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Daily Hassles, Uplifts, and Time Use in Individuals With Bipolar Disorder in Remission

Rob Havermans, MD, Nancy A. Nicolson, PhD, and Marten W. deVries, MD

Abstract: Although life stress has been shown to trigger relapse in bipolar disorder, little is known about how bipolar patients perceive daily hassles or their positive counterparts, uplifts. We used the experience sampling method to investigate the daily experience of hassles and uplifts in 38 patients with remitted bipolar disorder and 38 healthy controls. Largely because of current unemployment, patients were more often alone and at home and spent less time working and more time in passive leisure activities. Contrary to expectations, the groups did not differ in total frequencies or appraisals of events. Within the patient group, however, those patients with current depressive symptoms and more previous depressive episodes experienced negative events as more stressful. These findings are consistent with hypothesized processes linking depressive symptoms to the generation of stressful conditions or to the reactivation of negative cognitive schemas.

Key Words: Bipolar disorder, stress, daily events, experience sampling method (ESM), time use.

(*J Nerv Ment Dis* 2007;195: 745–751)

In line with vulnerability-stress models of bipolar affective disorder (Johnson and Roberts, 1995), cohort studies have shown that major life events increase the risk of episode recurrence (Ellicott et al., 1990; Hunt et al., 1992) and impede recovery (Johnson and Miller, 1997). A major limitation of these studies is that they have focused exclusively on the role of major life events without examining more frequent sources of stress, such as daily hassles, which could also influence health outcomes (Kanner et al., 1981). The counterparts of daily hassles—so-called uplifts—may also be relevant because they are thought to prevent or attenuate the effects of stress (Kanner et al., 1981). The present study was designed to investigate the daily experience of hassles and uplifts in remitted bipolar disorder. Although we did not study the influence of daily events on the course of bipolar disorder, this information can help to understand how individual dif-

ferences in vulnerability to stress may arise and can be useful in developing interventions to help patients find effective ways of coping with the threat of recurrent illness.

Although daily events have not previously been investigated in bipolar disorder, there are reasons to expect greater exposure to daily hassles and reduced experience of daily uplifts. The residual symptoms and sustained impairments that are common during periods of remission (Coryell et al., 1993; Gitlin et al., 1995; Goldberg et al., 1995; Judd et al., 2002; Paykel et al., 2006) may generate stressful situations and diminish availability of supportive social interactions, as have been reported in persons with unipolar depression (Hammen, 1991; Harkness et al., 1999; Rudolph et al., 2000). For example, 93% of family caregivers of patients with bipolar disorder report moderate or severe levels of burden (Perlick et al., 1999). High levels of expressed emotion in family members increase the risk of relapse (Miklowitz et al., 1988), and the mechanism is likely to involve more frequent or intense daily stress in the form of negative social interactions (Simoneau et al., 1998). Moreover, as in unipolar depression (Teasdale, 1988), previous depressive episodes in bipolar disorder may generate negative cognitive schemas that are reactivated during mild dysphoric states, so that current experiences are interpreted more negatively.

Previous studies have shown that individuals currently undergoing a depressive episode tend to withdraw from daily activities, spend less time working and with friends and more time alone at home, and spend time in passive leisure activities rather than healthy controls (Barge-Schaapveld et al., 1995). Depressed patients are also reported to make more use of avoidance and support-seeking strategies when coping with the stresses of everyday life than do nondepressed individuals (Coyne et al., 1981). Episodes of depression continue to influence daily life activities and coping behaviors even after recovery. Focus groups of individuals recovered from a depressive episode indicated that they actively avoided the demands of work and close relationships out of fear of relapse (Coyne and Calarco, 1995), a result that has been replicated in questionnaire studies (Coyne et al., 1998; Kirk et al., 2000). Given the high risk of relapse and the often devastating effects of full-blown episodes, it can be expected that individuals with a history of bipolar disorder also develop adaptive strategies involving coping and time use to regulate exposure and responses to daily stress.

