanatory models of BD. The aims of psychological therapy for BD are broad. Leahy (2007) argues that psychological therapy should aim to both treat the specific episode and also lay the groundwork for long-term maintenance. Effective treatments should also address residual symptoms, as these predict relapse (e.g., Perlis et al., 2006), and relapse-prevention is a central aim of psychological therapies. Whilst the goals of treatment for BD are clear, it is less clear how best to achieve these ends. In practice, psychological therapies for BD are often generic and primarily psycho-educational, and it could be argued that there is not a firm empirical basis for the generic form of CBT that predominates. The rationale for using a CBT approach is based upon the efficacy of CBT for depression and the purported role of dysfunctional behaviours (e.g., coping strategies or poor sleep patterns) and cognitions (e.g., dysfunctional attitudes) in the maintenance of episodes of (hypo) mania as well

as depression. There is some empirical basis for this. Sleep disturbance is often predictive of the onset of mania (Bauer et al., 2006) and remains common even during euthymic phases (Harvey, Schmidt, Scarnà, Semler, & Goodwin, 2005). Poor coping with prodromes of mood episodes has also been shown to predict symptom escalation into full mood episodes (Lam & Wong, 1997). There is also evidence for different forms of negative or dysfunctional cognitions in BD (see section 1.14.1). The IPSRT approach is based upon research showing that social and circadian rhythm disruptions can trigger relapse (e.g., Kadri et al., 2000), and the suggestion that structure and routine are important for reducing mood instability and preventing relapse (Frank et al., 1994, 1997). The rationale for FFT is based upon consistent findings that problematic communication styles and high levels of expressed emotion and criticism within patients' families predict relapse in BD (e.g., Alloy et al., 2005; Butzlaff & Hooley, 1998). Across different research trials and in routine practice psychological therapies vary in their focus, and it is unclear whether the mechanisms contributing to the amelioration of symptoms are cognitive, psycho-educational, or based on stabilising social and circadian rhythms (Alloy et al., 2005).

1.12 Treatments for Bipolar Disorder: Children and Adolescents

Research focusing on the adolescent developmental stage of BD and on the early detection and treatment of distress is still in its infancy compared to other disorders (Jones, Tai, Evershed, Knowles & Bentall, 2006). Detection and effective treatment of BD at an early stage is critical because it may decrease the likelihood of future episodes, lessen their impact, or predict more favourable response to treatment (e.g., Leahy 2007). Despite this, there has been little research into psychosocial treatments for BD in children and adolescents. Almost 10 years ago, Kowatch et al. (2005) argued that there was a desperate need for up-to-date treatment guidelines for clinicians treating children and adolescents with BD. Whilst there has been some progress there is still insufficient evidence to conclude that psychological therapies are reliably effective for this group.

The NICE (2006) guidelines and recommendations on the treatment of bipolar disorder in adults also apply to children and young people, although there are some specific recommendations and there are differences in the specific psychotropic medications recommended. In 2006, NICE reported that there were no formal

evaluations of psychological treatments for BD in children and adolescents. Nevertheless, the guidelines did recommend that clinicians consider structured psychological therapy in addition to prophylactic medication for episodes of depression. The guidance also recommended that parents and carers are involved in treatment and given support to help the young person maintain a regular lifestyle, and suggested that with permission, advice could be given to the young person's school or college about managing their BD.

Since the publication of the NICE recommendations, one randomised controlled trial and further evaluations of psychological therapies for adolescent BD have been conducted. Fristad and Algorta (2013) reviewed the literature on BD in youth, and concluded that although results have been mixed and no well-established treatments exist, family interventions are “probably efficacious” and are the only interventions to have been investigated in a randomised controlled trial, CBT is “possibly efficacious”, and IPSRT and dialectical behaviour therapy (DBT) are considered “experimental”.

Two main trials of family interventions have been conducted. In a randomised controlled trial of FFT and ‘enhanced care’ for adolescents with BD ($n = 58$), Miklowitz et al. (2008) found that the two groups did not differ on either rate of recovery from index episode or time to relapse, although those adolescents who received FFT recovered from depression symptoms more quickly and had better outcomes in terms of depression over a 2 year period. In further analyses, Miklowitz et al. (2009) identified that adolescents from high EE families were more likely to benefit from FFT. Fristad, Verducci, Walters and Young (2009) investigated multi-family psychoeducation groups in a sample of 165 children aged 8-12 with BD I, II and NOS, and found multi-family psychoeducation to be associated with improvements in mania and depression symptoms maintained at 1 year follow-up.

Three small evaluations of CBT have been conducted. A small, preliminary open trial of child and family focused CBT found reductions in symptoms following the intervention for children aged 5-17 years old (Pavuluri et al., 2004). Feeny, Danielson, Schwartz, Youngstrom and Findling (2006) conducted a small pilot study of individual CBT for adolescents with BD, and concluded that individualised CBT was feasible and seemed to be efficacious in terms of reducing symptoms. West et al. (2009) conducted a pilot study of group CBT for children aged 6-12, and found

improvements in symptoms of mania but not depression, and improvements in psychosocial functioning.

In a 1-year open trial of DBT for adolescents aged 14-18 with BD, Goldstein, Axelson, Birmaher and Brent (2007) found that DBT was associated with improvements in suicidality, non-suicidal self injury, emotional dysregulation, and depression symptoms. Finally, in a further open trial of IPSRT for adolescents (mean age 16), Hlastala et al. (2010) found improvements after therapy in both mania and depression symptoms.

Those recommending psychosocial therapies for young people with BD suggest caution and outline several caveats. Kowatch et al. (2005) recommend that psychosocial therapies are used to address comorbid difficulties such as anxiety and propose that there is a role for evidence-based psychosocial therapy for BD, but only once the young person is stable on medication and providing they are capable of learning new skills. In line with researchers developing FFT and family-focused CBT (e.g., Fristad, Gavazzi & Mackinaw-Koons, 2003; Miklowitz, 2002; Pavuluri et al., 2004), Kowatch et al. suggest that this could usefully include psychoeducation for children and parents about BD, and focus on helping the young person to develop skills in communication, problem solving, emotion regulation and impulse control. McClellan, Kowatch and Findling (2007) also argue that behavioural and psychosocial therapies are indicated for juvenile mania, and could focus on disruptive behaviour and the impact of mania on family and wider functioning.

1.13 Risk Factors and Treatment: Summary

Researchers have demonstrated that psychosocial factors are involved in the onset and maintenance of BD and in determining relapse. Therapeutic approaches have been developed for adults with BD targeting some of these factors. A number of randomised controlled trials have been conducted evaluating these therapies, but results have been mixed. Meta-analyses indicate an overall small but beneficial effect. More recently, one randomised controlled trial and a number of small pilot trials of psychological therapies for paediatric and adolescent BD have been conducted, again with mixed results but with some indications of beneficial effects.

1.14 Psychological Models of Bipolar Disorder

One explanation for the inconsistent findings of research trials of psychotherapy for BD in adults and adolescents is that psychological models of BD have not been properly specified. Jones (2004) argues that current psychological treatments cannot be optimised without the development and refinement of explanatory models of BD, which account for both risk and maintenance factors. A number of influential diathesis-stress models of the development and maintenance of BD have been developed and have received research attention, focusing on (1) elaborations of the depression avoidance theory, (2) a dysregulated Behavioural Approach System (BAS) and associated beliefs and goal-pursuit behaviours, and (3) disruption to circadian rhythms and appraisals of the effects of these disruptions. These will be briefly described in turn.

1.14.1 Depression-avoidance theory. The depression avoidance theory of mania is based on the psychoanalytic manic defence hypothesis (Abraham, 1911), which posited that individuals experience mania as a result of efforts to avoid and defend against depression. In an elaboration of this hypothesis, Neale (1988) suggested that the experience of mania keeps negative thoughts from conscious awareness, and in this way facilitates avoidance of depression. This model has some empirical support. Individuals with BD have been found to score more highly on a measure of depressogenic cognitions (Dysfunctional Assumptions Scale; DAS) compared to individuals with no mood disorder (Scott, Stanton, Garland & Ferrier, 2000), but lower than individuals with unipolar depression (Goldberg, Goldstein, Wenzel, Welker & Beck, 2008). Interestingly, Scott and Pope (2003) found that hypomanic individuals scored highly on measures of both positive and negative self-esteem. There is some evidence of negative cognitive styles in BD even in remission (Bentall & Thompson, 1990). Processes such as rumination, known to be related to depression, have been found to be elevated in individuals with a diagnosis of or who are vulnerable to BD (e.g., Jones et al., 2006). In addition, Morrison, Peyton and Nothard (2003) found that individuals vulnerable to hypomania tended to engage in ‘anti-depressive’ behaviours such as keeping active. However, this is perhaps to be expected given the frequency of depressive experiences within these groups. Bentall, Tai and Knowles (2006) suggested that individuals’ efforts to avoid depression are not always successful, however it is unclear why an individual might ‘succeed’ in avoiding depression and

therefore experience mania at one time, but at another time might experience depression, and a number of other factors might conceivably influence this. In addition, whilst individuals with BD might in remission have a similar cognitive profile to individuals with unipolar depression, depressive styles are less predictive of hypomanic and manic symptoms (Mansell & Pedley, 2008).

1.14.2 Behavioural-activation system hyper-sensitivity theory. The behavioural activation system-sensitivity theory is a psychobiological theory of BD, which centres on the dysregulation of a hypothesised neuropsychological system, the Behavioural-Activation System (BAS), thought to be highly sensitive to internal and external signals of reward and relief from punishment (e.g., Depue & Iacono, 1989; Fowles, 1987; Gray, 1987). The theory suggests that individuals with BD experience changes in the activation of the BAS, which result in symptoms of hypomania and depression. In behavioural terms, high BAS activation would be expected to manifest as impulsivity, goal-striving behaviour, and high levels of arousal and positive affect, whilst low BAS activation would be expected to be reflected in low levels of approach motivation and behaviour and decreased energy (Urosevic, Abramson, Harmon-Jones & Alloy, 2008). Goal pursuit is also a central concept within the model; successful goal pursuit is expected to be followed by BAS activation, high arousal and positive affect and further goal-striving behaviour (e.g., Meyer, Beevers, Johnson & Simmons, 2007), whilst non-attainment of goals is proposed to lead to excessive BAS deactivation and depression (Depue & Iacono, 1989).

The model has been tested both neurobiologically and behaviourally. At the neurobiological level, Depue and Iacono (1989) hypothesised that frontal cortex regions were involved in the BAS, and left frontal cortical activity has been particularly implicated (e.g., Davidson, 1994; 1999). In support of this, research has identified correlations between relative left frontal cortical activity and self-report measures of the BAS (see Urosevic et al., 2008 for a review). Carver and White (1994) developed self-report BAS scales which assess a person's tendency to respond impulsively, act without thinking, and seek immediate pleasure and reward, or using other measures of impulsivity, and research has demonstrated associations between these measures and BD symptoms. Higher BAS scores were linked to higher hypomanic/manic symptoms in an at-risk sample (Alloy et al., 2008), and predicted progression to BD-II in a sample with cyclothymia and BD-NOS (Alloy et al., 2012).

Adolescents at elevated risk for BD also tend to score more highly on measures of sensation seeking, behavioural disinhibition and other aspects of impulsivity (see Jones, 2008 for a review).

In an elaboration of this model, Urošević et al. (2008) proposed that environmental events also impact upon the BAS, and that its effects might be exacerbated by cognitive processes following BAS activation, such as the activation and elaboration of appraisals or beliefs about risk taking, goal pursuit, or performance and success-related cognitions. Appraisals relating to the relevance of an event to the person's goals or desired outcomes, and appraisals relating to success expectancy, are said to be particularly important. In line with this, research using the Cognition Checklist for Mania (CCL-M-R; Beck, Colis, Steer, Madrak & Goldberg, 2006) has shown that cognitions about risk-taking behaviours and goal-pursuit correlate with risk for future mania (Fulford, Tuchman & Johnson, 2009) and discriminate individuals who recently experienced a manic episode from individuals experiencing other mood episodes (Beck et al., 2006). Francis-Raniere, Alloy and Abramson (2006) found that performance-related beliefs interacted with positive and negative life events to predict hypomania and depression symptoms respectively. Meyer et al. (2007) found associations between approach-motivation, incentive responsiveness, a facet of impulsivity, and mania vulnerability. Further, in an integrative review, Mansell and Pedley (2008) concluded that bipolar individuals' cognitive styles may be characterized by styles reflective of high BAS sensitivity.

1.14.3 Circadian rhythm instability and internal appraisal theory. This theory suggests that circadian rhythm abnormalities are present in individuals with BD, and that events which disrupt circadian rhythms represent stressors which can trigger relapse into mania (e.g., Lam, Jones, Hayward, & Bright, 1999). There is convincing evidence of disruptions in circadian functioning in BD. Circadian rhythm abnormalities of plasma thyrotropin (an indicator of thyroid function) have been noted in depression, and this abnormality is particularly evident in BD patients (Souetre et al., 1986). Tsujimoto, Yamada, Shimoda, Hanada and Takahashi (1990) observed disturbed patterns of change in body temperature, known to be relevant in determining sleep-wake cycles, in depression and mania. In addition, evidence has been obtained of disrupted circadian variations of cortisol levels in mania (Linkowski, Kerkhofs, & Van-Onderbergen, 1994). Healy and Williams (1989) proposed that the neurochemical

abnormalities in mania are consistent with generalised dysregulation of systems responsible for circadian rhythms.

Recent elaborations of the circadian rhythm account of BD emphasise the importance of the way individuals appraise perceived or actual disruptions to circadian rhythms and the effects and consequences of these changes. For example, Harvey et al. (2005) identified that individuals with BD experienced disturbed sleep but also had dysfunctional cognitions about sleep, regarding their perceived lack of control over sleep and also fears that losing sleep might trigger episodes of mania or depression. It is suggested that it is the way in which an individual ‘explains’ their increased levels of psychomotor and cognitive activity, rather than the circadian disturbance directly, that leads to elation (Healy & Williams, 1989; Jones, 2001); for example “[the fact I feel so energised means] I am more unstoppable than I thought”. Jones (2001) proposed that the interpretation of circadian changes leads to initial symptoms of either mania or depression, and then to behaviours which exacerbate these symptoms. Again, there is research evidence demonstrating that individuals with BD tend to make internal attributions of circadian rhythms. Jones, Mansell and Waller (2006) developed a measure of appraisals of possible circadian changes an individual might notice, for example “If I woke up earlier than normal and felt full of energy, I would probably think it was because: a) Something has disrupted my routine (external appraisal) or b) I am a happy, positive and energetic person (internal appraisal). Elevated scores on this measure were related to elevated hypomanic personality scores in a late adolescent sample (mean age 17), and differentiated individuals with bipolar disorder from controls.

1.15 Psychological Models of Bipolar Disorder: Summary

Three dominant models of BD have been proposed, which have distinct implications for treatment. It is argued that the predominant psychological treatments for BD are not based on coherent and comprehensive explanatory models of BD that can account for both high and low mood symptoms and for mood oscillation and the escalation of symptoms. Researchers have progressed from applying explanatory and therapeutic models developed for unipolar depression to considering unique predictors of mania. However, within BD, mania and depression are not separate concerns. Symptoms of hypomania and depression tend to be correlated (Udachina & Mansell,

2006) and individuals continue to experience dysphoria during manic episodes (e.g., Perugi, Akiskal, Toni, Simonini & Gemignani, 2001). Geddes and Miklowitz (2013) call for researchers to continue to attempt to identify psychological processes underlying *mood instability*, so that more focused interventions can be developed.

Despite the differences between these theories and the multiple possible pathways to mania and BD, each of the elaborations to the predominant models emphasises the importance of appraisals of and responses to internal experiences. In the depression avoidance theory it is negative appraisals of depression, in the BAS hyper-sensitivity account it is appraisals of goal-related events and of perceived goal success or attainment, and in the circadian rhythm theory it is positive and personalised appraisals of physiological changes such as increased energy levels or speed of thinking. There seems to be research support for each of these models individually, but there is a clear need for an integrative account. Carver and Johnson (2009) concluded that whilst the measures that independently predict mania and depression are different, there is a clear conceptual parallel in that tendencies toward mania and depression both involve “excessive emotional and cognitive reactivity to a particular subset of the person’s emotionally relevant experience” (p. 566). A comprehensive account of BD should therefore identify processes that provide a basis for that parallel, and recognise the importance of appraisals and responses to a wider range of experiences.

1.16 An Integrative Cognitive Model of Mood Swings and Bipolar Disorder

1.16.1 Overview of the model. One model which has attempted to identify psychological processes that maintain mood instability is the Integrative Cognitive Model of mood swings (ICM; Mansell, Morrison, Reid, Lowens & Tai, 2007). This model attempts to integrate the disparate models and strands of research in BD in order to explain shifts in mood. A clear advantage of this model is that it is a continuum model, which seeks to account for the spectrum of difficulties characterised by problematic mood swings, including both bipolar spectrum disorders and mood difficulties not meeting formal diagnostic criteria which nevertheless cause distress and impairment. Mansell et al. (2007) propose that individuals’ beliefs and appraisals about different mood and internal states play an important role in the development and maintenance of mood swing symptoms, and propose that individuals who experience

problematic mood swings may appraise changes in their mood and internal state in extreme, personal, and sometimes conflicting ways. The ICM suggests that changes to internal state can occur in the domain of cognition, in behaviour, in mood or in physiology. Changes in internal state and in the valence of mood might be determined by internal factors, but are also likely to be partially dependent on environmental factors (Mansell & Pedley, 2008). These fluctuations occur for everyone, although the extent of these fluctuations is likely to vary on a continuum (Mansell et al., 2007). Importantly, it is not the magnitude of the change that is critical but the appraisal, and individuals who experience problematic mood swings are likely to make more extreme appraisals of minor changes in internal states, whilst those who do not experience problematic mood swings might not give these changes much thought.

As in cognitive models of other disorders such as panic disorder (Clark, 1986), appraisals of internal state determine maladaptive behaviours to attempt to regulate that state. These behaviours can worsen or perpetuate problematic internal experience, and can also prevent disconfirmation of the appraisals. If an individual appraises a certain mood state as enjoyable or as potentially having positive consequences they might strive to sustain or heighten that state, whereas if they appraise it as aversive and believe it will bring about negative consequences, they may try to avoid or ‘dampen down’ that state. In the context of BD, a positive appraisal of an increase in energy or activation (e.g., “when I feel full of energy I am extremely funny and witty”) might lead an individual to engage in ‘ascent behaviours’ to maintain or escalate this activated, high mood, such as increased goal-directed activity, or decreasing sleep. Conversely, a negative appraisal (e.g., “when I get excited I can’t control my thoughts”) of the same change in mood state might lead to descent behaviours, such as withdrawing from social contact and reducing activity levels, which would drive mood and energy levels downwards.

The ICM proposes that opposing or conflicting cognitions about the same internal states are particularly problematic, in line with the broader literature on psychological processes in mania, where findings seem to imply a conflict between opposing forms of self-related cognition (Mansell & Pedley, 2008), including extreme positive and negative self-concept (Power, de Jong & Lloyd, 2002), conflicting appraisals regarding internal states (Mansell, 2006) and contradictory implicit and explicit senses of the self (Winters & Neale, 1985). The ICM proposes that when

individuals appraise the same internal state as both extremely positive and extremely negative they then engage in contradictory responses to mood or switch between ascent and descent behaviours, leading to problematic mood changes (Mansell et al., 2007). For example, if an individual appraised feeling really active and energetic as *both* meaning that their fears and worries would go away *and* meaning that others would react negatively to them then they might alternate between trying to maintain their high energy by keeping very active, and trying to reducing their energy levels by withdrawing from activities and other people.

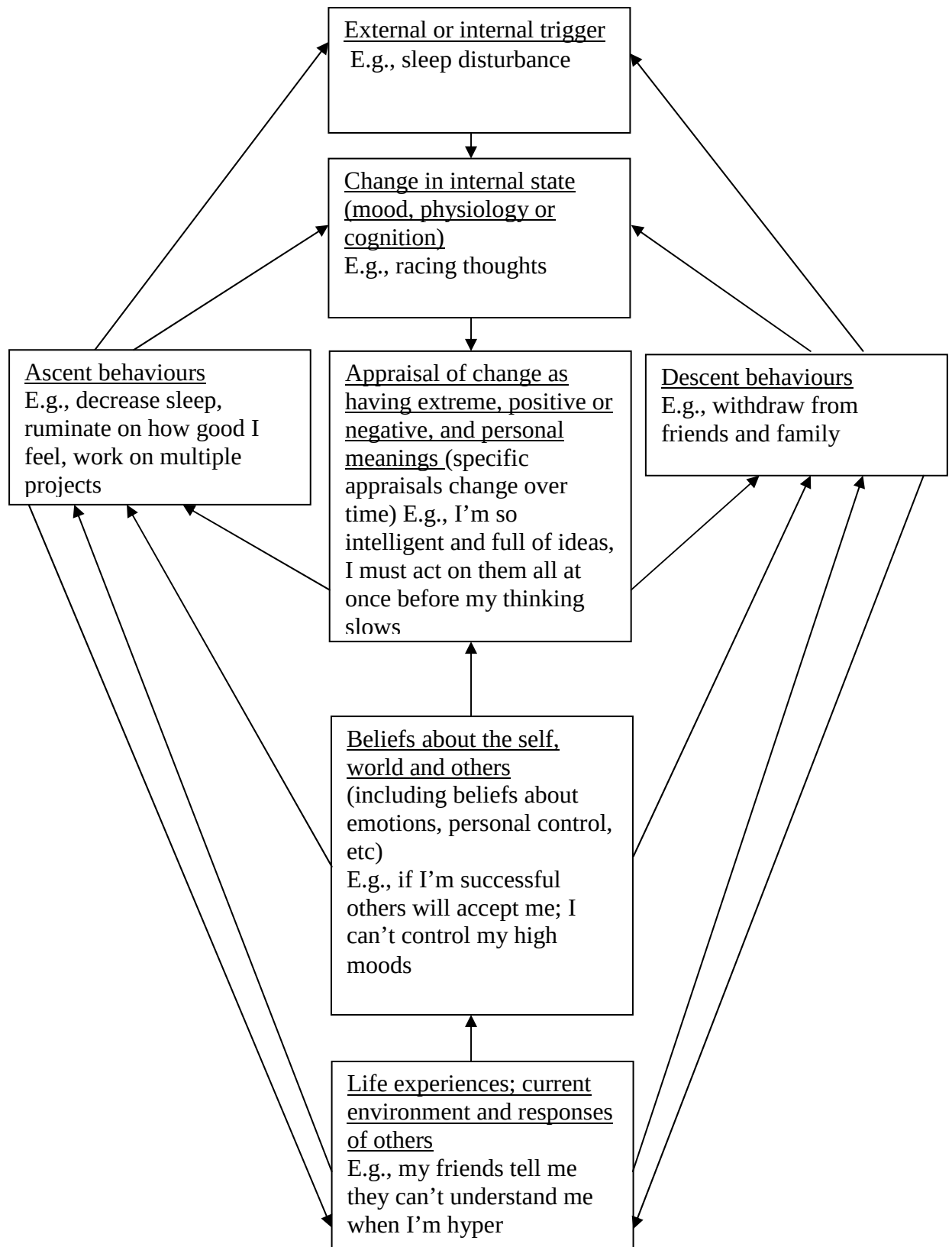
It is important to note that although their consequences may be adverse these appraisals may be accurate. For example, an individual with BD might fear that they are going to become depressed again and relapse is indeed common. However, these appraisals can become self-fulfilling, and contribute to a maintenance cycle (Mansell et al., 2007). In addition, individuals might make extreme and catastrophic predictions on the basis of little evidence, following minor and ambiguous changes in internal state, for example a slight decrease in energy levels. As in cognitive models of other disorders, these appraisals and beliefs about mood and internal states are thought to have formed from early life experiences, and then become further elaborated and confirmed by further life experiences (Mansell, 2007).

Ascent and descent behaviours function similarly to safety behaviours in other cognitive models (e.g., Wells, 1997; Salkovskis, Clark, Hackmann, Wells & Gelder, 1999), and as such have the following counterproductive effects: they maintain or prevent disconfirmation of the extreme appraisals (for example an individual might believe that they only avoided an episode of mania because they withdrew from all social activity); they contribute to further changes in internal state (for example, behaviours such as reducing sleep and remaining busy can further increase arousal levels); and they can contaminate interactions with others (for example ignoring advice from loved ones can lead to others responding more negatively or withdrawing their support) (Mansell, 2007). A diagrammatic depiction of this model is presented overleaf (Figure 1).

1.16.2 Treatment implications of the model. The ICM would suggest that the most important targets for psychological therapy are the extreme appraisals of changes in internal states, and the beliefs that ‘feed into’ these appraisals. Existing therapeutic interventions for BD often focus on changing behaviour, for example

reducing activity levels and trying to regulate sleep, or targeting the internal state directly through the use of medication. Mansell (2007) argues that whilst these interventions might circumvent the escalation of mood and reduce symptoms of mania in the short term, they do not address beliefs and thinking styles such as rumination, and may also contribute to experiences of a lack of control over mood and relapse, which might foster symptoms of depression (cf. Gilbert & Allan, 1998). Mansell (2007) proposes that without addressing internal mental processes as well as overt behaviours, individuals remain vulnerable to further episodes of mania. However, the model proposes that addressing beliefs and appraisals to prevent ascent into mania might lower the likelihood of relapse in future.

Figure 1. Integrative Cognitive Model of mood swings (adapted from Mansell et al., 2007).



Mansell et al. (2007) argue that the ICM is able to integrate and account for a number of important findings in the BD literature. The ICM is compatible with the depression avoidance account (e.g., Neale, 1988). Negative appraisals of low mood and positive appraisals of high energy states, for example, “unless I am active all of the time and remain on the go I will end up a failure and things will fall apart around me” (Mansell, 2006) are said to drive attempts to avoid mania (ascent behaviour). A key advance in this ICM model is that it can explain why individuals who strive to avoid depression nevertheless engage in behaviours that drive mood downwards or which dampen high mood states. It is suggested that positive appraisals of high energy states conflict with negative appraisals of the same states, for example “when I’m more active...” “people dislike me” and “I am at risk of a breakdown”, leading individuals to engage in contradictory or alternating emotion-regulation attempts.

The ICM is also compatible with the view that a dysregulated behavioural activation system (BAS) and consequent dysregulated goal pursuit are highly relevant in BD (e.g., Depue & Iacono, 1989). Within the ICM, these systems would influence an individual’s sensitivity to and appraisals of internal states, for example an individual with an hypersensitive BAS system might be more sensitive to an increase in energy levels, and then might appraise this change as having personal meaning, for example “now I feel good I can achieve all of my goals”. Johnson, Ruggero and Carver (2005) suggest that appraisals may increase goal-directed behaviour, which then confers vulnerability to mania. Within the ICM, goal-directed behaviour; for example working late into the night on multiple projects; would be conceptualised as ascent behaviour. In addition, the concept of reward responsivity can be incorporated; successful goal attainment might represent a trigger for positive affect or increased arousal. The ICM also recognises that another trigger for changes in internal state might be disruption to sleep patterns or circadian rhythms, and in line with the circadian rhythm account (Healy & Williams, 1989; Jones, 2001), proposes that it is the consequent appraisals that drive problematic behaviour and thus cause and maintain mood disturbance.

1.16.3 Primary predictions of the model. The ICM makes a number of key predictions (Mansell, 2007; Mansell et al., 2007). Firstly, individuals with BD or who experience problematic mood swings, who are known to experience changes in internal state, including cognition, mood and physiology, would be expected to

appraise these changes in multiple, extreme, and conflicting ways. Mansell (2007) suggested that these appraisals can be accessed ‘offline’ through Socratic questioning and the use of assessment tools, so individuals vulnerable to BD and/ or who experience significant mood swings would be expected to score more highly on measures of these appraisals and to show a greater degree of conflict between appraisals of the same internal states (Prediction 1). In addition, the extent to which individuals make these extreme appraisals would be expected to correlate with the severity of mood symptoms and prospectively predict mood symptoms (Prediction 2). The ICM proposes that appraisals of internal states drive behavioural responses to internal states, so extreme appraisals of changes in internal state would be expected to be correlated with behavioural responses and attempts to suppress, sustain or heighten internal states (Prediction 3). These behaviours would in turn be expected to be associated with further changes in internal state, which might manifest as mood symptoms or changes (Prediction 4).

1.17 Empirical Evidence for the Integrative Cognitive Model: Adults

An emerging body of research evidence using adult samples supports the key tenets of the ICM. This research will be summarised with reference to each of the key predictions of the model, and gaps in the existing research will be highlighted.

Research has examined the prediction that individuals with BD appraise changes in internal state in multiple, extreme, and conflicting ways. Much of the research testing this prediction has utilised the Hypomanic and Positive Predictions Inventory (HAPPI; Mansell, 2006) to assess the appraisals of internal states hypothesised to be important in BD and mood swings. The HAPPI scale comprises a list of positive and negative beliefs about high activation and low activation internal states, which was developed based on clinical experience of individuals with BD and refined to include only those beliefs which best discriminated individuals with BD from non-clinical controls and individuals with unipolar depression (Mansell, 2006). The items of the scale are reproduced in Table 2 in section 2.3.1.

Research in clinical and at-risk samples has confirmed **Prediction 1**. HAPPI scores were found to be elevated in BD groups relative to groups of individuals with unipolar depression and healthy controls (e.g., Alatiq et al., 2010; Mansell, 2006; Mansell & Jones, 2006; Mansell et al., 2011), and elevated in non-clinical samples

with a history of hypomania (Dodd, Mansell, Morrison & Tai, 2011c). Further research identified that the degree of conflict between appraisals predicted BD; individuals with BD were shown to be more likely to appraise activated or hypomanic mood states in both extremely positive and extremely negative ways, when compared to individuals with unipolar depression and controls (Kelly et al., 2011). Negative appraisals of activated mood states included statements such as “the better I feel about myself, the worse other people react to me”, and “when I feel agitated and restless it means I am about to have a breakdown”, whilst positive appraisals of activated states included “when my energy levels increase, I can bring about a large rise in my social status”, and “when I feel excited, my fears and worries are no longer real”. Interestingly, individuals with unipolar depression and controls also appraised activated states in positive ways, albeit to a lesser extent, but only individuals with BD tended to make both extremely positive *and* extremely negative appraisals of activated states. In addition, two recent studies demonstrated that extreme appraisals of internal states, as assessed by the HAPPI, were present in the adult offspring of parents with BD, and that this finding was independent of the offspring’s own history of mood episodes (Pavlickova, Turnbull & Bentall, in press; Ruggero, Bain, Smith & Kilmer, 2013). In contrast, Ruggero et al. (2013) found that scores on the dysfunctional cognitions measure developed by Beck et al. (2006) did not discriminate offspring of a parent with BD from offspring of parents with unipolar or no mood disorder, suggesting that dysfunctional appraisals of internal states and not dysfunctional self-appraisals might represent a risk factor for BD.

Research in both clinical and analogue samples also confirms **Prediction 2**. In adults with BD, HAPPI scores correlate with concurrent mood symptoms (Dodd, Mansell, Morrison & Tai, 2011a; Mansell & Jones, 2006). In student samples, HAPPI scores were shown to correlate positively with current mood symptoms (Dodd, Mansell, Morrison & Tai, 2011d, 2013), and be associated with symptoms independently of scores on the behavioural activation and inhibition scales (BIS/ BAS) and the hypomanic personality scale (Mansell, Rigby, Tai & Lowe, 2008). Kelly, Mansell, Sadhnani and Wood (2012) examined specific predictors of analogue high and low mood symptoms and found that activation (hypomania) symptoms were uniquely predicted by positive appraisals of activated states, whilst depression symptoms were uniquely predicted by negative appraisals of the same states.

Prospective research has also shown that HAPPI scores predict mood symptoms in clinical (Dodd, Mansell, Morrison & Tai, 2011a) and non-clinical (e.g., Dodd, Mansell, Sadhnani, Morrison & Tai, 2010; Dodd, Mansell, Beck & Tai, 2013) populations, suggesting these cognitions are not merely epiphenomena of hypomania and depression (Colom & Vieta, 2007).

One qualitative study also identified a relationship between appraisals, responses to mood and mood symptoms. In this study, 12 non-treatment seeking individuals who experienced hypomania but had no history of depression were interviewed about their experiences (Seal, Mansell & Mannion, 2008). For these individuals, it appeared that neutral appraisals were associated with adaptive, mood-balancing behaviours and symptoms of hypomania which resolved without treatment and without causing great distress or functional impairment. Interviews with participants suggested that what these individuals had in common was a tendency to appraise changes in internal state and mood as benign and related to external and situational factors, rather than as problematic and personally meaningful, and participants indicated that as a result they tended to either respond to these changes by ‘going with the flow’ and allowing them to pass, or by making changes to their circumstances and environment (Seal et al., 2008).

Less research has examined whether extreme appraisals of changes to internal states lead to or are associated with attempts to regulate internal states, or ascent and descent behaviours (**Prediction 3**), or whether these behaviours are in turn associated with further symptoms (**Prediction 4**). One study aimed to directly test these predictions. A large student sample completed measures of internal states and ascent and normalising behaviours (Behaviours Checklist, unpublished) twice daily for 4 days. Extreme appraisals, as measured by the HAPPI, independently predicted bipolar-relevant internal states (activation and depression) and ascent behaviours over this period (Dodd, Mansell, Morrison & Tai, 2011b). Baseline activation symptoms also predicted ascent behaviours, suggesting that the presence of symptoms of activation or hypomania increases the likelihood that an individual will adopt behaviours that serve to exacerbate or heighten these symptoms. Extreme appraisals did not predict the use of mood-balancing ‘normalising’ behaviours over the period, indicating that individuals who appraise internal states in extreme and personalised ways tend to engage in activation-enhancing behaviours, but not adaptive, normalising behaviours

(Dodd et al., 2011b). Multi-level or path analyses; which might indicate the direction of relationships and causality; were not conducted in this study, so further research is needed to demonstrate that it is the extreme appraisals that lead to behaviours, which in turn lead to further symptoms. This research also requires replication in clinical samples.

The emerging literature on cognitive responses to positive affect in mania is also relevant to prediction 4 of the ICM. This literature developed following consistent evidence that cognitive responses such as rumination can amplify and maintain depression in both adults (e.g., Nolen-Hoeksema & Morrow, 1993) and children and young people (e.g., Abela, Brozina, & Haigh, 2002; Schwartz & Koenig, 1996). Cognitive responses to positive affect include dampening; for example someone might remind themselves that the feeling is unlikely to last or think that they do not deserve to feel good; and positive rumination or focusing; for example a person might think about how happy they feel and try to savour the moment (Feldman, Joormann & Johnson, 2008). Within the ICM, these responses could be conceptualised as descent and ascent behaviours respectively. Feldman et al. (2008) found that both self-focused and emotion-focused positive rumination were correlated with vulnerability to mania, and positive emotion-focused rumination was found to be elevated among persons with a diagnosis of bipolar (Johnson, McKenzie & McMurrich, 2008). Gruber, Harvey and Johnson (2009) found that a euthymic BD group tended to ruminate both about positive and negative affect. However, Johnson and Jones (2009) identified an association between hypomania and tendencies to dampen positive affect, and Feldman et al. (2008) found that individuals vulnerable to mania reported both more dampening and more positive rumination in response to positive affect, suggesting individuals vulnerable to mania might engage in contradictory responses to positive affect. In another study individuals at risk for BD reported greater effort but less success for emotion-regulation attempts (Gruber, Johnson, Oveis & Keltner, 2008); suggesting risk for BD may also be associated with overuse but lessened effectiveness of responses to changes in mood. Whilst this research is consistent with the ICM, associations between appraisals of mood and internal states and these cognitive responses to affect are yet to be tested.

Research has also focused on the therapeutic approach based on the ICM, ‘Think Effectively about Mood Swings’ (TEAMS). The initial case study (Mansell, 2007) and case series (Searson, Mansell, Lowens & Tai., 2012) showed promising results, and the first randomised controlled trial is ongoing (Tai et al., in prep.). The therapeutic approach is based on Cognitive-Behavioural principles, and prioritises the identification and change of extreme and conflicting thoughts and beliefs about mood swings (Mansell, 2007).

1.18 Empirical Evidence for the Integrative Cognitive Model: Children and Adolescents

As yet, no research has tested the primary predictions of the ICM in young adolescent samples, despite calls for research to examine how early in development the extreme cognitions about internal states measured by the HAPPI appear (Ruggero et al., 2013). The present study sought to address this gap in the existing research. Given the growing evidence base for the ICM in adult samples, it is appropriate to begin to extend the research detailed above to adolescent age groups. Adult research requires replication using young adolescent samples before attempting to apply the ICM and the corresponding treatment model to this age group, because developmental considerations mean that it cannot simply be presumed that the same factors determine changes in internal states and the way in which these changes in internal states are appraised in adolescents as in adults. For example, during adolescence considerable structural changes occur in regions of the brain underpinning cognitive functioning (e.g., Blakemore & Choudhury, 2006). In particular, there seems to be significant cognitive and affective development and change in adolescence (Steinberg, 2005), with adolescence representing a critical period for the reorganization of cognitive and affective regulatory systems.

1.19 The Present Study

The present study is the first to adapt and replicate with adolescents the existing research with adults into the ICM. As stated, 4 separate predictions can be derived from the ICM: That individuals vulnerable to BD and/ or who experience significant mood swings would score more highly on a measure of extreme appraisals of internal states and would show a greater degree of conflict between appraisals of the

same internal states (Prediction 1); That extreme appraisals of internal states would correlate with and predict mood symptoms (Prediction 2); That appraisals of internal states would correlate with indices of behavioural responses to internal states (Prediction 3); And finally that behavioural responses to internal states would correlate with mood symptoms or changes (Prediction 4). This study sought to test the first and second predictions in an adolescent sample, by assessing appraisals of internal states and their relationship to mood symptoms and mania risk over time.

Specifically, this study aimed to:

1. Replicate adult analogue research (Dodd et al., 2011d, Kelly et al., 2012) by testing whether the extent to which adolescents make extreme and/ or conflicting appraisals of mood states correlates with the severity of their current mood symptoms, (for example, depression, activation or irritability), and by determining whether this relationship is independent of other variables examined in research into adolescent mood swings;
2. Partially replicate research demonstrating that conflicting appraisals relate to BD (Kelly et al., 2011) by testing whether the interaction between positive and negative extreme appraisals of the same internal states relates to adolescents' scores on an index of risk of future mania; and
3. Replicate adult analogue prospective research (Dodd et al., 2010) by testing whether the extent to which adolescents make extreme and/ or conflicting appraisals of mood states predicts prospective changes in their mood symptoms.

1.19.1 Sample. The present study utilised a non-clinical sample of young adolescents. Using a young adolescent sample enabled replication of the existing analogue research conducted with young adult samples (e.g., Dodd et al. 2010, Kelly et al., 2012, Mansell et al., 2008), but which has never included younger adolescent participants. Using a non-clinical sample also provided a number of advantages. Experiences of BD have been shown to be on a continuum with normal experience (BPS, 2010), and therefore associations with mood symptoms in a young, non-clinical sample may generalise to mood symptoms in adolescent clinical groups, and would provide a rationale for further research utilising clinical samples. Further, brief or sub-threshold hypomania symptoms may represent a signal for later disorder (e.g., Reeger et al., 2006), and so it is important to ascertain which psychological factors are associated with hypomania symptoms in a non-clinical sample, as these factors may

potentially be associated with risk for future BD and might be useful targets for approaches to early intervention. Whilst research has not yet tested whether HAPPI cognitions are associated with elevated risk in adolescents, the HAPPI measure has been used in studies with other at-risk samples, for example young adult offspring of parents with BD (Ruggero et al., 2013). Any effects obtained with a young adolescent sample would also be unlikely to be confounded by effects of medication or the trauma of experiencing multiple severe episodes and consequences such as hospitalisation. Identifying extreme cognitions about mood in a non-clinical sample of young people and demonstrating that they relate to mood symptoms would therefore support the ICM, and bolster the argument of Ruggero et al. (2013) that these cognitions are not merely the result of severe manic and depressive experiences but are a risk factor that represents part of the disorder's diathesis.

If this study were to identify a relationship between cognitions about mood and measures of risk for BD and mood symptoms in this sample, this study might provide a basis for further research both to replicate these findings and to test the ICM in an adolescent clinical sample. If such findings were to be independently replicated, there might be several potential implications for psychological interventions for mood difficulties in this population. For example, it might suggest that when working with adolescents with mood swings and BD, alongside working to identify and alter behaviours and environmental factors associated with problematic shifts in mood, there might also be important thoughts, beliefs and appraisals that could be explored at an early stage in therapy and which might represent targets for psychological intervention.

1.19.2 Measure of appraisals. The present study utilised the HAPPI measure of cognitions about internal states (Mansell, 2006), as this measure was developed in tandem with the ICM. This measure has not been previously used with an adolescent sample, so analyses were conducted using the total score rather than scores on factors identified in adult groups, which may not apply to this age group. This also replicates the analogue research in adults, which utilised the overall HAPPI score as a composite of the multiple, extreme, personalised, positive and negative appraisals described in the ICM (Dodd et al., 2010). Additional, theory-driven analyses were conducted using the total scores for positive and negative appraisals of activated states, in order to attempt to replicate adult studies demonstrating that these specific, sets of appraisals

uniquely predict different types of mood symptoms (Kelly et al., 2012) and to determine whether the combination of positive and negative appraisals of the same states relates to risk for BD (Kelly et al., 2011).

1.19.3 Design. A prospective design with a 3-month follow-up period was used to identify whether appraisals of internal states predict mood symptoms over time when controlling for baseline mood and other potentially confounding variables. A 3-month follow-up period was selected in line with the adult prospective study using the HAPPI, which demonstrated that appraisals of internal states predicted activation and depression symptoms at 3 months (Dodd et al., 2010).

1.19.4 Dependent variables. Continuous measures of mood symptoms were used as the primary dependent variables. The primary mood symptoms associated with BD and known to be relevant to young adolescents are depression, activation (hypomania) and irritability. Energized activity and irritable mood are considered the modal experiences of hypomania, and researchers suggest euphoria is less common and less diagnostically useful (e.g., Akiskal & Benazzi, 2003; Benazzi & Akiskal, 2001). It was important to also assess irritability, alongside activation and depression, as symptoms of irritability have been found to be particularly relevant in the context of child and adolescent depression and mania (e.g., Stringaris et al., 2012) and to be more common than euphoria or elated mood in young people experiencing bipolar disorder (Biederman et al., 2005; Weller, Calvert & Weller, 2003). Measuring these 3 clusters of mood symptoms was also advantageous because it enabled the testing of unique predictors of specific types of mood symptoms. A measure of historical (hypo) mania symptoms was also used as a dependent variable, as sub-threshold historical symptoms have been argued to represent a helpful index of future risk for mania.

1.19.5 Covariates. A number of covariates were included in the present study. There were two rationales for this. Firstly, covariates were included in analyses as a test of robustness, to determine whether relationships between appraisals of internal states and dependent variables are maintained even when controlling for other known predictors. Secondly, this allowed exploration of inter-relationships between the primary study variables and covariates.

A measure of BAS hypersensitivity was included as a covariate. As described in section 1.14.2, BAS sensitivity, which manifests as impulsivity, has been found to be predictive of mania onset (e.g., Alloy et al., 2009; Kwapil et al., 2000) and to relate

to symptoms of mania (e.g., Najt et al., 2007; Swann, 2009), even in remitted populations (Strakowski et al., 2010; Swann, Anderson, Dougherty, Moeller & Steinberg, 2001). Impulsivity is a broad, multi-faceted construct, but the measure used in this study as a covariate assesses a specific domain of impulsivity, the tendency to act on the spur of the moment and pursue new, rewarding experiences. This tendency, referred to as “fun-seeking”, has been studied in adult BD research (e.g., Kasch, Rottenberg, Arnow & Gotlib, 2002), is elevated in bipolar disorder and predicts onset (Meyer, Johnson, & Carver, 1999; Alloy et al., 2008; Alloy et al., 2012), predicts a more severe course of disorder (e.g., Johnson, Edge, Holmes & Carver, 2012), and is more strongly predictive of symptoms than other measures (Giovanelli, Hoerger, Johnson & Gruber, 2013).

A measure of cognitive responses to positive affect (RPA) was also included. As discussed in section 1.16 and 1.17, responses to positive affect such as dampening or positive rumination have been studied in relation to hypomanic symptoms in adults and more recently in children, in parallel with the literature on rumination on negative affect in depression. Responses to positive affect were cross-sectionally associated with hypomania symptoms (Verstraeten, Vasey, Raes & Bijttebier, 2012), and for those children reporting high levels of stress, responses to positive affect predicted mood symptoms over 3 months (Bijttebier, Raes, Vasey & Feldman, 2012). Within the ICM, cognitive responses to affect might be expected to relate to appraisals of internal states and to actual mood changes, and thus represent a potential mediating variable. This is yet to be tested empirically in either adults or adolescents. Further, only 2 studies have investigated the role of responses to mood in child mood symptoms, none have involved adolescent participants, and previous studies have not also included measures of appraisals about the self or internal states. It was therefore considered useful to include a measure of RPA to determine whether any relationship exists between appraisals of internal states and responses to positive affect, and to determine whether any relationship between appraisals and mood symptoms is independent of or influenced by RPA.

Finally, an index of stressful life events was included as a covariate for prospective analyses. As noted in section 1.9 and 1.10, negative life events have been shown to be important in the onset and recurrence of mood episodes in BD disorders and young people, and might also interact with other vulnerability factors (e.g.,

Romero et al., 2009). Cognitions may also interact with life events to predict depression and hypomania (e.g., Francis-Raniere et al., 2006). Including a measure of life events enabled potential confounding effects to be controlled, and made it possible to explore interaction effects if indicated.

1.20 Hypotheses

1.20.1 Hypothesis 1. It was hypothesised that specific types of appraisals of activated states will be uniquely associated with different types of mood symptoms. In line with adult analogue research conducted by Kelly et al. (2012), it was expected that scores on the specific sub-set of HAPPI items assessing positive appraisals of activated states will be uniquely associated with activation symptoms (hypomania), whilst scores on the sub-set of HAPPI items assessing negative appraisals of activated states would be uniquely associated with depression and irritability symptoms.

1.20.2 Hypothesis 2. Similarly to the adult clinical study conducted by Kelly et al. (2011), which compared individuals with BD to controls, it was predicted that the interaction between positive appraisals and negative appraisals of activated states would differentiate those scoring at high or moderate likelihood of caseness (i.e., those ‘at elevated risk of future mania’) from those scoring at low likelihood of caseness.

1.20.3 Hypothesis 3. In line with the adult analogue studies (Dodd et al. 2011d, Mansell et al., 2008), it was predicted that total scores on the HAPPI (indicating the overall extent to which individuals endorse multiple, extreme and conflicting appraisals of internal states) would be associated with concurrent symptoms of activation, depression and irritability, and self-reported history of (hypo) mania symptoms. Mansell et al., (2008) identified that the association between appraisals and symptoms was robust and remained when other known predictors were held constant. It was therefore hypothesised that this relationship will be maintained when controlling for impulsivity and responses to positive mood states.

1.20.4 Hypothesis 4. It was hypothesised that the extent to which individuals appraise internal states in multiple, extreme and opposing ways (total HAPPI scores) would predict symptoms of activation, depression and irritability at 3-months, controlling for baseline mood symptoms, self-reported life events in the intervening period, impulsivity and responses to positive mood states, in line with the adult prospective study conducted by Dodd et al. (2010).

Method

2.1 Design

This research used a cross-sectional and prospective design. Individuals completed the questionnaire battery at baseline, and were then followed up after a 3 month period to complete a portion of this questionnaire battery for a second time. Cross-sectional and prospective relationships between variables were explored using regression and correlation analyses.

2.2 Ethical Considerations

This study was granted ethical approval by the King's College London Psychiatry, Nursing and Midwifery Research Ethics Sub-committee on 17th December 2012 (see Appendix 1). Informed consent was obtained from young people and their parents/ carers before participation in the study (see section 2.6 for detail).

An opt-out parental consent procedure was used in the current study. Opt-out procedures may improve generalisability and reduce unintentional bias. Researchers have suggested that when opt-in consent procedures are used, there is a tendency for the parents of children from more socially advantaged groups to provide written consent for their participation in research studies, and that the use of opt-in methods can therefore introduce bias and reduce the generalisability of research to socially disadvantaged young people (e.g., Anderman et al., 1995). Opt-out parental consent procedures therefore provide an opportunity for parents and carers to make an informed decision about their child participating whilst ensuring that as many young people as possible have the opportunity to participate in research.

To ensure informed consent was obtained, all potential participants had the opportunity to discuss the project with the special needs co-ordinator, who was the school contact for the research project, and with the researcher. It was emphasised that the young person should only provide their consent if they wished to participate and that choosing not to participate would have no detrimental consequences. To reduce the likelihood that any young person might provide consent for social desirability reasons, it was explained that anyone could choose not to provide consent either by verbally declining when offered the opportunity to participate, or instead writing on

the consent form or questionnaire pack that they did not wish to have their responses included in the research study.

2.3 Baseline Measures

1. **2.3.1 Measure of appraisals of mood states.** Specific beliefs and cognitions about high and low mood states and their consequences were assessed using an adapted version of *The Hypomanic and Positive Predictions Inventory (HAPPI; Mansell, 2006)*. The HAPPI is a 50-item measure of extreme, personal, positive or negative appraisals of activated and depressed internal states, for example, “when I get excited about something I have no control over my thoughts”, rated for the past week on a visual analogue scale from 0 (I don’t believe this at all) to 100 (I believe this completely). In a recent validation study (Dodd et al., 2011a) the HAPPI prospectively predicted depression and mania symptoms in a clinical sample over a 4-week period. In the same study, the internal consistency of the scale was found to be excellent ($\alpha = .97$). The wording of the individual items was adapted for use with young people (see section 2.5). In order to test Hypothesis 1, individuals’ scores on items relating to positive appraisals of activated states and items relating to negative appraisals of activated states were summed, giving a ‘negative appraisals’ and a ‘positive appraisals’ total score. The items in each subset were identified by Kelly et al. (2013), who found that negative appraisals uniquely predicted depression symptoms, whilst positive appraisals uniquely predicted activation symptoms. The positive and negative appraisals items are highlighted in Table 2. All other analyses used a total score on the measure, which represents the extent to which an individual holds multiple extreme and conflicting beliefs about high and low energy mood states (Mansell et al., 2008). In the current study, the internal consistency of the full scale was excellent ($\alpha = .95$). For the positive appraisal items, internal consistency was also excellent ($\alpha = .86$) and for the negative appraisal items internal consistency was good ($\alpha = .69$). (For measures completed at both Time 1 and Time 2, the Cronbach’s alpha coefficients (α) were calculated using scores on the measure at Time 1).

Table 2

Adapted Hypomanic and Positive Prediction Inventory items

HAPPI item	
1.	When I feel good, I think things will go perfectly ^p
2.	When I get excited I can't control my thoughts ⁿ
3.	When I feel excited, my fears and worries go away ^p
4.	When I am with other people it is most important that they like me
5.	When I feel full of energy, I can make more friends and have more people like me ^p
6.	When I feel excited and worked up it means that I am about to go crazy or 'lose it' ⁿ
7.	My feelings need to be very strong to feel real to me
8.	When people tell me off for being too excitable they are being mean and nasty on purpose
9.	When I feel full of energy I am extremely funny and witty ^p
10.	If I let other people do things at their own speed, I will not get what I want
11.	When I get very excited, I can't control my behaviour ⁿ
12.	People might think I'm confident and can do things on my own, but on the inside I need other people
13.	I must act on a good feeling as soon as I feel it
14.	I have all my best ideas when I feel really good about myself ^p
15.	If I am very special to everyone then all my problems will go away
16.	I can't control my high moods
17.	I can't stop myself getting excited when something good happens to me
18.	When I feel worked up and hyper, what happens to me means more than what happens to other people
19.	When I have a lot of energy, I don't need help from anyone or anything ^p
20.	When I get excited and hyper there is nothing I can do to control my excitement
21.	When people around me are upset they are just making a big deal out of what is happening
22.	I must make up my own mind about everything
23.	When I try hard to get what I want, other people try to stop me
24.	When I get new ideas I must tell people at once and in detail so that they like me
25.	When I feel I am right, I must keep on thinking up lots more ideas and answers
26.	When I feel worked up and hyper, the world becomes full of lots of chances for me ^p
27.	Unless I am active all the time, I won't do well ^p
28.	If I have a bad night's sleep it means that I am about to go crazy or 'lose it'
29.	I need to be the centre of attention to enjoy myself
30.	The better I feel about myself, the worse other people act towards me ⁿ
31.	I care more about what happens right now than what happens in a few days' time
32.	When I feel more active I think I'm really important and special ^p
33.	When I feel good about myself, I realise that I didn't need to be worried or afraid ^p
34.	When I feel excited and worked up, I can stop people trying to control me
35.	I need to have complete control over my moods in order to prevent myself from going crazy or 'losing it'
36.	I cannot stand feeling sad for a short while

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- 37. When I feel really good, people don't get meⁿ
 - 38. If I sleep much less each night it means that I can get more done during the day
 - 39. When I feel excited I know that other people find me attractive^p
 - 40. When I'm in a good mood, nothing I do can go wrong^p
 - 41. Doing anything very active can lead me to go crazy or 'lose it'ⁿ
 - 42. When I feel really good or really sad it's not my job to change it
 - 43. When I am feeling worked up and excited, there is no point in eating when I'm meant to
 - 44. When I am more active than usual, other people don't like meⁿ
 - 45. If I choose to do what other people tell me, I won't be in charge of my own behaviour
 - 46. When I get an idea, it always turns out to be the best answer
 - 47. I sometimes do something naughty or unsafe just to make things more exciting
 - 48. When I feel good, I must keep "on the go" all the time or things will go wrong^p
 - 49. If I notice something new when I am feeling good, I must think about how it joins up with everything else
 - 50. If I fall behind in things I want to do for a short time, I will fail
-

Note. Items in the 'positive appraisals' sub-set are indicated by ^p; items in the 'negative appraisals' subset are indicated by ⁿ.

2.3.2 Mood measures. Symptoms of depression and hypomania were assessed using the depression and activation subscales of the *Internal States Scale* (ISS; Bauer et al., 1991). Each item refers to a symptom of low or high/ activated mood, rated with respect to the last week, from "not at all/ rarely" to "very much so/ much of the time". The items of the depression subscale assesses current depressive symptoms, for example, "I feel depressed", and "it seems like nothing will ever work out for me". The activation subscale assesses current symptoms of hypomania and a heightened sense of behavioural and cognitive activation, for example, "I feel overactive", and "my thoughts are going fast". Research suggests that such symptoms of psychomotor activation, along with irritability are the modal experiences in hypomania, rather than elevated and euphoric mood (Akiskal & Benazzi, 2003; Benazzi & Akiskal, 2001). Internal consistencies for all ISS subscales are excellent, with Cronbach's alpha coefficients ranging from .81 to .92. In the present study, internal reliability for the activation and depression scales was very good, with coefficients of .73 and .89 respectively. Activation and depression scores have been shown to be significantly higher in manic and depressed patients respectively, and significant associations have been found between the ISS and clinician ratings of mania and depression (Bauer et al., 1991; Bauer, Vojta, Kinosian, Altshuler & Glick, 2000). The ISS has been used widely to assess BD mood symptoms in clinical and non-clinical research using both adult samples (e.g., Dodd et al., 2010; Dodd et al.,

2011a, 2011b, 2011d; Jones & Day, 2008; Mansell et al., 2008) and adolescent samples (e.g., Cooke & Jones, 2009).

Symptoms of irritability were assessed using *The Affective Reactivity Index* (ARI; Stringaris et al., 2012). This 7-item scale comprises 6 symptom items (e.g., “I stay angry for a long time”) and 1 impairment item (“overall, my irritability causes me problems”), and assesses the threshold for an angry reaction, the frequency of angry feelings and behaviour, and the duration of feelings and behaviour. Items are rated “not true”, “somewhat true” or “certainly true” with respect to the past week. The measure has a single factor structure, good agreement between parent- and child-report, excellent internal consistency ($\alpha = .90$), and scores on the measure were predictive of emotional problems (Stringaris et al., 2012). In the present study, internal reliability was excellent; $\alpha = .86$.

2.3.4 (Hypo) mania history and future risk measure. The *Mood Disorders Questionnaire* (MDQ; Hirschfield et al., 2000) was used as a brief, easily completed measure of lifetime history of (hypo) manic symptoms; which represent an important index of risk for later disorder. This measure comprises 14 statements to which an individual responds with either “yes” or “no”, and 1 item for which the individual must select the most appropriate response. The first 13 items correspond to DSM-IV (APA, 2000) criteria for assessing hypomania or mania in adults and children and adolescents, and are prefaced with “has there ever been a period of time when you were not your usual self and...”, for example, “thoughts raced through your head or you couldn’t slow your mind down”. The next question asks “if you checked YES to more than one of the above, have several of these ever happened during the same period of time?” The final item enquires how much of a problem any of these caused; for example difficulties with school work, family troubles, or getting into arguments or fights; and the individual can choose one response from “no problem”, “minor problem”, “moderate problem”, or “serious problem” (in the adult version of the scale, this item refers to work and legal troubles, and so the item was reworded for an adolescent sample). The final 2 items of the published adult-version of the scale enquire as to whether the individual has ever been diagnosed with bipolar disorder and whether any of their blood relatives have bipolar disorder; these items were not administered for the purposes of this study because responses to these questions are

not needed to determine whether an individual has a history of experiencing (hypo) mania symptoms and therefore is at risk for future BD (Hirschfeld et al., 2000).

An individual screens positively on the MDQ if they answer “yes” to at least 7 symptom items, “yes” to experiencing several concurrently, and “moderate problem” or serious problem” to the impact question (Hirschfeld et al., 2000). The measure has been cross-validated against the Hypomanic Personality Scale, which has been found to predict future onset of mania and therefore is frequently used in research as an index of mania risk (Udachina & Mansell, 2006). Udachina and Mansell (2006) reported that the number of symptoms endorsed on the MDQ correlated with ISS activation and depression symptoms, and correlated very highly (Spearman’s $r = .72$) with HPS score. Hirschfeld et al. (2000) reported high sensitivity and specificity for BD in a mood disordered sample (.73 and .90 respectively). Correlations obtained in the present study are reported in Appendix 8.

Lower sensitivity has been demonstrated in non-clinical samples (Udachina & Mansell, 2006), and so alternative thresholds and criteria have been suggested. Isometsae et al. (2003) advocate stratifying individuals into groups based on their likelihood of caseness, with individuals meeting criteria for high likelihood of caseness (HLC) if they endorse at least 8 symptoms, which have co-occurred, and caused minor to serious problems. Individuals can be categorised as at moderate likelihood of caseness (MLC) if they report at least 8 symptoms and either report that symptoms have co-occurred but that this has caused no problems, or that they have not co-occurred but have caused minor problems. Individuals who meet neither criterion are categorised as at low likelihood of caseness (LLC). Using these criteria, Udachina and Mansell (2006) found that in a non-clinical, undergraduate student sample, approximately 25% were HLC, 25% were MLC and 50% were categorised as LLC, and individuals in the HLC and MLC groups scored significantly higher on the HPS than those in the LLC group. This method of stratifying individuals was used in the present study; individuals in the high and moderate likelihood groups were compared to individuals in the low likelihood groups. Additional analyses were conducted using total number of (hypo) manic symptoms endorsed, as this score represents a useful index of risk for future mania. In this study, internal reliability for the 13 symptom items was very good; $\alpha = .78$.

2.3.4 Covariates. The *Responses to Positive Affect scale (RPA;* Feldman et al., 2008) was used to assess cognitive responses to positive moods or cognitive emotion-regulation efforts. The adapted version for children and adolescents (*RPA-C;* Bijttebier, Raes, Vasey & Feldman, 2012) was used. This scale has 17-items and incorporates 2 factors: dampening (e.g., “think about things that could go wrong”), and focusing (e.g., “think about how happy you feel”). The scale items are rated from 1 (almost never respond this way) to 4 (always respond this way). Research has demonstrated that scores are elevated in adult individuals with elevated hypomanic personality scores (Feldman et al., 2008) and in individuals with Bipolar Disorder (Gruber, Eidelman, Johnson, Smith & Harvey, 2012; Johnson et al., 2008). Bijttebier et al. (2012), in a study of young people aged 10-14, found that low focusing and high dampening were associated with depressive symptoms even when controlling for responses to negative affect (rumination). Focusing on positive affect was inversely associated with depressive symptoms at 3 months for only those children reporting high levels of stress. Similarly, focusing was positively related to concurrent hypomanic symptoms and predicted increases in hypomanic symptoms over a 3-month interval in children reporting high levels of stress. In the present study, internal reliability for the dampening and focusing subscales was good, with coefficients of .70 and .68 respectively.

Impulsivity was assessed using the *Behavioural Activation System (BAS) Fun-Seeking Subscale* (Carver & White, 1994). The subscale consists of 4 items rated from 1 (very true) to 4 (very false), which assess tendencies to pursue new, rewarding experiences and to act spontaneously and reflexively during goal pursuit without regard for possible consequences of these actions (e.g., “I often act on the spur of the moment”). The measure has been found to have good test-retest reliability ($r = .69$) and to correlate highly with global measures of impulsivity (Carver & White, 1994), and it therefore represents a pragmatic and valid brief measure of impulsivity. The fun-seeking subscale has been widely used in research into depression and mania (e.g., Kasch et al., 2002), and has been argued to be the facet of impulsivity most relevant to hypomania, for example accounting for more variance in HPS scores than other facets of impulsivity such as positive urgency (Giovanelli et al., 2013). The fun-seeking dimension of impulsivity has also been found to predict onset of BD (e.g., Meyer,

Johnson, & Carver, 1999; Alloy et al., 2008; Alloy et al., 2012). In the present study, internal reliability was very good, with a Cronbach's alpha coefficient of .76.

2.4 Follow-up Measures

Three of the measures listed above were also administered at 3-month follow-up: The *ISS*, *ARI*, and *HAPPI* (all as above). These measures were administered and scored using the same procedure as described above.

The *Recent Life Events* measure (Goodyer, Kolvin & Gatzanis, 1985; Goodyer, Tamplin, Herbert & Altham, 2000) was adapted for the present study and used to assess the number of stressful life events experienced by participants during the intervening period between completing the baseline and follow-up measures, and the perceived impact of these events. The measure has been frequently used in research, and consists of 13 episodic life events shown to be important determinants of child and adolescent psychopathology (Goodyer et al., 1985, 2000). The life events can be grouped into four categories based on their social characteristics: Personal disappointments, defined as the failure to meet prior held expectations; physically dangerous events, defined as events that involved overt physical or mental risk or harm to the participant; physically dangerous events to others, defined as events that involved overt physical or mental risk or harm to important others (family or friends); and permanent losses, defined as exit events from the participant's social field (Wilkinson, Dubicka, Kelvin, Roberts & Goodyer, 2009).

The measure is usually administered as an interview with the young person and/ or a parent or other informant, whereby for each event reported to have occurred the interviewer asks further questions to inform their rating of the impact of each event on the individual (e.g., Wilkinson et al., 2009). For the purposes of the present study, an overall score was required to summarise the number of life events experienced and their perceived impact, so that this could be statistically controlled for in analyses. The measure was therefore administered in a survey format. Individuals were asked to tick any life events within the list that had occurred since they completed the first set of questionnaires (i.e., over the preceding 3 months) and provide a rating of how unpleasant the event was for them from 1 ("very pleasant") to 5 ("very unpleasant"). A single composite score was calculated by multiplying the total number of events by the total unpleasantness rating. In addition to being substantially briefer and allowing a

single composite score to be calculated for analyses, this method involved less participant burden and avoided potential distress involved in being asked to discuss stressful life events in detail with a researcher. This measure also provided a self-report of the perceived occurrence and impact of these life events to the young person, and avoided any interviewer bias. In this study, the mean number of stressful life events reported was 2.5 (range 0-7).

2.5 Adapting of Measures and Piloting

Prior to commencing data collection, a free online text analysis tool called Textalyser (<http://textalyser.net>) was used as an initial test of readability of the questionnaire battery and to determine measures or specific questions that might be too complex for the young adolescent sample.. This tool provides an estimate of the lexical density (an index of sentence complexity) and readability of the study measures. High lexical density reflects the use of many different words in a text, and is typical of formal and academic writing (Halliday, 1985). The programme indicated that the lexical density of the HAPPI scale was too high for an adolescent sample, but that the other study measures were appropriate. Thus, in collaboration with the developer of the scale (W. Mansell) and the lead author of the scale validation paper (A. Dodd), the vocabulary and sentence structure of the more complex items was simplified to make the scale easier to understand. Feedback was elicited at each stage until all researchers were in agreement that the original meaning of the statements was retained. The adapted measure was then subjected to text analysis again, which confirmed that the scale was now appropriate for 14-15 year olds. The adapted items are reproduced in Table 2 above.

The full questionnaire battery was then piloted to ensure that the questions were understandable and could be completed in a single school period (60 minutes). The measures were completed by 3 individuals aged 13, 15 and 18, who all completed the full battery in 30-45 minutes and reported finding the items clear and understandable. A number of formatting changes were suggested to improve readability, which were made before data collection began, but no wording changes were suggested.

2.6 Participants and Procedure

Participants were recruited from an inner-city secondary school in London, and completed the questionnaire batteries during personal, social and health education (PSHE) lessons. In line with ethical guidelines, informed parental consent was required for potential study participants, as all of the intended participants were under 16 years of age. Potential participants' parents or carers were initially provided with detailed written information sheets describing the study (see Appendix 2). Informed consent was obtained from the pupils' parents using an opt-out procedure, parents who did not wish for their child to participate were asked to notify the school or contact the researcher directly within 2 weeks using the telephone number or email address provided (see Appendix 3).

Parents were invited to contact the researcher if they wished to discuss the study further or ask any questions, and were also informed that if after their child had participated they wished to withdraw their consent, there would be a fixed period where they could do so and their child's data would be withdrawn from the study.

Informed consent was also obtained from all pupils before they took part in the study. The researcher described the study verbally and participants were provided with a detailed information sheet (see Appendix 4). After reading the information sheet and having the opportunity to ask questions, pupils were given a consent form to read (see Appendix 5). Those participants who wished to participate and who completed and signed the consent form were given a typed questionnaire pack with the same identifying number as their consent form. The questionnaires were completed in the presence of the researcher, and questions were answered if they arose.

There were no exclusion criteria; provided participants and their parents provided consent and they completed the questionnaires (i.e., less than 50% of the items missing on any one scale) then their data was included in the study. A small number of participants' responses were excluded because it was clear that they had not completed the measures appropriately, for example entering a response of zero on every question (see Figure 2). This left a final sample of 98 at Time 1 and 84 at Time 2.

2.7 Planned Analysis

2.7.1 Power analysis. A power analysis was conducted for the primary relationships to be tested in this research, the extent to which problematic appraisals (scores on the HAPPI) relate to symptoms (scores on the ISS) cross-sectionally and at 3-month follow up. Dodd et al. (2011d) obtained an effect size of .33 for the relationship between the HAPPI factors and activation symptoms. For a regression analysis with 4 predictors, a sample size of at least 41 would be required for 80% power to detect an effect of this size at the $p < .05$ significance level. Similarly, Dodd et al. (2010) obtained an effect size of .34 for the prospective association between overall HAPPI score and depression symptoms, and an effect size of .41 for activation (hypomania) symptoms. Using the more conservative estimate of an effect size of .34 indicated again that a sample size of at least 40 would be required. In order to permit post-hoc mediation analyses if indicated, and because it was anticipated that effects might be smaller in this study due to the younger age of the sample, a larger sample was recruited.

2.7.2 Treatment of missing data. Two strategies were used in the treatment of missing data. Firstly, data from participants who did not complete at least 50% of the total number of items in the questionnaire battery, or did not complete at least part of the primary measures of the independent (HAPPI) and dependent (ISS) variables, were excluded from all analyses ($n = 3$ at Time 1, $n = 8$ at Time 2; see Figure 1). Secondly, where individual items within a particular scale or subscale were missing but these missing items constituted less than 50% of the items on that subscale, the mean of that participant's score on the remaining items of that subscale was imputed for the missing item(s). Where 50% or more of the individual items within a subscale were missing, a total for that subscale was not calculated and the participant's score on that subscale was excluded from analyses ($n = 6$ participants with 1 individual subscale score excluded; $n = 1$ participant with 2 subscale scores excluded).

2.7.3 Exploratory analyses. Descriptive statistics were calculated for the demographic variables and study variables. Data were screened and inspected to check the assumptions of parametric testing were met. Histograms and box plots were plotted for each of the primary independent and dependent variables, and Kolmogorov-Smirnov statistics were calculated for each variable. Tests of skewness and kurtosis were also conducted. These showed that whilst the data were unimodally distributed,

some of the measures significantly deviated from a normal distribution or showed significant skew or kurtosis. Box plots were inspected to identify any possible outliers. Statisticians advise against deleting outlying data that is not incorrect except in clear-cut cases when there seem to be no possible and plausible explanations for the unusual score (e.g., Barnett & Lewis, 1978). Outlying scores were checked to ensure no errors had been made in data entry. No outlying data were removed. The exploratory analyses indicated that not all of the assumptions of parametric testing were met. For this reason, Spearman's *rho* statistics are reported in place of Pearson's *r* for all correlation analyses. The critical alpha was set at $p < 0.05$ for all analyses. All data were analysed using version 20 of the Statistical Package for the Social Sciences (SPSS).

The predictor and dependent variables were continuous and the aim of this study was to identify unique associates and predictors of the different types of mood symptoms. Regression analyses were therefore appropriate to test the research hypotheses. A number of checks were performed to ensure that the assumptions of regression analyses (e.g., Berry & Feldman, 1985) were not violated. Durbin-Watson statistics were calculated for each regression model to test that the assumption of independent errors was tenable. Inter-correlation coefficients and variation inflation factor values (VIF) were inspected to determine the extent of any multicollinearity. Histograms of the regression residuals were inspected to determine whether the distribution of errors differed significantly from the normal distribution. Plots were inspected to ensure that the relationship between the dependent variable and predictors was linear, and to check for heteroscedasticity. These tests indicated that there was significant heteroscedasticity for each of the linear regression models, and the plots indicated that the spread of residuals increased with increasing predicted values. This pattern can often be a consequence of significant skew in one or more of the variables in the regression model. Logarithmic transformations are frequently used to correct for positive skew, and are also helpful in reducing heteroscedasticity and reducing the effect of outliers in regression analyses (Field, 2009), although results need to be interpreted with caution (Grayson, 2004). The logarithmic transformation was therefore applied to the dependent variables for each linear regression (i.e., not to the binary logistic regression on likelihood of caseness). The same transformations were applied to both the baseline and Time 2 levels of the dependant variables in the regression analyses testing predictors of change in mood symptoms. The standardised

regression coefficients were used to assess the predictive value of each predictor variable in the regression models, to allow for the effect of the transformation of the dependent variable. When a logarithmic transformation has been applied, the standardised regression coefficient corresponds to the approximate percentage increase in the dependent variable for each unit increase in the independent variable(s) (Schroeder, Sjoquist & Stephan, 1986).

Model fit was determined on the basis of the F statistic and its significance level. The proportion of variance explained by the model, and improvements to the model in hierarchical analyses, were determined using the R^2 statistic and by determining the change in R^2 (ΔR^2) between steps.

2.7.4 Planned Analyses to Test Hypotheses

2.7.4.1. Hypothesis 1. *Specific types of appraisals of activated states will be uniquely associated with different types of mood symptoms. Scores on the specific sub-set of HAPPI items assessing positive appraisals of activated states will be uniquely associated with activation symptoms (hypomania), whilst scores the sub-set of HAPPI items assessing negative appraisals of activated states will be uniquely associated with depression and irritability symptoms.* To test this hypothesis, multiple linear regression analyses were conducted with activation symptoms and depression symptoms respectively as the outcome variables, and HAPPI subscale scores as the independent variables. A further regression was conducted with irritability symptoms as the outcome variable. In line with Kelly et al (2012), in the regressions on activation and depression symptoms the other symptom cluster was included as a covariate, to enable unique predictors of each type of mood symptom to be tested and to control for the correlation between activation and depression symptoms. In the regression on irritability symptoms, both activation and depression symptoms were entered as covariates. In each regression, the total scores for positive appraisals and negative appraisals of high mood states were entered, to determine their independent effects on each cluster of mood symptoms.

2.7.4.2. Hypothesis 2. *The interaction between positive appraisals and negative appraisals of activated states will differentiate those scoring at high or moderate likelihood of caseness (i.e., those ‘at risk of future mania’) from those scoring at low likelihood of caseness.* To test this hypothesis, a logistic regression

model was tested comparing individuals at high (HLC) and moderate (MLC) likelihood of caseness on the MDQ to individuals at low likelihood of caseness (LLC). The total scores for positive appraisals and negative appraisals of high mood states were standardised, and the standardised scores were entered into the regression model in Step 1. An interaction term was calculated by multiplying the standardised positive and negative appraisal scores, and this product term was entered into the regression in Step 2. Model fit was determined on the basis of the Chi-square statistic and its significance level. Model improvement between steps was determined by calculating the change in log likelihood, which has a chi-square distribution. The interaction effect was inspected by producing a graph with simple slopes for high and low levels of both the independent variable (positive appraisals) and moderator variable (negative appraisals).

2.7.4.3. Hypothesis 3. *Total scores on the HAPPI (indicating the overall extent to which individuals endorse multiple, extreme and conflicting appraisals of internal states) will be associated with concurrent symptoms of activation, depression and irritability, and self-reported history of (hypo) mania symptoms, when controlling for impulsivity and responses to positive mood states.* To test this hypothesis, correlations between study variables were obtained. Next, a series of multiple linear regression analyses were conducted on activation symptoms, depression symptoms, irritability symptoms, and total number of hypomania symptoms on the MDQ. In each regression model, total HAPPI score, impulsivity, RPA dampening and RPA focusing were entered, to determine their independent effects. The assumptions of regression were tested as described above.

2.7.4.4. Hypothesis 4. *The extent to which individuals appraise internal states in multiple, extreme and opposing ways will predict symptoms of activation, depression and irritability at 3 months, when controlling for baseline symptoms, self-reported life events in the intervening period, impulsivity and responses to positive mood states.* First, paired t-tests were used to establish whether there was any significant change (difference) between symptoms at Time 1 and symptoms at Time 2. Next, regression analyses were conducted on the prospective data. The assumptions of regression were tested as described above. The analytic strategy was based on Zapf, Doorman and Frese's (1996) recommendations; hierarchical, multiple linear regression models were tested. In each regression analysis, mood symptoms at Time 1 were

entered into the model in Step 1, and possible predictors were entered in Step 2, to assess their contribution in predicting change in symptoms between baseline and follow-up. The variables entered at Step 2 were: overall life event stress score, total HAPPI score, impulsivity score, RPA dampening and RPA focusing. Three regression analyses were conducted for activation, depression and irritability symptoms at follow-up respectively.

Results

3.1 Descriptive Statistics

Participants (N = 98; see flowchart Figure 2) were aged 14.5 years on average and 60% were male. Approximately 50% of the sample described themselves as white British, and 14% described themselves as black British. The remaining participants came from a wide range of ethnic groups (see Appendix 6). Six participants elected not to report their ethnicity.

Table 3

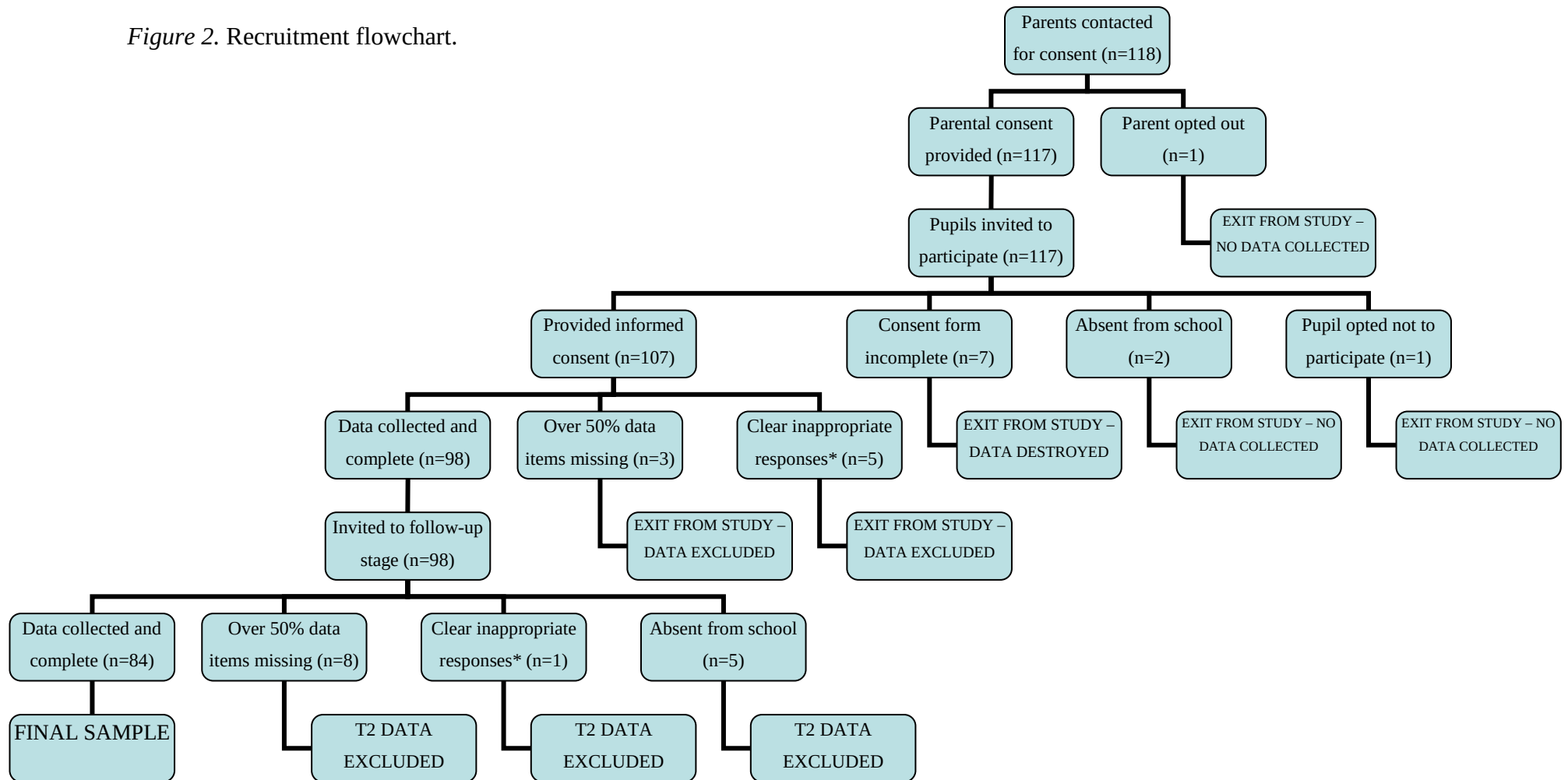
Descriptive statistics for study variables

	Mean	Standard deviation
ISS activation item mean (0-100)	28.38	13.13
ISS depression item mean (0-100)	31.65	25.48
ARI irritability total (7-21)	11.39	3.71
MDQ total symptoms (0-13)	6.65	3.23
SDQ functioning total (1-32)	10.60	9.12
HAPPI item mean (0-100)	41.95	15.90
BAS fun-seeking total (4-16)	8.73	2.67
RPA dampening total (8-32)	18.44	4.38
RPA focusing total 9 items (9-32)	22.29	4.64
Stressful life events count (0-13)	2.52	1.95

Note. Values in parentheses refer to the possible range of scores on each measure, not the actual range of scores observed in this sample.

Independent samples t-tests were conducted to determine whether there were any systematic differences between male to female participants on the primary measures used in analyses (Appendix 7). Females scored significantly higher on the measure of depression symptoms, so gender was included as a dummy variable to covary for its effect in all regressions on depression symptoms. There were no other significant differences. Age was not entered as a covariate because of the narrow age range of the sample; all participants were 14 or 15 years old. Correlations between the study measures are reported in Appendix 8. Correlations were all $r < .9$ indicating no perfect multicollinearity.

Figure 2. Recruitment flowchart.



Note. * Refers to those participants who were not deemed to have completed questionnaires correctly because they provided an identical response for every question, including forward and backward-coded items with opposite meaning.

3.2 Regression Analyses

3.2.1 Hypothesis 1. Specific types of appraisals of activated states will be uniquely associated with different types of mood symptoms. Scores on the specific sub-set of HAPPI items assessing positive appraisals of activated states will be uniquely associated with activation symptoms (hypomania), whilst scores on the sub-set of HAPPI items assessing negative appraisals of activated states will be uniquely associated with depression and irritability symptoms. Three regression analyses were conducted with activation, depression and irritability symptoms as the outcome variables respectively. In line with Kelly et al. (2012), the other symptom scores were entered as covariates, to control for the correlation between activation, depression and irritability symptoms and to identify unique predictors of each type of mood symptom. Each of the dependent variables was logarithmically transformed to correct for skew and heteroscedasticity. In each regression, the total scores for positive appraisals and negative appraisals of high mood states were entered, to determine their independent effects on each cluster of mood symptoms.

Table 4

Unique predictors of activation symptoms

	ISS depression		Positive appraisals		Negative appraisals	
	β	p	β	p	β	p
ISS activation	.32	.002**	.31	.005**	.13	.30

Note. Standardised regression coefficients are presented in the table. * $p < .05$, ** $p < .01$.

Table 5

Unique predictors of depression symptoms

	Gender		ISS activation		Positive appraisals		Negative appraisals	
	β	p	β	P	β	p	β	p
ISS depression	.29	.001**	.28	.006**	-.20	.07	.45	.001**

Note. Standardised regression coefficients are presented in the table. * $p < .05$, ** $p < .01$.

Table 6

Unique predictors of irritability symptoms

	ISS activation		ISS depression		Positive appraisals		Negative appraisals	
	β	p	β	p	β	p	β	p
ARI irritability	.25	.03*	-.02	.86	-.22	.07	.46	.001**

Note. Standardised regression coefficients are presented in the table. * $p < .05$, ** $p < .01$.

3.2.1.1 Activation symptoms. The model significantly predicted activation (hypomania) symptoms ($F(92, 3) = 13.97, p < .001$). The model explained 32% of the variance in activation symptoms. VIF statistics ranged between 1.3 and 1.9, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.9, indicating independent errors. Depression symptoms and positive appraisals were significant positive predictors. Negative appraisals were not a significant predictor.

3.2.1.2 Depression symptoms. The model significantly predicted depression symptoms ($F(88, 4) = 13.89, p < .001$). The model explained 40% of the variance in depression symptoms. VIF statistics ranged between 1.0 and 1.6, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 2.16, indicating independent errors. Activation symptoms, gender and negative appraisals were significant positive predictors. There was a tendency towards significance for a negative association between positive appraisals and depression.

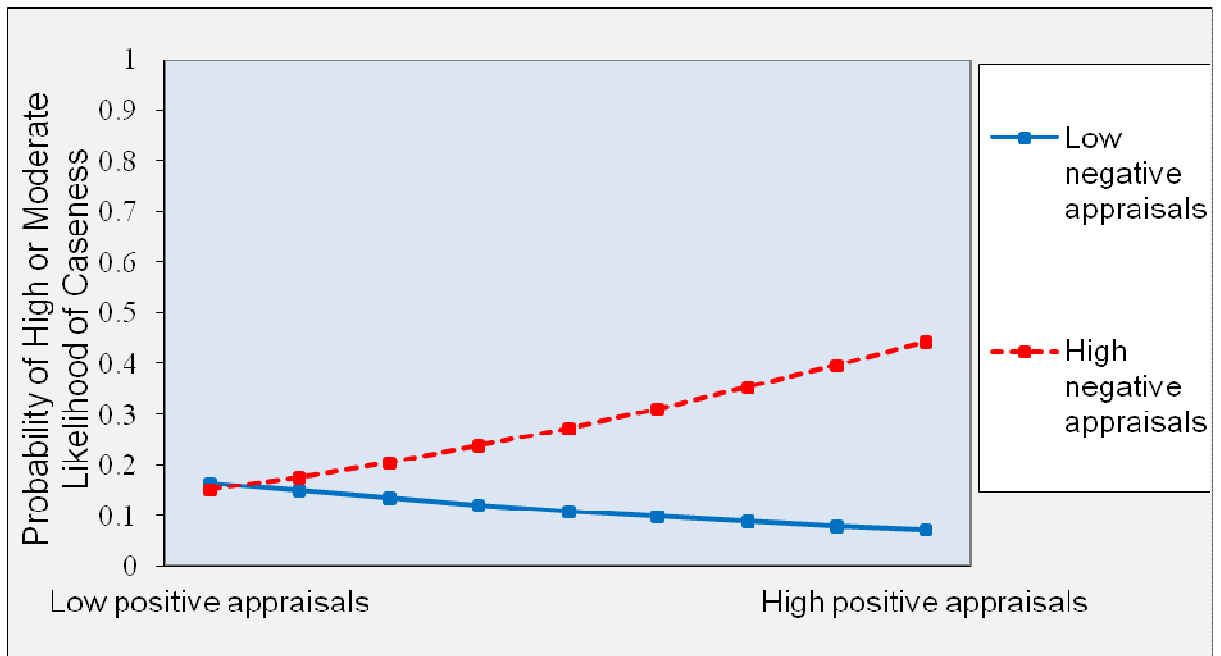
3.2.1.3 Irritability symptoms. The model significantly predicted irritability symptoms ($F(89, 4) = 6.91, p < .001$). The model explained 25% of the variance in irritability symptoms. VIF statistics ranged between 1.4 and 1.9, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.8, indicating independent errors. Activation symptoms and negative appraisals were significant positive predictors. Positive appraisals tended towards a negative association with irritability. Depression symptoms were not a significant predictor.

Hypothesis 1 was fully supported; positive appraisals were uniquely associated with activation symptoms, and negative appraisals were uniquely associated with depression and irritability symptoms.

3.2.2 Hypothesis 2. The interaction between positive appraisals and negative appraisals of activated states will differentiate those scoring at high or moderate likelihood of caseness (i.e., those ‘at risk of future mania’) from those scoring at low likelihood of caseness. A logistic regression analysis was conducted comparing individuals at high (HLC) and moderate (MLC) likelihood of caseness on the MDQ to individuals at low likelihood of caseness (LLC). The total scores for positive appraisals and negative appraisals of high mood states were standardised and entered into the model in Step 1, and their interaction was entered into the regression in Step 2. The model significantly differentiated HLC and MLC from LLC ($\chi^2(3) = 12.30, p = .006$). In Step 1, positive appraisals and negative appraisals were entered

into the model. Neither positive appraisals nor negative appraisals were significant predictors. The interaction term was added in Step 2, which significantly improved model fit ($\chi^2(1) = -5.58, p = .006$). The final model explained 18% of the variance ($R^2 = .18$). Neither positive appraisals ($\beta = .14, p = .68$) nor negative appraisals ($\beta = .56, p = .11$) were significant predictors, but the interaction term was a significant predictor ($\beta = .60, p = .03, \text{Exp}(B) = 1.83$). The interaction effect is depicted in Figure 3, which shows that for individuals who endorse high levels of positive appraisals but low levels of negative appraisals, the chance of being in the high or moderate likelihood of caseness group is low. In contrast, for individuals who endorse both high levels of positive appraisals and high levels of negative appraisals, the chance of being in the high or moderate likelihood of caseness group is increased. Thus, hypothesis 2 was fully supported; the interaction between positive and negative appraisals of activated states significantly differentiated individuals at high and moderate likelihood of caseness from those at low likelihood of caseness.

Figure 3. Graph depicting the effect of the interaction between positive and negative appraisals on probability of scoring at high or moderate likelihood of caseness on the MDQ (compared to low likelihood of caseness).



Note. High and low levels of the predictor and moderator variables are +1SD and -1SD from the mean respectively.

3.2.3 Hypothesis 3. Total scores on the HAPPI (indicating the overall extent to which individuals endorse multiple, extreme and conflicting appraisals of internal states) will be associated with concurrent symptoms of activation, depression and irritability, and self-reported history of (hypo) mania symptoms, independently of impulsivity and responses to positive mood states. Four regression analyses were conducted with activation, depression, irritability symptoms and total number of MDQ symptoms as the outcome variables respectively. Each of the dependent variables was logarithmically transformed to correct for skew and heteroscedasticity. In each regression model, total HAPPI score, RPA dampening, RPA focusing, and BAS fun-seeking were entered into the model. In the regression on depression, gender was entered as an additional covariate.

Table 7

Multiple regression on activation symptoms, with covariates

	HAPPI total		Dampening		Focusing		Fun-seeking	
	β	p	β	p	β	p	β	p
ISS activation	.34	.001**	.32	.003**	-.15	.15	.29	.001**

Note. Standardised regression coefficients are presented in the table. ** $p < .01$.

Table 8

Multiple regression on depression symptoms, with covariates

	Gender		HAPPI total		Dampening		Focusing		Fun-seeking	
	β	p	β	p	β	p	β	p	β	p
ISS depression	.33	.001**	.34	.003**	.20	.10	-.16	.20	-.25	.80

Note. Standardised regression coefficients are presented in the table. ** $p < .01$.

Table 9

Multiple regression on irritability symptoms, with covariates

	HAPPI total		Dampening		Focusing		Fun-seeking	
	β	p	β	p	β	p	β	p
ARI irritability	.31	.009**	.06	.64	-.12	.35	.09	.44

Note. ISS-ACT = activation symptoms, ISS-DEP = depression symptoms, ARI = irritability symptoms, MDQ = mood disorders questionnaire total score. Standardised regression coefficients are presented in the table. ** $p < .01$. Where – appears, this variable was not entered into the regression.

Table 10

Multiple regression on MDQ symptoms, with covariates

	HAPPI total		Dampening		Focusing		Fun-seeking	
	β	p	β	p	β	p	β	p
MDQ symptoms	.35	.003**	.04	.75	.01	.94	.07	.53

Note. Standardised regression coefficients are presented in the table. ** $p < .01$.

3.2.3.1 Activation symptoms. The model significantly predicted activation (hypomania) symptoms ($F(93, 4) = 15.01, p < .001; R^2 = .40$). BAS fun-seeking, HAPPI total and dampening were significant positive predictors. VIF statistics ranged between 1.2 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.8, indicating independent errors.

3.2.3.2 Depression symptoms. The model significantly predicted depression symptoms ($F(90, 5) = 5.59, p < .001; R^2 = .25$). Gender and HAPPI total were significant predictors. VIF statistics ranged between 1.0 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 2.24, indicating independent errors.

3.2.3.3 Irritability symptoms. The model significantly predicted irritability symptoms ($F(92, 4) = 3.08, p = .02; R^2 = .12$). HAPPI total was a significant positive predictor, the other variables were non-significant. VIF statistics ranged between 1.2 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.9, indicating independent errors.

3.2.3.4 MDQ symptoms. The model significantly predicted MDQ symptoms ($F(95, 4) = 4.32, p = .003; R^2 = .16$). Total HAPPI was the only significant predictor. VIF statistics ranged between 1.2 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.95, indicating independent errors.

Hypothesis 3 was fully supported. The associations between total HAPPI scores and activation, depression and irritability symptoms and mania symptom history were maintained when controlling for covariates, indicating that the associations were robust and that appraisals related to symptoms independently of responses to positive affect and the fun-seeking dimension of impulsivity.

3.2.4 Hypothesis 4. The extent to which individuals appraise internal states in multiple, extreme and opposing ways (total HAPPI scores) will predict symptoms of activation, depression and irritability at 3 months, when controlling

for baseline symptoms, self-reported life events in the intervening period, impulsivity and responses to positive mood states. Before conducting regression analyses to test this hypothesis, 3 t-tests were conducted comparing mean Time 1 activation, depression and irritability symptoms respectively to mean Time 2 symptom scores. For activation symptoms, the mean difference was 15.49, which was not significant ($t(76) = 1.35, p = .18$). For depression symptoms, the mean difference was 11.53, which was not significant ($t(77) = 1.81, p = .08$). For irritability symptoms, the mean difference was $-.03$, which was not significant ($t(77) = -.09, p = .93$).

Three regression analyses were conducted with Time 2 activation, depression and irritability symptoms as the outcome variables. In each regression model, Time 1 symptoms were entered in Step 1 and RPA dampening, RPA focusing, BAS fun-seeking, the composite life events and stress score, and the total HAPPI score were entered into the model in Step 2. In the regression on depression symptoms, gender was entered as a covariate. Each of the dependent variables and their corresponding Time 1 scores were logarithmically transformed to correct for skew and heteroscedasticity.

Table 11

Multiple regression on Time 2 activation symptoms, with covariates and baseline symptoms

	Baseline		HAPPI		Dampening		Focusing		Fun-seeking		Life stress	
	β	p	β	p	β	p	β	p	β	p	β	p
T2 ISS activation	.21	.21	.12	.43	-.01	.95	-.07	.67	-.01	.95	.13	.28

Note. Standardised regression coefficients are presented in the table. ** $p < .01$. *** $p < .001$.

Table 12

Multiple regression on Time 2 depression symptoms, with covariates and baseline symptoms

	Baseline		Gender		HAPPI		Dampening		Focusing		Fun-seeking		Life stress	
	β	p	B	p	β	p	β	p	β	p	β	p	β	p
T2 ISS depression	.36	.003**	.32	.005**	.20	.12	-.14	.28	-.01	.97	.03	.77	-.05	.62

Note. Standardised regression coefficients are presented in the table. ** $p < .01$. *** $p < .001$.

Table 13

Multiple regression on Time 2 symptoms, with covariates and baseline symptoms

	Baseline		HAPPI		Dampening		Focusing		Fun-seeking		Life stress	
	β	p	β	p	β	p	β	p	β	p	β	p
T2 ARI irritability	.70	.000***	.05	.64	-.003	.97	.04	.70	.01	.91	.12	.17

Note. Standardised regression coefficients are presented in the table. ** $p < .01$. *** $p < .001$.

3.2.4.1 Activation symptoms. The final model did not significantly predict activation (hypomania) symptoms ($F(74, 6) = 1.18, p = .33; R^2 = .10$). There were no significant positive predictors. VIF statistics ranged between 1.0 and 1.6, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.76, indicating independent errors.

3.2.4.2 Depression symptoms. The model significantly predicted depression symptoms ($F(73, 7) = 5.01, p < .001; R^2 = .35$). Gender and Time 1 depression symptoms were significant predictors. VIF statistics ranged between 1.1 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 2.24, indicating independent errors.

3.2.4.3 Irritability symptoms. The model significantly predicted irritability symptoms ($F(76, 6) = 16.19, p < .001; R^2 = .58$). Time 1 irritability symptoms were a significant predictor, the other variables were non-significant. VIF statistics ranged between 1.1 and 1.7, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 1.9, indicating independent errors.

Hypothesis 4 was not supported. There was no significant change in symptoms from Time 1 to Time 2. The only significant predictor of Time 2 symptoms was Time 1 symptoms, with the exception of depression where symptoms were also predicted by gender.

Discussion

4.1 Overview

This chapter will summarise the findings of this study and discuss the results in the context of the existing literature. Strengths and methodological limitations will be considered before the potential implications of this study are outlined. Finally, suggestions will be made for further research in this area to extend this study.

4.2 Summary of Study

Identifying the psychological processes underlying mood symptoms in BD is a priority, and will inform the refinement of psychological interventions for the spectrum of bipolar disorders. There has been a surge in research focusing on cognitions and cognitive processes in BD (Mansell & Pedley, 2008), and research has suggested that both positive and negative cognitive styles are implicated in BD (Carver & Johnson, 2009). In psychological models of other psychiatric disorders, appraisals of internal experiences and intrusions into awareness have been argued to represent key maintenance processes (e.g., Clark, 1999; Morrison, 2001; Salkovskis, 1991; Wells & Matthews, 1994). In the context of BD, appraisals of internal states might be particularly relevant (Mansell et al., 2007). Internal states; which encompass mood (e.g., sadness), physiology (e.g., energy levels), and cognition (e.g., racing thoughts); can be appraised as either positive or negative (or both), and as having either positive or negative consequences (or both). Positive appraisals of internal states involve desiring or pursuing an internal state and wishing to maintain or enhance it, whilst negative appraisals might involve fearing or dreading an internal state and wishing to alter or avoid it (e.g., Kelly et al., 2012). Recent research has converged to suggest that extreme, personalised and opposing cognitions about internal states and mood are associated with BD and relate to or predict mood symptoms in clinical and analogue populations (e.g., Alatiq et al., 2010; Dodd et al., 2010; Kelly et al., 2011; Mansell et al., 2011, Ruggero et al., 2013). However, this research has exclusively focused upon adult samples.

The present study sought to extend this research by studying these processes in adolescent group. An unselected analogue sample of almost 100 adolescents in secondary education completed a battery of self-report measures of mood symptoms

and appraisals of internal states, along with other measures. Participants then completed a portion of this questionnaire battery again 3 months later. Regression analyses were used to explore cross-sectional and prospective associations between the measured variables. The aim of the study was to identify whether adolescents who tend to interpret internal states such as feeling excited or feeling low in mood in extreme or conflicting ways might tend to experience more problematic mood symptoms, and whether these adolescents might also be at elevated risk for BD.

4.3 Summary of Findings

4.3.1 Hypothesis 1. The first hypothesis that specific sets of appraisals would relate to specific types of mood symptoms was fully confirmed and all relationships were in the expected direction. Positive appraisals and negative appraisals were correlated with one another, and in line with existing research, depression, activation and irritability symptoms were also positively correlated. However, when controlling for these correlations, positive appraisals of activated states were uniquely and independently related to hypomania symptoms, whilst negative appraisals were uniquely and independently related to depression and irritability symptoms, in line with findings obtained in an adult sample (Kelly et al., 2012).

4.3.2 Hypothesis 2. The second hypothesis that the interaction between positive appraisals and negative appraisals of activated states would differentiate those scoring more highly on an index of risk of future mania from those scoring at lower risk was also confirmed. Inspecting the interaction indicated that those individuals who endorsed both positive and negative appraisals of activated, high energy internal states were significantly more likely to score at high or moderate likelihood of caseness, suggesting that conflicting appraisals of the same internal states related to risk for mania. This result is in parallel with the pattern observed in an adult, clinical sample, whereby conflicting appraisals differentiated individuals with BD from controls and individuals with unipolar depression (Kelly et al., 2011).

4.3.3 Hypothesis 3. The third hypothesis that the overall extremity of appraisals would relate to mood symptoms, even when covarying for other known predictors, was also confirmed. Extreme positive and negative cognitions about activated mood states, and indicated by overall scores on the appraisals measure, were associated with all 3 types of analogue mood symptom, and these relationships were

maintained when a measure of impulsivity and responses to positive affect were controlled for. As expected, impulsivity and responses to affect were also significantly independently associated with activation (hypomania) symptoms, but not with depression symptoms. Neither responses to positive affect nor impulsivity were independently associated with irritability symptoms; only appraisals of internal states remained a significant predictor when the other variables were held constant. This pattern of findings is in line with Dodd et al. (2010), and indicates that the relationship between appraisals of internal states and mood symptoms is robust and independent of other factors previously shown to be associated with bipolar spectrum symptoms and mania risk.

4.3.4 Hypothesis 4. The final hypothesis that appraisals of mood states would predict changes in mood symptoms over the 3-month follow-up period was not confirmed. The mean level of activation, depression and irritability symptoms for the sample did not change significantly over the 3-month period. When all variables were entered into regression models, only Time 1 symptoms predicted corresponding symptoms at follow-up; neither appraisals of internal states, responses to affect, impulsivity nor life events and stress significantly predicted changes in symptoms over time. This finding is inconsistent with the adult prospective study, which found that total HAPPI scores predicted all measures of analogue hypomania symptoms at 3 month follow-up when controlling for baseline symptoms (Dodd et al., 2010).

Nevertheless, taken together these results provide the first evidence that extreme appraisals of internal states relate to mood symptoms and indices of mania risk in young adolescents. The results suggest that this relationship is robust and remains significant when other correlated variables are controlled for, but do not provide supporting evidence for a prospective association between appraisals and analogue mood symptoms in this sample.

4.4 Interpretation and Context

The observed relationships between appraisals of internal states and mood symptoms in this study suggests that the extent to which young adolescents appraise high, activated, energetic states positively or negatively might determine the extent to which they experience high, low or irritable mood. However, because these results are cross-sectional and causality and direction cannot be established, it is also possible that

individuals who experience symptoms of high, low and irritable mood are more likely to appraise internal states in extreme positive or negative ways respectively as a result. Similarly, the results suggest that a tendency to appraise the same internal states in opposing or contradictory ways may contribute to symptoms of hypomania and mania and to risk for the future development of BD. Again, because the direction of this relationship can only be inferred, these results could equally be interpreted as suggesting that individuals who are at elevated risk for mania and who have experienced hypomania symptoms previously might be more likely to develop a tendency to appraise hypomanic and energetic internal states in conflicting ways. The findings obtained in this study are mostly consistent with those obtained in adult studies.

The findings of this study are therefore in line with the ICM (Mansell et al., 2007), which proposes that in the context of mood swings and bipolar symptomatology it is not just positive or negative cognitive styles that are important, but specifically cognitions about mood and the extent to which they are extreme and conflicting are said to drive mood fluctuations. This study provides the first initial support for these premises in adolescents. Replicating the findings observed in adults in a young adolescent sample is important because problematic mood symptoms and fluctuations often begin at a young age (Findling et al., 2011; Lewinsohn, Seeley, & Klein, 2003), and research has suggested that sub-threshold mood symptoms in adolescence might represent one risk factor for the later development of BD (Birmaher et al., 2006). The results of this study are also important because the participants were below the age at which individuals with BD tend to experience their first clinical episode of mania or hypomania (e.g., Kessler et al., 1997), indicating that extreme and contradictory appraisals of internal states might be present before these occur and are not simply ‘scarring’ from previous episodes or a result of the often negative and distressing consequences of mood episodes. Thus, these findings might offer support for the argument that these cognitions play a role in the development of problematic mood swings (Mansell et al., 2007), and are part of the diathesis for BD (Ruggero et al., 2013). This study is in line with existing research suggesting it is appraisals of internal states in particular that relate to mood symptoms and BD risk and not positive self-dispositional appraisals or a generally positive attributional style (e.g., Espie, Jones, Vance & Tai, 2012; Ruggero et al., 2013).

Appraisals are argued to influence mood via ascent, descent and normalising behaviours (Mansell et al., 2007). The correlations observed in this study between appraisals of high, positive and activated states and tendencies to dampen or focusing on positive affect experiences provide some very preliminary support for this possibility in adolescents. This study adds to the existing research on responses to positive affect. Previous studies assessing responses to positive affect have not also measured appraisals of internal states. The present study found that whilst both dampening and focusing were cross-sectionally correlated with mood symptoms, when appraisals of internal states were controlled for this effect was no longer significant. The ICM might suggest that responses to positive affect such as dampening would be driven by extreme appraisals, but exploratory mediation analyses (not reported) were not able to confirm this in the present sample.

The finding in this study that depression, activation and irritability symptoms are associated with distinct and opposing cognitions about mood states is consistent with existing knowledge about differences between depression and mania in BD. Carver and Johnson (2009) concluded that regardless of the specific measures used, research has converged on the premise that depression and mania are characterised by distinct sets of responses to positive and negative emotions and material. For example, depression but not mania is predicted by negative cognitions (Johnson & Fingerhut, 2004), responses to success and failure are related to mania and depression respectively (Eisner, Johnson & Carver, 2008); tendencies to dampen or ‘down-regulate’ positive affect relate to depression symptoms whilst mania is characterised by positive rumination and efforts to ‘up-regulate’ positive affect (Feldman et al., 2008). However, the present study extends this research by considering depression and hypomania together, which is important as BD is characterised not by (hypo) mania or depression but instead by *changes* from high to low mood and co-occurring activated and depressed mood. This study converges with other research utilising the HAPPI to suggest that it is not positive or negative cognitive content or styles individually but instead the opposing or conflicting nature of cognitions that seems to be important.

Parallels can also be drawn between the findings of this study and the literature on the persistence of depression. Perhaps surprisingly, the results of this study indicate that individuals who experience analogue depression symptoms appraise high and energetic mood states extremely negatively, rather than desiring and

wishing to experience these states. Previous research has found that individuals with depression and low self-esteem dampen positive moods (Wood, Heimpel, & Michela, 2003) and even in remission actively avoid positive emotional experiences (Hayes & Feldman, 2004). The ICM would suggest that these efforts are driven by extreme negative appraisals, and therefore whilst negative appraisals of activated states might play a role in the persistence of depression, positive appraisals of activated mood states may be protective for depression (Kelly et al., 2011, 2012).

4.5 Explanations for Unexpected Findings

In this study, appraisals of internal states did not predict mood symptoms over 3 months. A number of potential explanations for this unexpected finding will be considered. It is possible that extreme appraisals of internal states may be less dysfunctional and problematic in terms of driving further mood symptoms during early adolescence, perhaps because these appraisals are not yet fully developed and may be more changeable. Mansell (2007) suggested that to an extent, extreme appraisals of internal states might reflect an awareness of genuine vulnerability to mood fluctuations, but that these extreme appraisals become dysfunctional because they become easily activated following minor and benign changes in mood. It is possible that at this age, extreme appraisals are activated when the person feels extremely high or low, but are not immediately activated by minor mood changes and therefore do not drive further mood symptoms over time. This would suggest that in early adolescence, appraisals would be present alongside mood symptoms and that over time and as these appraisals become consolidated they begin to have more of a maintaining or ‘mood-escalating’ effect. If dysfunctional appraisals have a smaller effect on mood symptoms at this age, a larger sample or longer time period might be required to observe a prospective effect.

Additionally, it is likely that a variety of psychological factors predict bipolar symptoms over time in addition to the extreme appraisals of internal states (e.g., Dodd et al., 2010). These might include both variables included in this study and variables not measured in this study. For example, family functioning and social support have been the focus of both research and therapeutic approaches to adolescent mood and BD (e.g., Miklowitz, Buickians & Richards, 2006). These variables were not a primary focus of this research and so measures of these variables were not included in this

study, so it is possible that these variables account for some of the unexplained variance in mood symptoms over time. On the basis of existing research (e.g., Hillegers et al., 2004; Tillman et al., 2003), it was expected that life events and life event-related stress might predict changes in mood over time in this age group. However, in this study scores on the measure of this variable were not predictive of mood changes. This finding may be due to the measure used, which was a pragmatic and abbreviated measure of life event related stress.

Finally, it may be that in young adolescence, other factors not assessed in this study have an important influence on mood. For example, school and family factors might represent primary influences on mood changes because adolescents spend such a significant proportion of their time in school and with their families. Further, school and family structures and routines may also limit the extent to which extreme appraisals of internal states are able to drive behaviour, for example a young adolescent might think that being very active will lead them to be very successful and popular, but may not be able to act on this by engaging in ascent behaviours such as taking on numerous projects and decreasing sleep. If this were the case, then appraisals of internal states would have more of a prospective influence on mood symptoms with age and as the person's level of independence increases.

It is also important to note that on average there was no significant change on any of the analogue mood measures over the 3-month follow-up period, and Time 1 and 2 mood symptoms were highly correlated. Whilst there were individual variations in mood symptoms over time, the sample as a whole did not become significantly more depressed or activated over this time period, suggesting possible predictors of mood change over this period would be likely to be variables that affect individuals to differing degrees rather a factor or variable that affected the entire sample equally.

4.6 Strengths and Limitations

The design and methodology of this study conferred a number of strengths. The present study utilised measures and analyses that were either the same or parallel to a number of studies conducted in adult samples, allowing direct replication of certain analyses conducted in adult studies and making it possible to determine whether the findings obtained in the adult research apply in an adolescent sample. The measures used have mostly been used in adult studies of appraisals of internal states,

and the measures of the dependent independent variables are well-validated and reliable. The sample of 100 and continuous approach analysis meant that this study was adequately powered to detect moderate sized effects. Analyses were conducted using a number of measures and controlling for covariates, increasing the likelihood of detecting reliable and robust effects. In addition, there was good retention of participants over the follow-up period. Finally, one criticism of studies utilising undergraduate student samples is that the samples tend to be predominantly white, female and highly educated, although the extent to which student samples are representative has been debated widely (Peterson, 2001). In contrast, this study was conducted in an inner-city school with male and female pupils from a wide range of ethnic backgrounds and academic ability levels.

Nevertheless, this study has a number of limitations. Whilst an analogue sample was deliberately chosen, it could be argued that findings are not generalizable to adolescent BD because of qualitative differences between individuals experiencing analogue BD symptoms and individuals with BD. However, researchers have argued that recruiting analogue student samples can be useful (Depue et al., 1981), analogue research provides a basis for further research using clinical samples, and the concept of the bipolar spectrum would imply that analogue symptoms are on a continuum with clinical BD (Dodd et al., 2010) and are related to the same psychological processes. Further, a number of participants reported historical mania symptoms and scored in the elevated risk range on a validated measure of hypomania and mania symptoms ($n = 24$ in the moderate or high risk range). Whilst mood symptoms are common in this age group, the research reviewed in section 1.6 suggests that sub-threshold symptoms are of relevance and over time can develop into mood episodes that meet diagnostic criteria.

Information about diagnosis and psychiatric history was not collected from participants in this study, so it was not possible to compare individuals with BD or with a history of clinical mood episodes to individuals without. It was assumed that individuals did not have a diagnosis of BD or significant mood episode history, and thus that any extreme appraisals had not developed as a result of these experiences. Of course, it is possible that some of the individuals in this sample had experienced significant mood symptoms or mood episodes; however the incidence rates of

hospitalisation and other adverse consequences of BD episodes in this community sample could be expected to be substantially lower than in adult BD samples.

The study used a sample with a restricted age range. Including older adolescents would have made it possible to identify whether the results varied systematically according to participant age. In addition, recruiting participants from a school meant that all participants had to be attending school regularly to be included at both time points. It is possible that those with more severe depression or hypomania symptoms were more likely to have been absent on one of the testing days, given associations have been identified between poor secondary school attendance and depression (Fletcher, 2008). This was unavoidable in this study, but nevertheless represents a potential source of bias and limit to generalizability. No information was collected about those who elected not to participate so it is not possible to determine whether these individuals differed from those who consented, for example in terms of symptomatology, however only one student present chose not to participate making this very unlikely to have impacted upon results. In addition, no pupil who was present elected not to participate at Time 2 but a very small number of pupils who initially participated were then absent at Time 2. Unfortunately no information was available about reasons for absence.

This study could be said to be limited by its reliance on self-report measures. This study was designed so as to be minimally intrusive and involved no time commitment from parents, however objective ratings of mood and functioning from parents or teachers would have been advantageous, and information about adolescents' parents' psychiatric history would also have provided another index of risk for BD.

4.7 Clinical Implications with Caveats

Given these limitations and considerations, the findings of this study should be interpreted with caution, and a number of gaps in knowledge remain. A prospective effect of appraisals of internal states on analogue bipolar symptoms was not observed over the 3-month follow-up period in this study, and this is the only study using this measure in this age group, so replication is needed. Nevertheless, this study did identify a robust cross-sectional association between appraisals of internal states and mood symptoms in this sample.

If these findings are replicated and found to generalise to samples at other points along the bipolar spectrum, for example with adolescents with a diagnosis of a bipolar spectrum disorder, then these findings may have implications for the understanding of, and psychological interventions for, mood swings in young people. Current therapeutic interventions for BD in both adults and children and adolescents focus primarily on addressing behaviours associated with mood symptoms or trying to alter the internal state itself (e.g., through medication), and psychological therapies tend not to focus on internal processes such as thinking patterns and beliefs about mood states. Yet, more recently it has been argued that addressing internal processes and cognitions is crucial (Mansell, 2007). Lam et al. (1999) argued that in therapy with adults, cognitions are useful targets for change because they can be targeted outside of mood episodes and because they can leave individuals vulnerable to further episodes.

The present research provides preliminary evidence that cognitions might also be relevant to adolescent mood swings and BD. Appraisals of internal states might be useful targets for intervention in psychological therapy for young people experiencing mood instability and BD, particularly where there is ambivalence about making behavioural changes such as improving sleep or reducing activity. For example, a young person might believe that being very active helps them achieve good grades and feel confident around their friends. If these beliefs are not acknowledged and explored, psycho-educational and behavioural interventions might be less effective with this young person, as they might be reluctant to engage in behaviours to reduce their level of activation. However, if the young person was encouraged to consider the evidence for these beliefs, and weigh these beliefs against any negative outcomes of becoming highly activated, they might be more willing to learn and utilise helpful coping behaviours. Behavioural experiments might also be useful in helping young people to test out beliefs and appraisals about mood and internal states in a concrete way. A CBT intervention for mood swings and BD which addresses appraisals of internal states, Think Effectively About Mood Swings (TEAMS; Tai et al., in prep), has been developed, and initial evaluations in adult BD samples are promising (Mansell, 2008; Searson et al., 2012).

The present study also has potential implications for understanding of the development of BD, and adds to the existing knowledge about the role of cognitions in adults. In line with Ruggero et al. (2013), the findings of this study would suggest that

extreme and conflicting cognitions about internal states are endorsed by individuals who are at elevated risk of BD, and not only those who have a history of mood episodes. This suggests that these cognitions might represent a risk factor for development of more severe mood symptoms and therefore a possible target for early intervention approaches. Jones et al. (2012) argue that there is a need for early intervention approaches to BD, and argue that existing data from therapy trials indicates that cognitive-behavioural interventions might be more effective for individuals who have experienced fewer previous episodes. A therapeutic approach for early BD focusing on addressing self-appraisals and promoting recovery is being evaluated (Jones et al., 2012). Qualitative research (Seal et al., 2008) suggests that individuals who experience hypomania without requiring intervention from psychiatric services tend to attribute changes in internal state to benign, external factors and either engage in normalising, mood-balancing behaviours such as taking time to rest, or allow the change in mood and energy level to pass with time without engaging in active efforts to control or alter it. Individuals who are vulnerable to mood instability might benefit from interventions which aim to foster more mindful and less ruminative responses to changes in mood. Early intervention and preventative approaches for BD should be as acceptable and non-intrusive as possible, and addressing beliefs and cognitions about mood states could be expected to be a more acceptable and less intrusive intervention than pharmacological approaches to prevention, and as potentially less intrusive and demanding than behavioural approaches. Further, individuals at risk for developing mania or BD might be more likely to use behavioural strategies known to be helpful in preventing mood escalation such as stabilising their daily routines and sleep patterns if interventions also seek to address the cognitions which may underlie these behaviours.

4.8 Future Research

This study was the first to begin to examine appraisals of internal states in adolescents, and as such a number of unanswered questions remain. A number of avenues for further research in this area will be outlined.

One priority is identifying the reason for the discrepancy between the present study and the adult research in terms of a prospective relationship between appraisals and mood. Replication of the present study with different samples and extended or

multiple follow-up periods would be useful in this regard. As discussed in section 4.6, a number of factors might account for the lack of a prospective effect in this study. This study involved young adolescents aged 14 and 15, and studies utilising student samples have included older adolescents aged 18 and over. Replicating this study with older adolescents aged 16-18 would help determine whether the nature of the relationship between appraisals of internal states and mood symptoms changes with age and over the course of development. Research using younger age groups would also clarify whether extreme and conflicting beliefs about mood states develop even before adolescence.

In addition, replication at other points along the spectrum of bipolar disorder, for example with a sample of adolescents with a bipolar diagnosis, would be informative. Mood variability over time could be considered normative in this age group. A further study using a clinical measure or clinical sample might clarify whether it is only problematic mood symptoms and not normative mood changes that are predicted by appraisals of mood states. Whilst BD-I is rare in young adolescents, young adolescents are more frequently found to meet criteria for BD-NOS and BD-II, and research suggests that there is a pattern of progression from these diagnoses to BD-I (Birmaher et al., 2006). The existing research about the progression from sub-threshold to diagnostic BD is descriptive, and future research should seek to identify mechanisms and predictors of this progression. To this end, it would be interesting to identify whether individuals with BD-NOS or BD-II tend to endorse extreme and conflicting appraisals of internal states more than individuals without a mood disorder diagnosis, to examine whether these appraisals change and become more extreme over time, and to determine whether there is a tendency for individuals at the more severe end of the bipolar spectrum to endorse more extreme and conflicting beliefs and appraisals of internal states.

Questions also remain about why and how beliefs about high and low mood states develop, if they do not simply develop as a consequence of mood episodes. Adolescents might develop positive and negative beliefs about different mood states based on their own experiences of normal or minor changes in mood and their consequences. It could be expected that most people would endorse a number of positive appraisals of activated states such as feeling full of energy simply because these states are often positive and enjoyable. However, for some these experiences

might have additional positive consequences. For example, adolescents with a tendency to become more highly activated might have experiences of feeling more confident and sociable when they feel energised or ‘hyper’, and so might appraise these states as having positive interpersonal consequences. Further, adolescents vulnerable to depression might develop positive appraisals of activated states because they begin to identify these experiences as ways of escaping or avoiding low mood and depression, in line with the manic-defence hypothesis (e.g., Abraham, 1911).

It is less clear why individuals might develop extreme negative beliefs and fears about positive or high energy states, and this is important because negative appraisals have been shown to be particularly problematic in BD (Kelly et al., 2011; Mansell et al., 2007; Seal et al., 2008). Converging research on family support and expressed emotion in BD (e.g., Alloy et al., 2005; Miklowitz et al., 1988) might indicate that adolescents could develop beliefs that activated states will have negative interpersonal consequences as a result of critical or rejecting responses from others to their energetic and excitable moods. In addition, research suggests mixed states are more common than euphoric states in adolescents (e.g., Akiskal & Benazzi, 2003; Benazzi & Akiskal, 2001; Biederman et al., 2005), and it may be that early experiences of feeling energised and activated are accompanied by feelings of irritability. Brand, Gerber, Puhse and Holsboer-Trachsler (2011) distinguished between activated and elated hypomania and irritable and risk taking hypomania, referred to as bright and dark side hypomania respectively, and found that irritable hypomania tended to be more dysfunctional and associated with more depressive symptoms, sleep disturbance, somatic complaints, stress, negative coping strategies, and lower self-efficacy. Thus, negative appraisals of activation might develop when activated states are associated with irritability and its negative interpersonal consequences. In this study, symptoms of irritability at Time 1 predicted changes in HAPPI scores over the 3-month period, providing some initial support for this hypothesis (see Appendix 11).

One recent study found that individuals with a parent with a BD diagnosis had elevated scores on the HAPPI measure of appraisals (Ruggero et al., 2013). One mechanism through which extreme appraisals of internal states might develop could therefore be through observing the experiences of parents and others and the consequences of their mood states. In addition, the broader emotion-regulation

literature would suggest that children can learn from their parents about the acceptability of certain emotions and about when and how to regulate positive and negative emotions (e.g., Cassidy, 1994; Gottman, Katz & Hooven, 1996; Morris, Silk, Steinberg, Myers & Robinson, 2007). Qualitative research focusing on why and how extreme appraisals of mood states emerge would be particularly useful to explore these issues further.

In future, it will also be important to explore how appraisals of internal states relate to responses to internal states, including cognitive responses such as rumination, behaviours such as goal pursuit, and deliberate or inadvertent attempts to regulate or control moods. The ICM proposes that individuals experiencing mood swings engage in conflicting or alternating attempts to control or regulate their moods (Mansell et al., 2007). There is some support for this suggestion; for example individuals with bipolar disorder have been found to engage in opposing attempts to dampen and enhance the same emotional states (Feldman et al., 2007). The model proposes that these behaviours are driven by extreme appraisals, and thus it would be hypothesised that the effect of appraisals of internal states on mood would be mediated by behaviours and emotion-regulation efforts. It was not possible to fully test this possibility in this study; only cognitive responses to affect were measured and other emotion-regulation behaviours were not assessed. It would be useful to extend this research by utilising measures such as the Behaviours Checklist (e.g., Dodd et al., 2013), and exploring associations with cognitive responses to positive and negative affect such as rumination and determining whether behaviours mediate the association between appraisals and mood.

It will also be crucial to extend the self-report research in this area using experimental methods, or alternative approaches to collecting data in 'real-time' to reduce the impact of memory biases that can impact on self-report data. Research into cognitive processes in depression have utilised experimental paradigms involving mood inductions and providing instructions to engage in a ruminative thinking style (e.g., Nolen-Hoeksema, Wisco & Lyubomirsky, 2008; Williams & Moulds, 2010); a similar paradigm could be utilised to examine the effect of deliberately thinking about positive or negative consequences or outcomes of certain internal states following a depressed or activated mood induction. A recent study with a student sample used a diary sampling method to assess appraisals (Dodd et al., 2013), and another study

utilised a computer paradigm to assess appraisals of internal states implicitly (Dodd et al., 2011c). These studies could be replicated with adolescent samples.

In future researchers could also consider shame and self-criticism in BD, and investigate whether these factors are related to or captured within negative appraisals of activated and depressed states or an entirely separate construct. Dodd et al. (2011a) proposed an extension of the HAPPI measure to encompass cognitions relating to shame and self-criticism. Research has found that cognitions encompassing a negative self-image and harsh personal standards and expectations to be predictive of changes in hypomanic symptoms in BD (Francis-Raniere et al., 2006), and Lam, Wright and Smith (2004) suggested that there is a tendency for individuals with BD to be highly perfectionistic and self-critical. More recently, Corry et al. (2013) identified a relationship between bipolar depression symptoms and self-critical perfectionism, and found that this relationship was mediated by stress and anxiety. In contrast, the relationship between self-critical perfectionism and hypomania symptoms seemed to be driven by depression. Corry et al. hypothesised that perfectionistic cognitions might promote the use of unhelpful emotional regulation strategies such as rumination or avoidance. Future research could explore associations between self-criticism and perfectionism and appraisals of internal states, and also consider the role of stress and anxiety in determining the impact of cognitions about internal states.

Finally, future research could explore relationships between extreme appraisals and other factors such as imagery. The model of Holmes, Geddes, Colom and Goodwin (2008) highlights the role of intrusive and distressing mental images about the past or future in amplifying and maintaining mood and anxiety symptoms in BD. Mental imagery has been shown to be important in other psychological disorders including post-traumatic stress disorder (Ehlers & Clark, 2000) and social phobia (Clark et al., 2006). Holmes et al. (2008) suggests that within BD, ‘flashforward’ positive images of the anticipated consequences of high mood, or negative images associated with depression, might amplify and maintain hypomanic and depressive mood states. It is likely that both verbal and imagery-based cognitive processes are relevant to BD. Future research could identify whether individuals who endorse extreme cognitions on the HAPPI measure also experience corresponding mental imagery, and determine whether these mental images might amplify mood to a greater extent.

4.9 Conclusions

This study advances the existing knowledge on cognitive models of the bipolar spectrum, by demonstrating that extreme and conflicting appraisals of internal states are associated with concurrent mood symptoms and an index of mania risk in a young adolescent sample. This is the first study utilising these measures together in an adolescent sample. The findings of this study are broadly consistent with the Integrative Cognitive Model of the bipolar spectrum, which contends that mood symptoms are driven by extreme appraisals of internal states, and suggests that this model of adult BD may also be applicable to adolescents. Replication is required with adolescent samples of different ages and at different points of the bipolar spectrum. If replicated and extended as outlined in section 4.9, the findings of this study have potential implications for the development of psychological approaches for mood instability and BD in adolescents. In order to extend our understanding of the role of appraisals of internal states in determining adolescent mood symptoms and adolescent bipolar disorders, researchers should now seek to examine these processes in other samples, over longer time periods, and using more complex methodological approaches.

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Appendices

6.1 Appendix 1: Letter of Ethical Approval.

Dr Rebecca Kelly
Institute of Psychiatry
King's College London
3rd Floor, Addiction Sciences Building
1-4 Windsor Walk
London SE5 8AF

17 December 2012

Dear Dr Kelly

PNM/12/13-31 Do appraisals of internal states predict mood symptoms and mania risk in adolescents?

Review Outcome: Full Approval

Thank you for sending in the amendments/clarifications requested to the above project. I am pleased to inform you that these meet the requirements of the PNM RESC and therefore that full approval is now granted.

Please ensure that you follow all relevant guidance as laid out in the King's College London Guidelines on Good Practice in Academic Research (<http://www.kcl.ac.uk/college/policyzone/index.php?id=247>).

For your information ethical approval is granted until **17 December 2014**. If you need approval beyond this point you will need to apply for an extension to approval at least two weeks prior to this explaining why the extension is needed, (please note however that a full re-application will not be necessary unless the protocol has changed). You should also note that if your approval is for one year, you will not be sent a reminder when it is due to lapse.

Ethical approval is required to cover the duration of the research study, up to the conclusion of the research. The conclusion of the research is defined as the final date or event detailed in the study description section of your approved application form (usually the end of data collection when all work with human participants will have been completed), not the completion of data analysis or publication of the results. For projects that only involve the further analysis of pre-existing data, approval must cover any period during which the researcher will be accessing or evaluating individual sensitive and/or un-anonymised records. Note that after the point at which ethical approval for your study is no longer required due to the study being complete (as per the above definitions), you will still need to ensure all research data/records management and storage procedures agreed to as part of your application are adhered to and carried out accordingly.

If you do not start the project within three months of this letter please contact the Research Ethics Office.

Should you wish to make a modification to the project or request an extension to approval you will need approval for this and should follow the guidance relating to modifying approved applications:

<http://www.kcl.ac.uk/innovation/research/support/ethics/applications/modifications.aspx>

The circumstances where modification requests are required include the addition/removal of participant groups, additions/removal/changes to research methods, asking for additional data from participants,

extensions to the ethical approval period. Any proposed modifications should only be carried out once full approval for the modification request has been granted.

Any unforeseen ethical problems arising during the course of the project should be reported to the approving committee/panel. In the event of an untoward event or an adverse reaction a full report must be made to the Chair of the approving committee/review panel within one week of the incident.

Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

If you have any query about any aspect of this ethical approval, please contact your panel/committee administrator in the first instance (<http://www.kcl.ac.uk/innovation/research/support/ethics/contact.aspx>). We wish you every success with this work.

With best wishes

Yours sincerely

Catherine Fieulleateau
Senior Research Ethics Officer

Cc: Dr Patrick Smith
Miss Eleanor Leigh

6.2 Appendix 2: Parent Information Sheet

INFORMATION SHEET FOR PARENTS

REC Reference Number: PNM/12/13-31

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET



Thinking styles and mood in young people

We would like to invite your child to participate in a research study about thinking styles and mood in young people. Your child should only take part if both you and your child are happy to do so; not taking part will not disadvantage your child in any way. To help you decide whether you are happy for your child to take part, there is information below about why we are doing this research and what your child would have to do if they took part. Please take time to read the information carefully. Please contact us if you would like further information.

What is the study about?

The study aims to find out about different thoughts and beliefs in young people, as well as different moods or feelings. We want to find out more about thoughts and moods in young people because we want to get some information about different ways we might be able to help young people experiencing mood difficulties.

Who can take part?

We are looking for young people, male and female, aged 14-18. Anyone can take part.

What does it involve?

If your child agrees to take part, they will be asked to complete some questionnaires. These include questions about your child's mood (e.g., "I often lose my temper"), questions about thoughts and beliefs your child might have about their mood (e.g., "If I feel worked up and hyper it does not bother me much") or about themselves (e.g., "I often act on the spur of the moment"). The questionnaires will take less than 30 minutes to complete, and can be completed in one go at a time that fits with your child's school time-table (e.g., during form-time). Your child will then be contacted again in 6 months time to fill in some of the original questionnaires, plus one extra measure about any events that have happened in that time (e.g., moving house). Again, this should take less than 30 minutes, during a school day.

Are there any benefits or risks for my child?

We don't think that taking part will be upsetting or harmful to your child in any way. All of the questionnaires have been used in research lots of times before. If after taking part you or your child wants to find out more about mood difficulties, there is a list of support and information services on this sheet.

There are some important benefits for young people who do take part. The questionnaires in this study might help us to identify young people who are experiencing symptoms of mood difficulties, who might not otherwise be identified. The study will also enable these young people to be offered assessment and treatment quickly, where necessary and possible within a specialist National Health Service, using the following process: If your child's responses on the questionnaires indicate that they might be experiencing significant mood symptoms, they will be contacted by the researchers. The researchers are psychologists and clinicians experienced in helping young people with a range of difficulties including mood problems. If your child is experiencing mood symptoms, we will be pleased to see them for an assessment in the National Specialist Child and Adolescent Mood Disorders Centre (a specialist service run by skilled professionals dedicated to helping young people with mood difficulties), and we will facilitate a referral into CAMHS (child and adolescent mental health services) for specialist help. The aim of the assessment would be to see whether your child might need support to improve their mood symptoms. If at the time of the assessment it seems your child might benefit from some support (for example, psychological therapy to improve their mood) this will be offered and arranged.

Another benefit of your child participating is that research of this kind aims to inform the development of more effective psychological treatments for mood problems in young people. If you or your child wishes, you can contact us to request a copy of the final report which will summarise and explain the findings of this research.

What will you do with my child's information?

Data will be collected and stored in line with the rules of the Data Protection Act 1998. Your child's personal details (e.g., name, date of birth) will be stored separately from their answers to the questionnaires, to maintain their confidentiality and privacy. This means we won't know from your child's questionnaires which person gave which answers. However, we will label your child's questionnaires with a unique identifier code, which will be linked with their name on a separate sheet, to enable us to remove their responses from the study. This is something you or your child can request at any time until the final report is published. It also means that if your child reports significant mood symptoms, we can get in touch to offer them some support (as described above).

Only the research team will have access to your child's personal identifying information, and none of this information will ever be included in any report or published papers. Once the final report is published, your child's personal details will not be kept by the researchers. Only the research team will have access to your child's anonymous questionnaire responses. The researchers may use this anonymous data for future research. We do not plan to use any identifiable data in other studies, and any use of identifiable data would have to be reviewed and approved by a research ethics committee.

Consent

An 'opt-out' consent procedure is in place for this study. If you do not wish to give your consent for your child to take part, please complete and return the 'opt-out' form overleaf within 2 weeks. The receipt of this form will mean that the child named on the form will not then be included in the study. If an opt-out form is not received by the school or research team, your consent would be assumed for this study. However, you are still free to change your mind at any time and ask that they do not participate or have your child's data withdrawn (if they have already participated), without having to give a reason. Your child will also be given their own information sheet containing all of the information above, and will be asked to give their written consent by completing and signing an 'opt-in' consent form.

If you have any further questions, you can contact the lead researcher (Dr Rebecca Kelly: Rebecca.Kelly@kcl.ac.uk). If this study has harmed your child in any way you can contact King's College London using the details below for further advice and information: Patrick.Smith@kcl.ac.uk.

Support and Information services:

YoungMinds is the UK's leading charity committed to improving the emotional wellbeing and mental health of children and young people, and their website has some very good advice for young people: <http://www.youngminds.org.uk/>

If your child is experiencing any symptoms such as low mood or irritability that are bothering them, it's important to seek help from your GP or call NHS direct **Call: 0845 4647** or visit: <http://www.nhs.uk/Tools/Pages/depression.aspx>

The NHS also has lots of information about how to access self-help or online programmes to help your child cope: <http://www.nhs.uk/Livewell/counselling/Pages/selfhelptherapy.aspx>

The Samaritans operate a service open 24 hours a day, 365 days a year, for people who want to talk in confidence. **Call: 08457 909090**

The charity 'Mind' has a very useful website (www.mind.org.uk), or you can email or call for advice and support **Email: info@mind.org.uk or call: 0300 123 3393**

The charity 'Rethink' has a website that is a valuable source of information <http://www.rethink.org/>

The charity 'Relate' offers counselling for any children and young people who are having problems, including an 'online chat' service: <http://www.relate.org.uk/young-people-counselling/index.html>

6.3 Appendix 3: Parent Consent Form

OPT OUT CONSENT FORM FOR PARENTS OR CARERS OF PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.



Title of Study: Thinking styles and mood in young people

King's College Research Ethics Committee Ref: PNM/12/13-31

Thank you for considering consenting for your child to take part in this research. If you have any questions after reading the Information Sheet, please contact the researcher before you decide using the details on the Information Sheet. You will be given a copy of this Consent Form to keep and refer to at any time.

If you give your consent for your child to take part in this study, you do not need to do anything. However, if at any stage you decide you wish to withdraw your consent, you can do so immediately by contacting the researchers, and if applicable your child's data will be removed from the study.

Your child's information will be used as described in the Information Sheet, and in accordance with the Data Protection Act (1998). Your child's anonymous data may be used for future research, but permission would need to be granted by a research ethics committee for the use of any identifiable data. Your child's name and personal details will never appear in any written report.

If you do not give your consent for your child to take part in the study, please complete and sign the form below.

Parent or carer's Statement:

I _____

Do not wish for my child to take part in this study.

Signed

Date

Please return this form within 2 weeks of receipt using the envelope enclosed.

Alternatively, you can email the lead researcher on Rebecca.Kelly@kcl.ac.uk (please email within 2 weeks of receiving the information sheet, and please state clearly in the email that you wish to 'opt-out' of consenting for your child to participate in the study).

6.4 Appendix 4: Participant Information Sheet

INFORMATION SHEET FOR PARTICIPANTS

REC Reference Number: PNM/12/13-31



YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Thinking styles and mood in young people

We would like to invite you to participate in a research study about thinking styles and mood in young people. You should only take part if you want to; it is okay if you don't want to do the study. To help you decide, there is information below about why we are doing this research and what you would have to do if you chose to take part. Please take time to read the information carefully and discuss it with other people if you want to. Please ask us if there is anything that is not clear or if you would like more information.

What is the study about?

The study aims to find out about different thoughts and beliefs in young people, as well as different moods or feelings. We want to find out more about thoughts and moods in young people, because we want to get some information about different ways we might be able to help young people experiencing problems with their mood.

Who can take part?

We are looking for young people, male and female, aged 14-18. Anyone can take part.

What does it involve?

If you agree to take part, you will be asked to complete some questionnaires ('worksheets' with lists of questions to answer or rate). These include questions about your mood (e.g., "I often lose my temper"), questions about thoughts and beliefs you might have about your mood (e.g., "If I feel worked up and hyper it does not bother me much") or about yourself (e.g., "I often act on the spur of the moment").

The questionnaires will take less than 30 minutes to complete, and can be completed in one go at a time that fits with your school time-table (e.g., during form-time).

You will then be contacted again in 3 months time to fill in some of the original questionnaires, plus some extra questions about any events that have happened in that time (e.g., moving house). Again this should take less than 30 minutes, during a school day.

Are there any benefits or risks?

We don't think that taking part will be upsetting or harmful in any way. All of the questionnaires have been used in research lots of times before. However, filling in questions about thoughts and mood might make you think about your own moods and feelings or realise that certain things have been troubling you. If this does happen, there is a list of support and information services on this sheet. Or, you can contact one of the researchers, using the details below.

There are some possible benefits if you do take part. If your answers on the questionnaires suggest that you might be experiencing lots of mood symptoms, you will be contacted by the researchers, who are trained and experienced in talking to young people who are having difficulties like mood problems and helping them with these difficulties. If you are experiencing mood symptoms, we will be pleased to see you for an assessment in the National Specialist Child and Adolescent Mood Disorders Centre (a specialist service run by skilled professionals dedicated to helping young people with mood difficulties), and we will make a referral into CAMHS (child and adolescent mental health services) for specialist help. The aim of the assessment would be to see whether you might need support to improve your mood symptoms. If the assessment suggests you might need some support with your symptoms, this will be offered and arranged.

Another benefit of participating is that you will be adding to research that hopes to find out how we can help adults and young people who have mood difficulties. If you like, we can send you a copy of the final report which will explain the findings of this study.

What will you do with my information?

Data will be collected and stored in line with the rules of the Data Protection Act 1998. Your personal details (like your name and date of birth) will be stored separately from your answers to the questionnaires, to keep your answers anonymous and private. This means we won't know by looking at the answers whether the questionnaire was yours. However, we will label your questionnaires with a number, which will be linked with your name on a separate sheet. This means if you want to ask us to take your responses out of our study, we can use the number to find your responses and destroy them. We can do this at any time until the final report is published. Using the number also means that if you say you're experiencing lots of mood symptoms, we can get in touch with you to offer you some support (as we described above). It is important that you know that all of your answers (and anything you say to the researchers) will be treated as confidential (private), unless we are worried that there is a risk of harm to you or another young person, in which case the law says we would have to tell someone (e.g., a parent or teacher).

Only the research team will have access to your personal identifying information, and none of this information will ever be included in any report or published papers. Once the final report is published, your personal details will not be kept by the researchers. Only the research team will have access to your anonymous (without your name) questionnaire responses. The researchers may use this anonymous data for future research. We do not plan to use any identifiable data in other studies, and any use of identifiable data would have to be reviewed and approved by a research ethics committee.

If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to change your mind at any time and without giving a reason. If you have any further questions, you can contact the lead researcher (Dr Rebecca Kelly: Rebecca.Kelly@kcl.ac.uk). If this study has harmed you in any way you can contact King's College London using the details below for further advice and information: Patrick.Smith@kcl.ac.uk.

Support and Information services:

YoungMinds is the UK's leading charity committed to improving the emotional wellbeing and mental health of children and young people, and their website has some very good advice for young people: <http://www.youngminds.org.uk/>

If you are experiencing any symptoms such as low mood or irritability that are bothering you, it's important to seek help from your GP or call NHS direct

Call: 0845 4647 or visit: <http://www.nhs.uk/Tools/Pages/depression.aspx>

The NHS also has lots of information about how to access self-help or online programmes to help you cope: <http://www.nhs.uk/Livewell/counselling/Pages/selfhelpttherapy.aspx>

The Samaritans operate a service open 24 hours a day, 365 days a year, for people who want to talk in confidence.
Call: 08457 909090

The charity 'Mind' has a very useful website (www.mind.org.uk), or you can email or call for advice and support
Email: info@mind.org.uk or call: 0300 123 3393

The charity 'Rethink' has a website that is a valuable source of information
<http://www.rethink.org/>

The charity 'Relate' offers counselling for any children and young people who are having problems, including an 'online chat' service: <http://www.relate.org.uk/young-people-counselling/index.html>

6.5 Appendix 5: Participant Consent Form

CONSENT FORM FOR PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.



Title of Study: Thinking styles and mood in young people

King's College Research Ethics Committee Ref: PNM/12/13-31

Thank you for thinking about taking part in this research. The person organising the research has to explain the project to you before you agree to take part. If you have any questions after reading the Information Sheet please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

Please tick
or initial

- I agree to take part in this study. ☐
- I understand that if I decide at any time during the research that I don't want to take part anymore, that is okay. I can let the researchers know and withdraw immediately. I understand I don't have to give a reason to the researchers or anyone else. I also know that I will be able to ask the researchers to take my information out of the study and destroy it. I understand if I want the researchers to take out my responses I will need to ask them to do this before the report is finished in March 2014. ☐
- I agree that the researchers can use my information and questionnaire answers as described in the Information Sheet. I know that the researchers have to stick to the rules of the Data Protection Act 1998. ☐
- I agree that the researchers can use my anonymous data (without my name and details) for future research, but I know if they wanted to use any data with my personal details this would have to get permission from a research ethics committee. I understand that my personal information (such as my name or date of birth) will never appear in any report. ☐

Participant's Statement:

I _____

Agree that the research project named above has been explained to me so that I understand and I agree to take part in the study. I have read the notes on this page and the Information Sheet about the project, and I understand what the study involves.

Signed

Date

Investigator's Statement:

I _____

Confirm that I have carefully explained the nature, demands and any foreseeable risks (where applicable) of the proposed research to the participant.

Signed

Date

6.6 Appendix 6: Table A1

Table A1

Ethnicity of study participants.

Participants description of ethnicity	Frequency
White British	49
Black British	6
Mixed race	7
Black African/ Afro-Caribbean	14
Filipino	4
Latin American	7
Canadian	1
Lebanese	1
White Asian	1
Chinese	1
South Korean	1
Black Asian	1
Not disclosed	5

6.7 Appendix 7: Table A2

Table A2

Results of t-tests comparing mean scores for males and females on primary study measures.

	gender		<i>t</i>	<i>df</i>
	males	females		
Activation total	192.63 (83.25)	201.71 (106.61)	.46	90
Depression total	50.18 (41.73)	83.06 (59.18)	2.91** ^a	91
Irritability total	10.65 (3.42)	11.92 (3.56)	1.70	88
HAPPI-Pos	634.36 (246.13)	58.75 (229.98)	-.99	90
HAPPI-Neg	235.84 (119.53)	241.92 (145.85)	.22	91
HAPPI total	2082.47 (800.49)	2098.89 (828.05)	.10	92

Note. HAPPI = Hypomanic and Positive Predictions Inventory, HAPPI-Pos = positive appraisals of activated states, HAPPI-Neg = negative appraisals of activation symptoms. ** $p < .01$. Standard deviations appear in parentheses below means. ^a equal variances not assumed.

6.8 Appendix 8: Table A3

Table A3

Correlations between study variables.

	ISS-ACT	ISS-DEP	ARI	Life Stress	HAPPI-T	HAPPI-P	HAPPI-N	BAS-FS	RPA-F	RPA-D
ISS-ACT	-									
ISS-DEP	.35**	-								
ARI	.33**	.25*	-							
Life Stress	.00	.14	.25*	-						
HAPPI-T	.49**	.35**	.33**	.02	-					
HAPPI-P	.43**	.11	.18	-.13	.55**	-				
HAPPI-N	.40**	.45**	.41**	.04	.84**	.56**	-			
BAS-FS	.42**	.05	.23*	-.10	.40**	.41**	.33	-		
RPA-F	.08	.06	.04	.13	.38**	.44**	.24*	.09	-	
RPA-D	.27**	.20*	.08	.27*	.33**	.36**	.28**	.11	.54**	-

Note. ISS-ACT = activation symptoms, ISS-DEP = depression symptoms, ARI = irritability symptoms, HAPPI-T = total HAPPI score, HAPPI-P = mean positive appraisals, HAPPI-N = mean negative appraisals, BAS-FS = fun-seeking scale, RPA-F = focusing, RPA-D = dampening. ** $p < .01$.

6.9 Appendix 9: Time 1 Questionnaire Measures

DEMOGRAPHIC INFORMATION

AGE:

MALE/ FEMALE (delete as appropriate)

ETHNICITY:

BAS F-S:

Please read and rate each of the following statements according to how much you feel it applies to you, by ticking the applicable box.

I am the kind of person who (is):

	Very true			Very false
	1	2	3	4
Willing to try something new if fun				
Does things for no reason if fun				
Often acts 'on the spur of the moment'*				
Craves excitement and new sensations				

* Act quickly without always thinking

RPA:

Young people think and do many different things when they feel happy. Please read each of the following statements and indicate whether you 'never', 'sometimes', 'often' or 'always' think or do this when you feel happy, excited, or enthusiastic. Please indicate what you generally do, not what you think you should do.

	Almost never do this			Always do this
When you feel good, you...	1	2	3	4
Think about how happy you feel				
Think about how strong you feel				
Think about how you feel ready to do anything				
Notice how you feel full of energy				
Focus on enjoying this moment				
Think "I am lucky for now, but it will end soon"				
Think "I don't deserve this"				
Think about the things that could go wrong				
Think about the things that have not gone well for you				
Remind yourself that these feelings won't last				
Think "This is too good to be true"				
Think about how hard it is to concentrate				
Think "people will think I'm bragging"				
Think "I am achieving everything I could want"				
Think "I am the best that I could be"				
Think about how proud you are of yourself				
Think "I am getting everything done"				

MDQ:

Please answer each question to the best of your ability (just tick yes or no).		YES	NO
1. Has there ever been a period of time when you were not your usual self and...			
... You felt so good or so hyper that people thought you were not your normal self or you were so hyper that you got into trouble?			
... You were so irritable that you shouted at people or started fights or arguments?			
... You felt much more self confident than usual?			
... You got much less sleep than usual and found you didn't really miss it?			
... You were much more talkative or spoke much faster than usual?			
... Thoughts raced through your head or you couldn't slow your mind down?			
... You were so easily distracted by things around you that you had trouble concentrating or staying on track?			
... You had much more energy than usual?			
... You were much more active or did many more things than usual?			
... You were much more social or outgoing than usual, for example, you telephoned friends in the middle of the night?			
... You were more interested in sex than usual?			
... You did things that were unusual for you or that other people might have thought were excessive, foolish or risky?			
... Your spending money got you or your family into trouble?			
2. If you ticked YES to more than one of the above, have several of these ever happened during the same period of time?			
3. How much of a problem did any of these cause you – like being unable to do your school-work, having family troubles, getting into arguments or fights? (Please circle one response only)			
No problem	Minor (small) problem	Moderate (medium) problem	Serious (big) problem

HAPPI:

There are some sentences below about what you might think or believe when you feel a certain way (e.g., feel really good or bad). Please read each of the sentences below and tick one box depending on how much you believe each sentence. Make your rating by intersecting the line between 0% (don't believe this at all) to 100% (believe this completely). For example 50% means that the statement is 50:50, equally likely to be true or false for you. Try not to think too much about each item. There are no right or wrong answers to this questionnaire and only your own opinion counts.

	Don't believe this at all										Believe this completely
	0	10	20	30	40	50	60	70	80	90	100
When I feel good, I think things will go perfectly											
When I get excited I can't control my thoughts											
When I feel excited, my fears and worries go away											
When I am with other people it is most important that they like me											
When I feel full of energy, I can make more friends and have more people like me											
When I feel excited and worked up it means that I am about to go crazy or 'lose it'											
My feelings need to be very strong to feel real to me											
When people tell me off for being too excitable they are being mean and nasty on purpose											
When I feel full of energy I am extremely funny and witty											
If I let other people do things at their own speed, I will not get what I want											
When I get very excited, I can't control my behaviour											
People might think I'm confident and can do things on my own, but on the inside I need other people											
I must act on a good feeling as soon as I feel it											
I have all my best ideas when I feel really good about myself											
If I am very special to everyone then all my problems will go away											
I can't control my high moods											
I can't stop myself getting excited when something good happens to me											
When I feel worked up and hyper, what happens to me means more than what happens to other people											
When I have a lot of energy, I don't need help from anyone or anything											

	Don't believe this at all								Believe this completely		
	0	10	20	30	40	50	60	70	80	90	100
When I get excited and hyper there is nothing I can do to control my excitement											
When people around me are upset they are just making a big deal out of what is happening											
I must make up my own mind about everything											
When I try hard to get what I want, other people try to stop me											
When I get new ideas I must tell people a once and in detail so that they like me											
When I feel I am right, I must keep on thinking up lots more ideas and answers											
When I feel worked up and hyper, the world becomes full of lots of chances for me											
Unless I am active all the time, I won't do well											
If I have a bad night's sleep it means that I am about to go crazy or 'lose it'											
I need to be the centre of attention to enjoy myself											
The better I feel about myself, the worse other people act towards me											
I care more about what happens right now than what happens in a few days' time											
When I feel more active I think I'm really important and special											
When I feel good about myself, I realise that I didn't need to be worried or afraid											
When I feel excited and worked up, I can stop people trying to control me											
I need to have complete control over my moods in order to prevent myself from going crazy or 'losing it'											
I cannot stand feeling sad for a short while											
When I feel really good, people don't get me											
If I sleep much less each night it means that I can get more done during the day											
When I feel excited I know that other people find me attractive											
When I'm in a good mood, nothing I do can go wrong											

	Don't believe this at all								Believe this completely		
	0	10	20	30	40	50	60	70	80	90	100
Doing anything very active can lead me to go crazy or 'lose it'											
When I feel really good or really sad it's not my job to change it											
When I am feeling worked up and excited, there is no point in eating when I'm meant to											
When I am more active than usual, other people don't like me											
If I choose to do what other people tell me, I won't be in charge of my own behaviour											
When I get an idea, it always turns out to be the best answer											
I sometimes do something naughty or unsafe just to make things more exciting											
When I feel good, I must keep "on the go" all the time or things will go wrong											
If I notice something new when I am feeling good, I must think about how it joins up with everything else											
If I fall behind in things I want to do for a short time, I will fail											

ISS:

For each of the following statements, please mark the box at the point that best describes the way you feel today. While there may have been some change during that time, try to give a single rating (score) for each item.

	Not at all/ rarely								Very much/ much of the time	
	10	20	30	40	50	60	70	80	90	100
Today my mood is changeable										
Today I feel irritable										
Today I feel like a capable person										
Today I feel like people are out to get me										
Today I actually feel great inside										
Today I feel impulsive										
Today I feel depressed										
Today my thoughts are going fast										
Today it seems like nothing will ever work out for me										
Today I feel overactive										
Today I feel as if the world is against me										
Today I feel "sped up" inside										
Today I feel restless										
Today I feel argumentative										
Today I feel energised										
	Depressed/ down					Normal			Manic/high	
Today I feel										

ARI:

For each item, please mark the box for Not True, Somewhat True or Certainly True.
How well does each of the following statements describe your behaviour/ feelings in the *last week*?
Please try to answer all questions

	NOT TRUE	SOMEWHAT TRUE	CERTAINLY TRUE
I am easily annoyed by others			
I often lose my temper			
I stay angry for a long time			
I am angry most of the time			
I get angry frequently			
I lose my temper easily			
Overall, my <i>irritability</i> causes me problems			

6.10 Appendix 10: Time 2 Measure of Life Events

Life events:

These are questions about experiences that have happened to you and your family since you took part in the first part of this study. Please indicate whether each event has happened in that time by ticking the box or leaving it blank. Please also rate each experience on a scale of 1 to 5 as it felt to you at the time (or leave blank if the event has not happened):

- 1 = very pleasant/ happy
- 2 = quite pleasant/ happy
- 3 = neither pleasant or unpleasant
- 4 = quite unpleasant/ sad/ painful
- 5 = very unpleasant/ sad/ painful

Life event	Check the box if the event happened in the last 6 months	How pleasant/ unpleasant was the event on a scale of 1-5 (see above)?
Have you changed school?		
Have there been any changes in the number of people in your household? Has anyone left or joined your family?		
Have you moved house?		
Have there been any disasters at home e.g., fire, flood or burglary?		
Have you taken part in anything particularly stressful or enjoyable outside school/ college?		
Have you or any of your family or close friends had a serious illness or accident?		
Have you or any family or close friends spent time in hospital?		
Has any of your family or close friends died?		
Have you lost a family pet?		
Have you lost touch with any good friend (e.g., moved away, changed school)?		
Have you had any particular problems or difficulties with friendships?		
Has any other significant event involving you, your family or close friends happened?		
Thinking about things that upset you a lot, has anything else really important happened?		

6.11 Appendix 11: Exploratory analysis of predictors of HAPPI at Time 2

A further regression analysis was conducted testing predictors of HAPPI at Time 2 whilst controlling for HAPPI total at Time 1. In the exploratory model, total scores on measures of symptoms of depression, activation, and irritability were entered, alongside the total MDQ symptom score, composite life stress score, impulsivity, RPA dampening and RPA focusing. The model significantly predicted Time 2 HAPPI score ($F(77, 9) = 8.93, p < .001; R^2 = .54$). Time 1 HAPPI total ($b = .49, p < .001$) and Time 1 irritability symptoms ($b = .24, p = .01$) were significant predictors; the other variables were non-significant. VIF statistics ranged between 1.1 and 2.0, indicating no problematic multicollinearity, and the Durbin-Watson statistic was 2.2, indicating independent errors.

PART 2:
SERVICE EVALUATION PROJECT

**Case discussion groups: An evaluation
of uptake, staff feedback, and impact on
care and management plans across six
acute inpatient wards**

Supervised by:
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Abstract

It is important that multidisciplinary teams (MDT) on acute inpatient wards create and promote a therapeutic milieu for service users, and to this end there have been calls for more psychologically-informed ways of working in these settings. The present economic climate means there is a need for clinical psychologists to work indirectly with patients. Case discussion groups, where clinical psychologists facilitate discussion with the MDT about the formulation and treatment plans for a specific service user, represent one such method. Data regarding staff feedback about these groups and the impact on service user's care plans was collected over a 6-month period. MDT members reported finding the groups supportive and informative, however the groups did not always take place when scheduled and there was sometimes no evidence that all of the agreed action points from the discussions were implemented. Explanations for these findings are explored, and some potential strategies to improve case discussion groups to maximise their impact are considered.

Case discussion groups: An evaluation of uptake, staff feedback, and impact on care and management plans across six acute inpatient wards

This report will describe an evaluation of case discussion groups facilitated on six acute mental health wards by the inpatient clinical psychology team. Before describing the methods used to evaluate the success of these groups and reporting on the findings of the evaluation, this report will provide an introduction to the background and context of the project by considering three areas in turn. First, the rationale for indirect methods of working psychologically on inpatient wards will be described. Second, the reasons for implementing case discussion groups specifically will be articulated. Finally, the case for an evaluation of these groups will be argued.

1.1 The Acute Inpatient Context

Unfortunately, a number of recent investigations have highlighted the failures of inpatient mental health units to provide an environment that facilitates recovery for the individuals admitted. Muijen (2002) argue that acute inpatient units do not offer a therapeutic, supportive environment, and contend that there is actually no research evidence demonstrating the therapeutic effectiveness of hospital care. Muijen concluded that there needs to be an investment in staff to make wards safer and more therapeutic. Charitable organisations tasked with evaluating acute care environments concur with these arguments. The Sainsbury Centre for Mental Health released a report concluding that acute care is in crisis (SCMH, 2005), and suggesting that ward staff are unable to meet the therapeutic needs of their patients because their time is occupied in the ‘management’ of patients.

Given the fact that individuals are admitted to acute units when they are most in need of a therapeutic environment that can support them effectively through a crisis period, the finding that often these environments are not therapeutic and supportive is concerning. There is therefore a need for ‘non-frontline’ staff members, including for example clinical psychologists, to work in ways that promote recovery rather than simply management and containment and strive to enhance the therapeutic milieu of the wards (e.g., Clarke & Wilson, 2009). Further, it appears that ‘frontline’ staff members need to be able to access support and guidance to enable them to work more therapeutically. This is in line with the Department of Health’s guide to adult acute inpatient provision (DoH; 2002). The guide proposes that clinical psychology input into acute care settings needs to be increased in order to both input into group and/or

individual treatment and care arrangements and to assist ward staff with the acquisition of skills. Again, this report highlights the crucial importance of psychologically therapeutic environments, and the importance of focusing on inpatient wards, as interestingly despite overall bed numbers reducing, more is still spent on hospital than community care.

1.2 The Need for Indirect Delivery of Therapeutic Interventions

Despite a clear and justified need for psychological interventions in these settings, the economic climate combined with a historical lack of funding for psychological services in acute mental health units means that there are not sufficient resources and provision for this need to be met through direct psychological working alone. Indeed, it has been said that it is impossible for clinical psychologists to fully meet the need for psychological services (BPS, 2004), particularly in acute environments such as the hospital where this project was conducted. During the period of study the inpatient clinical psychology team responsible for delivering direct and indirect psychological interventions across 6 wards had only 1 full-time clinical psychologist and 1 trainee clinical psychologist working 3 days per week. Unfortunately, in practice there is often less than the suggested ratio of clinical psychologists to patients suggested by the Division of Clinical Psychology (DCP; 2004), as this example demonstrates, and so there is insufficient capacity to deliver direct interventions to all patients.

In *New Ways of Working for Applied Psychologists* (DoH, 2007a), it was proposed that there is a need for the whole workforce to improve psychological care, with interventions provided by a range of professionals and clinical psychologists providing training and/ or supervision, and acute care wards are a clear example of where this is necessary. *The New Ways of Working for Everyone* (DoH, 2007b) document places strong emphasis on the need for group working, team focus, and sharing skills and competences. Of particular relevance to this setting are the recommendations that there is more joint working, collaborative care planning, multi-disciplinary team (MDT) case discussion, and sharing of knowledge. So, there is a need to develop competence in psychological understanding and therapeutic skills amongst other members of MDTs, so that therapeutic interventions can be delivered by a range of professionals and in order to ensure that acute wards can be therapeutic environments where patients receive adequate care and support. In line with this, the

Sainsbury Centre for Mental Health recommended after their investigations of acute inpatient mental health units that psychologists support therapeutic activity on the wards either directly or indirectly through other staff on the MDT (SCMH; 2002).

1.3 Facilitated Case Discussion as a Mode of Indirect Working

1.3.1 Sharing skills. One potential means of improving the therapeutic milieu of inpatient environments and developing competence in psychological understanding in MDT members in line with the suggestions above is regular MDT case discussion involving clinical psychologists. Discussing specific cases within a multi-disciplinary team might be expected to be an effective way of developing a culture of joint working and also sharing knowledge and skills. Case discussion is a method commonly used in the training of teachers, doctors, and other professionals, as it is thought that by considering and discussing a specific case or question in small groups, individuals can share knowledge, reflect on their practice, and acquire and practice skills that can then be applied in other contexts (e.g., Esach & Bitterman, 2003).

1.3.2 Sharing knowledge. Case discussion approaches might also have further benefits. Along with facilitating the development of competency in thinking and working therapeutically through reflecting on specific individuals they are working with, group discussions might provide a forum through which knowledge about specific psychological principles can be shared. Research suggests that inpatient care staff have little knowledge of behavioural principles and how to manage service users' behaviour when it is problematic (Donat & McKeegan, 1990). Further compounding this problem is the fact that many acute wards have little to no funding to provide ongoing training for inpatient staff, meaning that staff members are less experienced but also that they feel demoralised because they do not feel they have the skills needed to work in this demanding environment (SCMH, 2005). Ward-based case discussion groups with staff might offer an opportunity for the inpatient psychologists to share information about behavioural principles, for example how to understand the function of a behaviour and how to use reinforcement schedules to increase or reduce the frequency of certain behaviours. If ward staff members are able to develop skills in managing challenging behaviour on the wards; something that often requires the majority of their time (SCMH, 2005); this may free up more time for to engage service-users in therapeutic activities.

1.3.3 Psychological formulation. Indirect methods of working psychologically such as MDT case discussion might also enable staff members working on acute inpatient units to be equipped with skills in psychological formulation that aid their understanding and inform care planning. In a recent New Ways of Working document (DoH, 2007b), it was argued that at the heart of the psychological approach is formulation; the integration of information about the individual with psychological theory and evidence to produce a coherent understanding and inform intervention. This model is contrasted with the medical diagnostic model, which tends to pervade in acute mental health units. It is contended that the psychological understanding of people's distress needs to become more commonplace amongst all professionals. Case discussion groups facilitated by clinical psychologists offer an ideal opportunity for this. Case discussion groups allow the psychology team to contribute to the team's understanding and formulation of a service user's difficulties, and use this formulation to inform more effective ways of working with the service user. Ideally, these groups should also foster an ability in MDT members to formulate other patient's difficulties in a psychologically-informed manner and transfer knowledge and skills to other novel problems and contexts, so that the benefits are not restricted to the individual service-user discussed in the group.

1.3.4 Supporting frontline staff. Finally, case discussion groups might represent a way for the clinical psychology team to support the ward staff teams. Many 'frontline' staff members feel unsupported, and need help with more effective care planning that takes into account the need for therapeutic activities and interventions based on individual participant needs (SCMH, 2002). The challenging nature of the work on acute mental health units combined with the felt sense of a lack of support can result in staff burn-out, high stress and high staff turnover (SCMH, 2005). The Department of Health recommend that within acute inpatient units, time should be set aside for structured multidisciplinary learning opportunities that allow for reflection, thinking and understanding and the thoughtful application of skills, knowledge and timely interventions (DoH, 2002, p. 21). Group discussions allow staff to feel listened to and supported, and also provide a way of identifying service-users who might particularly benefit from 1:1 psychological interventions from the inpatient psychologist.

1.4 The Need for Evaluation of Case Discussion Methods

Despite many arguing that indirect interventions such as staff groups represent an efficient way for psychologists to contribute to promoting a therapeutic milieu on inpatient wards, there is little empirical basis for their efficacy and usefulness. This is concerning as groups of this kind are taking place as part of routine clinical practice as part of a range of indirect interventions that seek to compensate for the lack of resources to provide evidence based one-to-one psychological interventions to individual inpatients. Yet, there does not seem to be published evidence that testifies to their clinical utility. This project represents a first step towards addressing this gap by first considering whether case discussion groups are acceptable and useful to ward staff members, and also evaluating whether there is any objective impact on care plans for the individuals discussed at the group meetings.

If this project indicates that groups are effective, this would indicate a need for further research to examine the factors that make groups the most helpful and useful, in order to maximise the benefit of these groups. If, on the contrary, the results of this evaluation indicate that staff members do not find the groups helpful, or there is no observable impact in terms of care planning and management of individual patients, then this would indicate a vital and urgent need for the groups to be reviewed, for example through a focus group with participants, in order to prioritise and plan psychological inpatient provision in the future. Thus, this project will be important in informing directions for further research and evaluation in this area and will have implications for the delivery of in-direct psychological interventions in inpatient contexts.

1.5 Aims and Hypotheses

This project will consider the success of the introduction of case discussion groups onto 6 acute inpatient mental health units firstly in terms of their feasibility and acceptability, as indicated by the proportion of groups attended and the number of staff members from MDTs attending. Secondly, the project will evaluate whether the groups are useful and informative from the perspective of participating staff members, particularly in terms of whether the groups are perceived as helpful in increasing knowledge and understanding of specific clients and informing care and management planning. This evaluation will also consider any common and/ or defining features of the cases that staff members choose to discuss at the groups (e.g., diagnosis, presenting

problem, or length of admission). Finally, the project will also evaluate whether there is any evidence in the electronic records of the service users discussed that the groups lead to changes in care and management plans. In this way, this project seeks to evaluate whether the groups are succeeding in having a positive impact on patient care, and if not whether improvements can be made to the groups in order to maximise the benefits of the group for staff and service users.

It was hypothesised that:

1. Feedback from attending staff members would be positive, and they would report finding the group discussions useful;
2. There might be patterns in terms of the cases discussed, for example more group discussions might focus on individuals presenting with particularly challenging behaviour or extended periods of admission;
3. There might be evidence in the electronic records of service users discussed that suggestions made in the group discussions were followed by changes in service users' care or management plans.

Method

2.1 Materials and Procedure

2.1.1 Case discussion groups. The in-patient psychology team aimed to facilitate 1 case discussion group per month on each of the 6 wards. The team explained to ward staff members that the groups aimed to function to provide an opportunity for members of the ward staff teams to explore a specific case on the ward from a psychological perspective, in order to facilitate the sharing of knowledge and skills, promote understanding, and potentially direct care planning. The groups were designed to be structured, with MDT staff presenting the case in question and the majority of the time allotted to facilitated discussion, with time set aside for sharing ideas and planning in response to the discussion. Where appropriate, the facilitators also provided a psychological perspective on the case, with a view to aiding team members in understanding the needs and difficulties of particular clients, intervening to reduce their distress, or managing challenging behaviour.

2.1.2 Case summary. The ward MDT was asked in advance of each group to provide a summary of the case to be discussed that included: Background information, including demographic details and also information on key events in the person's life; information about the client's current situation including recent events, factors

precipitating admission to the ward, and their priorities and goals; details of the current presentation including any problematic behaviour, staff beliefs, thoughts and feelings about the situation; and the current care plan, what has been tried and what has worked or not worked well. In practice, this was not provided in a written format in advance of the group but rather the MDT presented these issues at the start of the group sessions.

2.1.3 Feedback questionnaire. Each group participant was asked to anonymously complete a specifically designed feedback questionnaire at the end of the group, which included statements (e.g., “I feel I have more understanding of the client than I did before the discussion group”) rated on a 1-5 Likert-scale from ‘not at all’ to ‘yes, very much’. The questionnaire also provided space for further comments.

2.1.4 Case discussion record forms. After each group, a member of the clinical psychology team completed a record of the discussion, focusing on the recommendations and action points discussed. This was then distributed to the staff members that attended the meeting via secure internal electronic mail.

2.1.5 Monitoring of electronic records. Over the following months, the Electronic Patient Journey System (ePJS) records of service users discussed were monitored to assess whether there were changes to the care plan or management approach that related to action points discussed in the groups. In the main, this involved checking the care plan section of the notes, but correspondence and event sections were also reviewed to establish whether other changes had been implemented. The electronic records were reviewed initially 1-2 weeks after the case discussion group took place, and then again immediately before the preparation of this report, 1 month after the final group included in this evaluation took place. This allowed a period of at least 1 month for any changes to be implemented and documented.

2.2 Analysis

Descriptive statistical analyses were conducted to establish the average uptake and attendance of case discussion groups, and to analyse the quantitative feedback. Thematic analysis was conducted to explore recurring themes in the qualitative feedback provided by participants.

2.3 Ethical Considerations

Neither attendance at case discussion group meetings nor the completion of the measures described above was compulsory; staff members were given the option to participate in group discussions and asked if they would like to complete an

anonymous feedback questionnaire. No patient records were accessed by the clinical psychology team that might not have been ordinarily accessed as part of routine clinical practice. No-one other than the inpatient psychology team accessed confidential patient records for the purpose of this evaluation. Records of changes to care plans were entered anonymously into spreadsheets stored on a password protected internal computer. No copies were made of any information from ePJS that contained any personal identifiers. Approval for this service evaluation project was granted by the Psychosis Clinical Academic Group Research and Audit Committee, South London and Maudsley NHS Foundation Trust.

Results

3.1 Attendance

Overall, only around 50% of planned and scheduled case discussion groups ran successfully, although the percentage of cancelled groups varied between wards (see Table 1). Reasons for cancellation included hand-over running late, staff shortages, double-booking with other meetings, failure to record the date and time of the group in the ward diary, and facilitator illness or absence. The average number of attendees at groups which ran successfully was 5 ward MDT members, plus the facilitators from the inpatient psychology team.

Table 1

Number and percentage of successful and cancelled groups across the six participating wards

Ward	Attended	Cancelled	Percentage (%)
1	4	2	66
2	3	3	50
3	2	4	33
4	4	4	50
5	3	4	43
6	4	2	66

Note. Over the time of study a minimum of 6 and a maximum of 8 groups were scheduled. Variation between wards in the number of groups offered was due to bank holiday and Christmas holiday periods.

3.2 Quantitative Feedback

As described, both quantitative and qualitative feedback was collected from consenting participants. Quantitative feedback was obtained regarding four different domains: the usefulness of the group, the extent to which the group promoted understanding, the extent to which it informed the care plan, and the extent to which attendees felt they gained new knowledge from the discussions. Ratings from group attendees were generally very positive, and did not differ widely between different wards, although on average ES2 ward gave slightly higher ratings in their feedback. The best ratings overall were for the usefulness of the group and the extent to which the discussion informed care plans for patients.

Table 2

Mean feedback ratings across the four measured domains by ward and on average

Ward	Usefulness of group	Improved understanding	Informed care plan	Knowledge gained	Overall
1	4.5	4.4	4.5	4.2	4.4
2	4.8	4.4	4.6	4.4	4.6
3	4.4	4.4	5.0	4.1	4.5
4	4.5	4.3	4.9	4.3	4.5
5	4.6	3.7	4.2	4.2	4.2
6	4.6	4.3	4.6	4.2	4.4
Average	4.6	4.3	4.6	4.2	4.4

Note. Ratings are out of a maximum of 5.

3.3 Qualitative Feedback

Of the forms completed by group attendees, 25% included additional comments and feedback. Given the low total number, this feedback was analysed across the 6 wards. Five themes emerged from the qualitative feedback:

1. Informing practice
2. Sharing and mutual support
3. Style and approach of group
4. General praise or gratitude
5. Staff preparation

3.3.1 Informing practice. A number of comments were made indicating that the case discussion groups were helpful in informing practice, for example, “you have ideas from other colleagues on how to deal/ work [with patients] and motivate patients”. The groups were described as “very informative”, and attendees reported getting information on specific strategies to use, saying it was “good to think of what we can do in terms of managing people”, and provided “something new to try to manage the care of patients”. One participant commented that it was “helpful to incorporate some of the plans we’ve tried to start on the ward”.

3.3.2 Sharing and support. Group participants also felt that the case discussion groups provided an opportunity for sharing of experiences and mutual support. Respondents felt it was “great to have a new perspective and discuss things with the whole team”. They said that the groups provided the “chance to talk with staff and get others' viewpoints”, and “very useful suggestions and support”. The group felt they were able to “get ideas from other colleagues” and “learn from each other what could be done differently”. Participants also commented that the group provided “room to alleviate feelings of burn out”, and space to “air views and concerns”.

3.3.3 Style or approach. Some of the feedback related to the style of the case discussion groups. Whilst one participant commented that the group was a “good opportunity to review a patient holistically”, another participant commented that they would like “more evidence-based material and structure to presentation”. In general the participants felt it was “good to have time to reflect” in these groups.

3.3.4 General praise or gratitude. Almost all of the participants who gave qualitative feedback commented on the helpfulness of the group or stated their gratitude for the group. A number of staff members also emphasised that they would like to have the groups more often in future, and would like more of their staff team to attend.

3.3.5 Staff preparation. One participant commented that in future, attendees “should plan which client to discuss in advance so that we can all get more background information and familiarise ourselves”.

3.4 Characteristics of Individuals Discussed

3.4.1 Diagnosis and presenting problem. Individuals discussed in case discussion groups had a range of diagnoses, although bipolar disorder (n = 5) and psychosis (including schizoaffective disorder and schizophrenia; n = 5) were the most

common. The ward staff attending the groups cited a number of reasons for seeking the support of the group in planning the care and management of these patients. By far the most common presenting problem was aggressive or sexualised behaviour ($n = 9$), followed by a refusal to maintain personal hygiene and engage in self-care ($n = 3$). Other reasons included difficulties engaging the patient when they were responding to auditory hallucinations or had delusional beliefs, self-harm, depression and withdrawal from activities on the ward, substance misuse, and attempts to abscond.

Table 3

Characteristics of patients discussed in case discussions.

Gender	Diagnosis	Presenting problem/ concern
F	Bipolar Affective Disorder	Challenging behaviour
M	Bipolar Affective Disorder	Challenging behaviour
F	Paranoid Schizophrenia	Responding to hallucinations
F	Paranoid Schizophrenia	Responding to hallucinations
F	Emotionally Unstable Personality Disorder	Self-harm and aggressive behaviour
M	Paranoid Schizophrenia	Challenging behaviour
M	Schizoaffective Disorder	Challenging behaviour
M	HIV-related Dementia	Self-neglect
F	Schizoaffective Disorder	Challenging behaviour and self-neglect
M	Schizophrenia	Self-neglect
M	Emotionally Unstable Personality Disorder and alcohol dependence	Challenging behaviour
M	Psychosis and alcohol dependence	Substance use
F	Emotionally Unstable Personality Disorder	Challenging behaviour
M	Bipolar Affective Disorder	Challenging behaviour
F	Emotionally Unstable Personality Disorder	Self-harm and failure to take antibiotic medication (Patient discussed twice)
F	Bipolar Affective Disorder	Challenging behaviour
F	Schizoaffective Disorder	Demanding behaviour
M	Asperger's and Mild Learning Disability	Challenging behaviour
F	Recurrent Depression	Social isolation and low motivation

3.4.2 Length of admission. The length of stay on the ward (at the time of the case discussion group taking place) ranged from 1 day to 210 days, with a mean of 36 days. However, a number of the individuals ($n = 7$) discussed had spent a much longer time than this in total as in-patients, but had been transferred between wards during their admission. For these individuals, the total length of time spent as an in-patient ranged from 60 to 285 days, with a mean length of total stay of 171 days. The service users discussed at groups who had been residing on the ward for only a brief time tended to either be displaying very extreme challenging behaviour or to have been admitted to the ward in the past and be known to staff already. For the latter group, the purpose of the group discussion was planning to prevent further admissions.

3.5 Impact of Case Discussion on Care and Management Plans

The average number of suggested actions at each case discussion was between 3 and 4 (mode = 3). Overall, there was evidence for a third of the suggested action points being implemented. For 60% of the individual cases, at least some attempts were made (and documented) to implement the action points suggested (see Table 4). In particular, when staff members were encouraged to make referrals to other services such as psychology or occupational therapy, these referrals tended to be made. In addition, for the patients where the action plan involved methods to assist with graded discharge from the ward, this was also often put into practice. However, for 40% of the cases, there was no documentation to indicate that the suggested action points had been implemented. In particular, action points that involved more highly intensive action; for example, devising and utilising behaviour management plans and reward charts; tended not to be completed by ward staff, or were initiated but discontinued after a short period (see Appendix 2 for further detail). It is important to note that for a number of the individuals discussed where there was no evidence that action points were implemented, the patient was either discharged or transferred from the ward shortly after the group and so there would have been limited opportunity to implement the suggestions made.

Table 4

Number of action points suggested and implemented for each case discussion group.

Case	Number of action points suggested	Number of action points implemented	%
1	5	2	40
2	4	2	50
3	3	1	33
4	3	2	66
5	3	2	66
6	4	2	50
7	3	2	66
8	3	0	0
9	4	0	0
10	5	2	40
11	4	0	0
12	3	0	0
13	2	0	0
14	3	0	0
15	6	4	66
16	1	1	100
17	4	2	50
18	4	0	0
19	5	0	0
20	6	3	50

Discussion

4.1 Summary

A number of important findings emerged from this evaluation. The first is that, unfortunately, the uptake of the case discussion groups was poor during the audit period, with only 50% of groups running successfully. The second main finding is that despite poor uptake, staff feedback was very positive, indicating that the groups were acceptable and useful to staff and were meeting their stated aims. The third finding was that there were certain common features of the service users discussed in the

groups, specifically that they tended to have a diagnosis of a mood or personality disorder, that they tended to present with challenging behaviour or self-harm, and that they often had long or multiple admissions. The final important finding was that for over half of the cases discussed, there was documented evidence that at least some of the action points agreed in the group discussions were implemented. However, in particular where the recommendations involved intensive efforts on the part of the ward staff team, these tended not to be implemented or were only implemented partially. Each of these findings will now be considered in more depth.

4.2 Low Uptake

As stated, only half of the scheduled case discussion groups ran successfully over the study period. There were a number of practical issues and obstacles identified. The groups took place immediately after the daily hand-over meeting, where team members on the morning shift are taken over by the afternoon staff and any problems or important messages are exchanged. These meetings often over-ran, and the staff members finishing their shift after the meeting often left rather than staying for the group discussion meetings. In addition, given the unpredictable, reactive nature of the ward environment, there were often clinical emergencies or other incidents that had to be prioritised over the case discussion groups. It is possible that the difficulties successfully running these groups reflect general difficulties organising structured, timetabled activities in such an unpredictable environment. It is equally possible that some ward team members, for example bank or temporary staff, had not been fully informed by their ward managers about the groups; that the purpose of the groups was not fully understood; or that team members did not feel that the groups were important or relevant for them to attend.

4.3 Positive Feedback

Feedback across all 6 wards was very positive, indicating that the groups were acceptable and helpful to the participating staff members. The qualitative and quantitative feedback also indicated that from the participants' perspective, the groups were addressing the needs highlighted in the introduction to this report and meeting their aims of facilitating the sharing of knowledge and skills (DoH, 2007a), helping staff feel supported (SCMH, 2002), allowing space for reflection (DoH, 2002), and providing a psychological formulation of a client's difficulties that aids understanding and informs interventions (DoH, 2007b). Some of the qualitative comments indicated

changes that could be made to improve the groups, including the team familiarising themselves with the background of the case and agreeing on specific questions before the group, and the facilitators using more evidence-based material. To address these comments, the facilitators could agree to prompt teams to prepare specific questions about a client in advance of the group discussion. This would enable the facilitators to prepare information and evidence to support their recommendations, for example National Institute for Clinical Excellence recommendations or recent papers or articles on intervention strategies. However, the busy and unpredictable nature of the ward environment might prohibit staff teams from preparing cases in such detail before the groups take place. Nevertheless, even if this is not possible, the psychologists could provide staff members with more evidence-based material and resources after the discussion groups, and this might be a helpful way of improving the groups and potentially encouraging the implementation of any recommendations.

4.4 Features of Cases Discussed

The majority of the cases discussed in the groups presented with behaviour such as aggression or sexualised behaviour that members of staff found it difficult to manage. This is in line with the Sainsbury Centre for Mental Health's report, which suggested that this is an area where further training is needed, and may explain why research has found that often staff have to prioritise the 'management' of patients rather than therapeutic activities (SCMH, 2005). This may indicate that additional training from the clinical psychology team in this area would be invaluable. This would avoid repetition of the same advice at multiple case discussions and allow the sharing of knowledge and skills about a wider range of issues. It might also be important to emphasise to ward teams that clinical psychologists can also work directly with individuals presenting with behavioural difficulties, as well as individuals with problems such as depression or anxiety. Individuals with personality disorder who were self-harming were also discussed in a number of the groups, suggesting this may be another area where ward teams would benefit from additional support and training.

4.5 Implementation of Discussions

Across the 6 wards, some evidence was obtained that the action points agreed at the group discussions were applied and implemented, indicating that the groups are a worthwhile clinical activity that to some extent are able to inform patient care and

management through psychological formulation. However, there was less evidence that intensive interventions were implemented successfully. It may be that more support from the clinical psychology team is needed for these suggestions to be implemented, or that there is a need for additional training in areas such as behaviour modification and the application of reward principles (Donat & McKeegan, 1990).

There are a number of strategies that might improve the implementation of suggestions from case discussions. Some of the suggestions above to improve the successful running of the groups might encourage more of the ward staff team to attend the groups, so that the full team can support one another to implement plans. Uploading the list of agreed action points onto ePJS as case discussion meeting notes might also be helpful as a reminder and prompt for members of the ward teams. It might also be helpful for the psychology team to follow-up after the groups, for example with a telephone call or visit to the ward, to check on progress and whether further support is needed.

It is important to note that there may have been more action taken to implement suggestions than was documented on ePJS. Given that it was impossible to ascertain with complete certainty the extent to which action points were implemented, it is possible that this report represents an underestimate of this.

In summary, this audit indicates that whilst only half of the planned case discussion groups ran successfully, good feedback was obtained from staff indicating that the groups are acceptable to staff members and useful to those who attend. Certain themes were discussed in these groups multiple times, suggesting that in future the clinical psychology team could consider offering some specific teaching or training in these areas. Finally, for more than half of the cases discussed, there was documented evidence that at least some of the action points agreed in the group discussions were implemented. A number of ways to improve the implementation of these action points were considered.

4.6 Dissemination of Findings

It was considered important to disseminate the findings of this report, particularly regarding the somewhat low uptake and implementation of action points, in order to ascertain the reasons for these difficulties and identify strategies to overcome these, and so an opportunity to meet with ward managers and discuss the findings of the report was identified. A summary of the findings of this report was

presented to the managers of each ward at a ward managers' meeting (see Appendix 3). At the outset of the meeting, the rationale and aims of the groups were clarified, and the aims of this evaluation were described. The positive feedback received from staff members about the groups was highlighted, to emphasise that the groups are an important clinical activity that is valued by MDT members.

The findings of this evaluation were presented verbally, and discussion was facilitated about three key areas: improving attendance, improving implementation, and meeting team members' needs in terms of training, information provision and opportunity for reflection on clinical practice. A number of suggestions for improving the groups and the implementation of discussion points were made, and ward managers were asked for their perspective regarding the obstacles to the successful running of the group and potential strategies to overcome these difficulties.

A number of strategies to improve the case discussion groups were agreed upon at this meeting. Ward managers agreed to present the findings to their teams at ward business meetings, in order to identify obstacles to attendance, problem-solve around these obstacles, and encourage all staff members to attend these groups. The summary report was also circulated by email to all team members. The difference between case discussion groups and other staff support groups on the ward was clarified, as ward managers indicated that confusion sometimes prevented staff members attending. It was agreed that temporary and bank team members could attend the groups, given the low number of permanent staff on the wards. The scheduling of the groups was discussed, to ensure that the time of the group allowed as many staff members as possible to attend, and the ward managers agreed to enter the dates of the next 6 months' of groups to the ward diaries. It was agreed that the ward teams would be prompted a few days before each group, so that an appropriate case could be identified and both the ward and psychology teams could prepare in advance for the discussion. Finally, it was proposed and agreed that the psychology team facilitators would upload the list of agreed action points onto ePJS as case discussion meeting notes, as well as circulating these actions by email, to hopefully improve the implementation of these discussion points.

4.7 Impact on Service

Overall, it seems that even in this introductory period, there is some evidence to suggest that the groups were meeting their stated aims, both from the perspective of

the participating staff members, but also in terms of objective evidence of their impact on patient care and management. The findings were communicated clearly but sensitively, providing a forum for discussion about ways to improve the groups and increase their impact on patient care. Following the meeting, the psychology team and ward managers agreed on a number of strategies to improve the uptake and utility of the groups, noted above. The psychology team and ward managers also agreed that they would like to increase the frequency of the groups to bi-weekly. It is hoped that completing this audit and disseminating the results to the relevant teams will have served to underline the purpose and value of the groups to the ward MDTs, and will have a genuine and lasting impact on this important indirect intervention on the inpatient acute wards.

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Appendices

6.1 Appendix 1: Feedback Form.

Case discussion group feedback

This questionnaire will give us feedback on your experience of the case discussion group so we can evaluate its impact

Date: _____ **Ward:** _____

Please state how much you agree with each of these statements by circling the number that best matches your level of agreement:

1. The discussion was useful

1	2	3	4	5
Not at all	A little bit	Somewhat	Yes quite a bit	Yes very much

2. I feel I have more understanding of the client than I did before the discussion group

1	2	3	4	5
Not at all	A little bit	Somewhat	Yes quite a bit	Yes very much

3. Ideas from the discussion could be taken forward and incorporated into the care plan

1	2	3	4	5
Not at all	A little bit	Somewhat	Yes quite a bit	Yes very much

4. I feel I have more knowledge of how to manage challenges relating to this client than I did before the discussion group

1	2	3	4	5
Not at all	A little bit	Somewhat	Yes quite a bit	Yes very much

Thank you

If you have any other comments about the case discussion group, how it could be improved, whether or not you thought it was helpful, etc, please state below.

YOUR COMMENTS

6.2 Appendix 2: Table of Action Points

Table 5

Action points and evidence of implementation in ePJS records for each service user discussed

Case	Suggested changes	Summary of evidence of implementation
S1.1	- Only interventions staff have time/ manpower to complete (e.g. time out but for 5 minutes instead of longer periods). - Goal-orientated behavioural modification chart (star chart). - Daily 1:1 with nursing staff. - More activities when possible. - Offer weekly psychology sessions.	Patient was encouraged to attend ward activities, e.g., Occupational Therapy. Psychology referral made and 3 sessions attended. Unclear whether time-outs reduced in length. No evidence of chart being created/ completed. No evidence of patient being offered or taking up 1:1 sessions.
L3.1	- Introduce simple care plan based on behavioural principles; provide patient with a copy. - Graded withdrawal response to demands. Use explanation initially, if continues to ask questions use a shorter reply and eventually no response. - Encourage patient to use 1:1 each shift to express concerns. - Discuss goals (e.g., getting off the ward and gaining leave) and what needs to happen to achieve these.	Evidence of 1:1s being used effectively. Contract agreed and given to patient. No further notes relating to this indicating whether staff/ patient used contract on daily basis. No evidence of graded withdrawal response being used or of discussion about goals towards discharge.
S1.2	- Review medication; may need to be given at different time to reduce evening distress. - Contact family and encourage to visit; useful source of information regarding previous history and of extent of burden of care for mother. - Be vigilant to her behaviour and try to engage her in activities before she starts to respond to voices.	Staff tried to arrange to meet family. However, patient denied having any living family members despite some evidence to the contrary. No evidence staff pursued this further. Unclear if medication reviewed. No evidence of preventative approach being taken to minimise responding to voices.
JB.1	Work alongside patient to reduce the distress around her beliefs, e.g., ask 'the director' to leave her alone, tell her that while we	Evidence that Occupational Therapists actively encouraged patient to participate in activities. Documented that 1:1s with nurses

	cannot see or hear the director we would really like to support her in this. Offer to help her write a letter to director, etc. • Offer patient joint sessions with a psychologist and a member of staff to discuss and make sense of her worrying beliefs. • Encourage patient to participate in activities to maintain balance and manage stress.	offered. However, patient did not take these up. No evidence of staff working with her around her distressing beliefs. No evidence that joint sessions offered. Unclear whether ward staff offered psychology sessions.
JB.2	• Patient's negative behaviours may elicit care so staff should create positive behavioural care plan to have this function met through other means, whilst not reinforcing self-harm and aggressive behaviours. • Support use of other strategies to get her through difficult periods without unhelpful behaviours, e.g., distraction and conversation, visualisation exercise, reading recovery stories. • Reframe and plan for discharge as a means of getting the best and most helpful level of care and support.	Staff attempted to use distraction and conversation when patient experienced urge to self-harm, with mixed success. Staff, psychologist and hostel worked together to create plan for discharge including behavioural plan and crisis plan, and plan for future admissions. No evidence that care plan created to reward positive behaviours and prevent negative behaviours being reinforced.
L3.2	• Aggressive behaviours may function to help patient feel "in control" and "safe" while in hospital, so staff should provide opportunities to gain control in some aspects of his care, e.g. gaining unescorted leave or chairing a planning meeting. • Staff should attempt to engage patient on issues not relating to his health to gain a clearer picture of his interests and goals and help inform his care plan (e.g., he has told staff that he likes football). • Offer patient the opportunity to express his thoughts and feelings with someone neutral. This could be offered the inpatient psychologist in the	Evidence that the patient was given more privileges including increased leave. A psychologist attended the ward to meet with the patient. However, patient refused to meet with psychologist. No evidence of care plan/ agreement being drawn up to address issues discussed.

	first instance but if this is not acceptable to him it may be possible to get a peer support worker to spend some time with him. • Some staff members have found that validating his feelings but letting him know that he still has choice and control is helpful, using phrases such as “I know it’s difficult for you being here, but this is where you are and you need to work with us so we can get you to where you want to be”.	
L3.3	• The patient appears to respond well to time-out so this could form part of his care plan. If staff notice him becoming aroused they should bring him to his room and explain why he has to remain there for a little while (normally 5-10 minutes is sufficient). • Staff should explore with care coordinator whether safeguarding procedures need to be started as ward-staff report that he sometimes says to them that his family are taking his money and there are reports that numerous family members live at his property. • The patient appears to enjoy the ward routine and helping out staff. We have little knowledge of how he spends his time in the community so perhaps this could be explored with him, his family and his care coordinator. Planning structured, meaningful activities in the community may aid his recovery.	Occupational Therapy referral made to explore meaningful activities. Family member also invited to ward round. Time-out used occasionally. However, no evidence of behavioural care plan involving time-out, although No evidence that safeguarding explored.
JD.1	• Patient may find his physical and memory problems embarrassing, which might explain why he becomes angry with staff. Staff should be mindful of this and be a little	No changes evident on EPJS notes.

	more subtle in their approach, for example bringing clean pyjamas and towels to his room but not actually request that he has a bath there and then. He could also have a chart on the wall in his room where he can document when he has a wash and change of clothes. • The patient has dementia so may struggle to retain new information. New information should be presented to him many times and in different formats (verbal and written). • Staff members have noticed that he is very interested in current affairs and his bible. He should be encouraged to read daily newspapers and staff should try to engage him in topical conversations.	
RW.1	• Working with the patient to “get around” some of her worrying beliefs may help to reduce her challenging behaviours. For example, encouraging her to use baby wipes or bottled water to wash with may be helpful in managing her contamination fears in the short-term. • Staff should allow the patient to maintain her personal space, particularly when she is feeling distressed, as invading her personal space causes her a lot of anxiety. Keeping this in mind may help her to continue to feel safe. • Previous reports suggest that the patient may have some cognitive difficulties. She may find it difficult to process, retain and respond to complex pieces of information. Providing important information to her (such as information concerning her medication and care plan) in a number of different formats	No documented changes in approach (1 week after the case discussion the patient was transferred to the psychiatric intensive care unit (PICU)).

	may be helpful. For example, staff could ensure they use short sentences and supplement written information with diagrams or pictures. • The use of praise may serve to reinforce positive behaviours. Staff could compliment her when she washes or when she gets through a shift without aggression.	
S2.1	• Offering the patient the opportunity to express his worrying thoughts and feelings with someone neutral may be helpful. The patient will be offered psychology sessions while he is an inpatient as a means of providing this. • One hypothesis is that a number of his actions such as not washing and refusing to give personal information to others serve an important function through enabling him to gain a sense of safety. Staff could work with the patient to devise practical written tips for maintaining a sense of safety. For example, broaching the subject with phrases such as: "I can see it's really important to you to keep professionals/ authorities off your back and to have your freedom, but some of the things you do actually have the opposite effect. For example, not washing for weeks only means that people will become concerned about you and hassle you to wash" • Staff could prepare a list/chart of practical written tips (e.g., "Washing at least once every few days will mean that professionals give you your own space and don't hassle you to keep clean"). • The patient and his care co-	Staff implemented a graded exposure approach to discharge the patient to a hostel, starting with a short visit, followed by a visit over a meal time. The MDT made a referral to psychology and the patient was offered psychology sessions. The psychologist attended the ward 3 times to attempt to meet with the patient. However, the patient left the ward each time just before the session was due to start. No documented evidence that approach to the patient's self-care changed; staff used the same response of repeatedly asking him to wash with little success. No evidence that the care coordinator had sessions off the ward.

	ordinator could have sessions off the ward to help to rebuild and strengthen their relationship. • Using a graded exposure approach to facilitate discharge to a hostel may be a helpful way forward. This could be carried out by ward staff members with whom the patient has a good relationship.	
JD.2	• A consistent response to his demands based on behavioural principles may help the ward to manage the impact which the patient's behaviours have on the ward. • If he experiences the racing thoughts and "high alert" feelings he has described previously and requests medication he can be offered a session with a ward psychologist to explore other ways of managing these difficulties. • When he becomes challenging and makes demands and complaints, the patient could be offered the opportunity to discuss his concerns in a clear, boundaried one-to-one session. If he accepts this, reinforcing this behaviour with praise may be helpful. • The patient often engages well in ward based activities. Encouraging him to attend activities which he can also access as an outpatient, such as groups at the CLC may provide another environment in which he is able to get his needs met.	No changes documented; patient was discharged 4 days after the group.
S2.2	• The ward could consider referring the patient and his family for family intervention work in the community. In addition to this it may be possible for some of this work	No changes were documented. The patient was transferred to another ward 3 weeks after the group.

	to be started on the ward. Ward staff could facilitate family sessions in which the patient and his family are encouraged to listen to each-others perspectives. The inpatient psychology team would be able to co-facilitate this with ward staff if this would be helpful. • The patient appears to be socially isolated when in the community and to enjoy the social interaction element of being on the ward. Linking him into local services which he can use as both an inpatient and an outpatient may be helpful, for example, the gym and the CLC. • Attempting to use some motivational interviewing techniques during conversations with the patient about his future and his substance misuse may be beneficial. For example, highlighting the fact that he is currently enjoying a good rapport with his family, but that this may be difficult to maintain if he is using drugs heavily in the future.	
RW.2	• Staff could explore new ways of giving the patient a sense of control and feeling of safety. • Offering her opportunities to gain control in some aspects of her care may be beneficial, e.g., gaining unescorted leave.	No actions in line with recommendations were documented.
S2.3	• Introducing a simple care plan based on behavioural principles may be a helpful way forward for any future admissions. Staff members on the ward know the patient well and have ideas about goals that may motivate him to stick to any such plan (e.g. one-to-one sessions, drama workshops, football). • Finding goals that the patient is motivated to work towards in	No changes were documented; the patient was transferred to PICU same day.

	the community may help to increase his motivation to get out of hospital. For example, manageable goals which meet his need for social interaction and are in line with his interests, such as the football and recovery initiative. • Psychological work may be appropriate in the future to support the patient to reflect on his mood and behaviours and the impact these have on his life.	
JB.3	• The patient may respond better to rewards and praise (i.e., positive reinforcement) than to punishment. Privileges such as access to her property, use of the internet, leave, etc, could be given as conditional rewards, e.g., when a certain number of shifts are completed with no instances of self-harm. • The immediate priority is managing the wound on her arm, so staff could offer rewards/ praise if she has treatment on her arm and takes the antibiotics for the infection. The patient appears to feel undeserving of the care and medicine needed to treat the wound, and so making certain privileges or incentives conditional on her doing so may be helpful. • Rewards need to be tailored to the things the patient needs and values, e.g., PRN medication to help her sleep through the night without being disturbed by nightmares and flashbacks. • Staff should try to set aside time separate from ward round to sit down with the patient and agree a contract, where some of the consequences of her behaviours, including both rewards and potential punishments, can be	Contract drawn up with the patient. Staff attempted to use positive reinforcement with the patient e.g., to encourage attendance at A/E and taking antibiotics. Staff initiated 1:1 time with the patient regularly. The patient was encouraged to attend activities e.g., art and dance, and was given praise in these contexts.

	agreed. If she does not want to do this with the Drs or with male staff, the inpatient psychology team could come along and help with this. • A goal-orientated behavioural modification chart (e.g., star chart) could be set up with the patient to ensure that she is rewarded and praised for positive behaviour and for the absence of behaviours like self-harm. The psychology team can provide a template for this if it would be helpful. • Giving the patient praise and positive feedback in general may also be helpful, and she may particularly benefit from activities that provide a context for this, e.g., activities that she is skilled at like art, music and dance. These activities may also serve to lift her mood and distract her from urges to self-harm.	
S1.3	• Inpatient psychology team to support ward occupational therapist to devise a behavioural reinforcement plan with the patient.	Documented in ward round notes that a behavioural management programme was devised and monitored closely, involving rewards for certain behaviours (e.g., a 1:1 cookery session). Evidence that when patient behaved in challenging or threatening way, the nursing staff reminded her of the plan and that her behaviour would be recorded. Event notes indicate this was effective in reducing some problematic behaviours and that the patient seemed to benefit from ongoing feedback regarding what she is doing well as well as areas where she can improve. However, a few weeks later in the ward round it was decided that the plan involving positive reinforcement such as praise and agreed rewards such as cooking sessions was too complex and a

		new plan was devised based on earning leave in exchange for not performing behaviours e.g., removing clothes, aggression.
JB.4	• Help her to develop more appropriate coping strategies rather than simply trying to stop her from self-harming. • Staff should encourage the patient to try out a number of different coping strategies so that she can develop a list of what works best when (information given to staff in the group which will be uploaded onto the shared drive). • The patient should be encouraged to write a contract with the ward staff about managing her self-harm – what is acceptable self-harm (e.g. cutting with a clean razor), what is not acceptable self-harm (e.g. insertion); what is acceptable management (e.g. come to staff for clean dressing), what is not (e.g. cutting in a public space or showing wound to other patients). The contract will give the patient a much needed sense of control. • The patient's community psychologist may also be able to assist with devising a management plan as she may be working with the patient on specific alternative coping strategies.	Staff shared info about coping strategies with the patient, and followed this up by referring her to the information and discussing it with her when she expressed the urge to self-harm.
S1.4	• At the start of each shift the allocated nurse should let themselves be known to the patient and inform her that she is entitled to a 15	Not possible to implement fully as put into supervised confinement and then transferred to forensic ward after incidents (< 1w later).

	minute one to one session to discuss difficulties. • The primary/associate nurse should ensure a weekly structured session as well. • When the patient approaches staff with requests she should be directed to her allocated nurse. • Staff should ensure that they allocation between then so that they can attend to her needs without 'burn-out'.	
L3.4	• Proactive Strategies to use during all shifts: Informing him that he has a 15 minute 1:1 each shift to use to express his concerns etc. • Use RAID principles (Reinforce Appropriate Ignore Disruptive) – try to ignore his disruptive behaviour as far as possible. • If he becomes too aggressive then time him out in his room for 5 to 10 minutes but do not use touch to calm him down as this will reinforce his behaviour. • If he is being sexually inappropriate member of staff should clearly state this and immediately remove themselves from the situation (effectively depriving him of their company) and not get drawn into any discussion with him about his view of the situation. • The patient's thinking is very black and white so staff should be very consistent in their approach	Ward not able to implement these strategies – problems escalated and patient was transferred to a specialist unit for further assessment and specifically for behaviour analysis and psychological assessment.

	to him.	
RW.3	• The patient will try to do her best to 'please' staff (e.g. by attending suggested activities at CLC or on the ward) rather than do an activity that she may enjoy. If she attends the activity she is not likely to enjoy it as she was 'forced' to do it. Alternatively, if she refuses the activity after having agreed to go then she feels like she has failed. • It is therefore important that she has clear guidelines as to what is expected of her (e.g. change into clothes by 9 am) and what is voluntary (e.g. knitting group). • In a similar vein, the patient should write her own care plan so that staff members are not putting pressure on her. Staff should help her devise a care plan with clear, realistic and achievable goals. • As she currently has no access to a mobile phone, the patient should be encouraged to write emails at CLC, letters on the ward or use the ward phone to make contact with her friends. • The patient should be encouraged to attend appointments with her community psychologist. • Discharge planning should be discussed as early as possible so that she has time to mentally prepare for it.	Discharge planning discussed – gradual approach e.g., weekend leave, day patient, and then discharge. Staff helped with realistic goals, e.g., visiting flat, planning treats (like a bath at own flat with nice toiletries). Staff encouraged her to use ward phone and problem-solve e.g., buy a cheap phone while waiting for insurance for her broken phone.

Note. Evidence of actions in line with suggested action points from case discussions are highlighted in yellow.

6.3 Appendix 3: Summary Report Disseminated and Discussed at Ward Managers' Meeting.

Case discussion groups on the Maudsley acute adult inpatient units: An evaluation of uptake, staff feedback, and impact on care and management plans

What are case discussion groups?

Case discussion groups are facilitated by the inpatient psychology team for 1 hour once per month on each ward. They are designed to provide an opportunity for members of the MDT to explore a specific case on the ward from a psychological perspective, in order to facilitate the sharing of knowledge and skills, promote understanding of the needs and difficulties of particular service users, and inform ways to intervene to reduce distress or manage challenging behaviour.

Why do we need case discussion groups?

A number of DoH guidelines and research reports have emphasised the need for increased clinical psychology input to inpatient environments, both in terms of direct work with service users and indirect work with staff. However, there are insufficient resources for the need for psychological interventions to be met through 1:1 working. The New Ways of Working guidance emphasised the importance of clinical psychologists supporting other professionals to deliver interventions, and participating in multi-disciplinary meetings and collaborative care planning. There is little published research to indicate whether case discussion groups are successful in meeting these aims, and so an evaluation of their acceptability to MDT staff members and their success in informing treatment care plans was much needed. We evaluated the groups over a 6-month period (October 2011 - March 2012).

What did we hope to find?

We hoped that staff team members would attend the groups, feedback would be positive, and it would be evident from EPJs that some of the suggestions made in the group discussions were followed by changes in service users' care or management plans.

Did staff teams attend the groups?

Around 50% of the groups ran successfully. Often handover over-ran, or there were staff shortages, double-bookings, or facilitator absence.

Ward	Attended	Cancelled	Percentage (%)
1	4	2	66
2	3	3	50
3	2	4	33
4	4	4	50
5	3	4	43
6	4	2	66

Did staff members rate the groups highly?

Ratings from group attendees on all wards were generally very positive.

Average (Out of 5)	Usefulness of group	Improved understanding	Informed care plan	Knowledge gained	Overall
	4.6	4.3	4.6	4.2	4.4

What did participants say about the groups?

Staff members felt the groups informed practice: “You have ideas from other colleagues on how to deal/ work [with patients] and motivate patients”, “very informative”, “good to think of what we can do in terms of managing people”, “something new to try to manage the care of patients”, “helpful to incorporate some of the plans we’ve tried to start on the ward”.

The groups allowed sharing and mutual support: “Great to have a new perspective and discuss things with the whole team”, “chance to talk with staff and get others' viewpoints”, “very useful suggestions and support”, “get ideas from other colleagues”, “learn from each other what could be done differently”, “alleviate feelings of burn out”, “air views and concerns”.

There was feedback about the style and approach of the groups: “A good opportunity to review a patient holistically”, “[would like] more evidence-based material and structure to presentation”, “good to have time to reflect”.

A number of staff members also emphasised that they would like to have the groups more often, would like more of the team to attend, and would like the team to plan which client to discuss in advance so that everyone can get more background information and familiarise themselves.

Which service users were discussed in the groups?

Service users discussed had a range of diagnoses, although bipolar disorder and psychosis were the most common. The most common presenting problem was aggressive or sexualised behaviour, followed by a refusal to maintain personal hygiene and self-care. The length of admission ranged from 1-210 days (mean = 36). However, a number of individuals had been transferred between wards (mean length of total stay = 171 days).

Did the groups lead to changes in care plans?

In 60% of cases, at least some attempts were made (and documented) to implement the action points suggested. In particular, when staff members were encouraged to make referrals to other services (e.g., psychology, occupational therapy), these referrals tended to be made.

In 40% of cases, there was no documentation to indicate that action points had been implemented. Action points that involved more highly intensive action (e.g., behaviour management plans and reward charts) tended not to be completed by ward staff, or were discontinued after a short period.

Unfortunately on a number of occasions, the service-user was either discharged or transferred within 1-2 days leaving little opportunity to implement the suggestions made.

What can we do to maximise the benefits of case discussion groups?

- Identify reasons for poor attendance and identify strategies to overcome these?
- Agree to prompt teams to prepare specific questions about a client in advance?
- Provide team with evidence-based material/ resources after the groups?
- Additional training, for example about behavioural principles?
- Upload the list of agreed action points onto ePJS as case discussion meeting notes?
- Follow-up after the groups to check if further support is needed to implement plans?
- **Any other suggestions?**