In the present study, we used the experience sampling method (ESM; Csikszentmihalyi and Larson, 1987; deVries, 1992) to investigate frequencies and subjective appraisals of

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negative and positive events in outpatients with remitted bipolar disorder compared with healthy controls. In addition, we examined whether individual differences in the experience of daily events were related to time use patterns, avoidant and support-seeking coping styles, and clinical features (number of previous episodes and current manic and depressive symptoms).

SUBJECTS AND METHODS

Subjects

Thirty-nine subjects with bipolar disorder were recruited among patients attending lithium clinics in Maastricht and Sittard, The Netherlands. The main inclusion was a primary diagnosis of Bipolar I or Bipolar II Disorder without rapid cycling, as assessed with the Structured Clinical Interview for DSM-IV (First et al., 1996) by a trained research psychiatrist (R.H.). Additional inclusion criteria were age between 18 and 65 years, in a state of partial or full remission for more than 2 months, and under regular treatment including appropriate pharmacotherapy for more than 4 months. On study entry, 16 patients received monotherapy with lithium; the others used various combinations of drugs as follows: lithium ($n = 20$), carbamazepine ($n = 4$), valproate ($n = 2$), antidepressants ($n = 4$), neuroleptics ($n = 7$), and benzodiazepines ($n = 6$).

A control group of 39 healthy subjects in the same age range was recruited through a local newspaper advertisement and available subject pools (this was the same control group as in Peeters et al., 2003). Patients and controls were excluded if they had met DSM-IV criteria for alcohol or drug abuse or dependence within the preceding year. Additional exclusion criteria for the control group were current use of psychotropic drugs, any personal history of Axis I disorder, and any inpatient treatment for Axis I disorder in a first-degree relative. One patient and 1 healthy control were later excluded from the analysis because they failed to meet ESM compliance criteria (see below). The protocol was approved by the local medical ethics committee, and written informed consent was obtained from all subjects.

Measures

Clinical Measures

In the bipolar group, clinical measures were obtained by interview in the week preceding the ESM sampling. The Life Chart Method (Leverich and Post, 1996) provided a detailed history of the course of the disorder, from which the number and nature of previous episodes and the age of onset were determined. Subsyndromal depressive and manic symptoms were assessed with the 17-item Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) and the Young Mania Rating Scale (Young et al., 1978), administered by a trained research psychiatrist (R.H.). The Social Adjustment Scale – Self Report (Weissman and Bothwell, 1976) was used as an overall measure of social functioning.

Questionnaires

Coping styles were assessed with the Utrecht Coping List (Schreurs and Van de Willege, 1988), a 44-item self-

report questionnaire with 7-factor analytically derived subscales for assessing habitual coping styles. Reliability and validity of the Utrecht Coping List have been shown to be satisfactory (Sanderman and Ormel, 1992). Based on findings from studies of currently and previously depressed individuals (Coyne et al., 1981, 1998), the current analysis focused on the subscales *seeking social support* and *avoidance*. Subjects also filled in the Symptom Checklist (SCL-90; Derogatis et al., 1973; Dutch version: Arrindell and Ettema, 1981); the total score provides a general measure of psychological complaints.

ESM Measures

Daily events and time use in patients and controls were assessed with ESM during 6 consecutive days, including 2 weekend days. Subjects wore a wristwatch programmed to emit auditory signals (“beeps”) 10 times a day, at semirandom intervals of approximately 90 minutes between 7:30 a.m. and 10:30 p.m. As soon as possible after each beep, subjects completed a brief ESM self-report form. Responses to open questions were later coded by trained research assistants. An earlier investigation of the reliability of this coding system showed high interrater reliability (Laundis and Koch, 1977), with Cohen’s kappas for categories of events, current activities, social contexts, and locations ranging from 0.90 to 0.96 (van Eck, 1996). Time use patterns are described as the percentages of total ESM reports a subject reported to be engaged in specific categories of activities (work, household chores, social activities, active leisure like sports, passive leisure like watching television or reading, or other activities including “doing nothing”); social contexts (alone, with family members, friends, colleagues, or others); and physical locations (own home, homes of family or friends, workplace, public places, or other). At each beep, participants were asked briefly to describe a positive and negative event or situation that may have taken place since the last ESM report. Examples of reported negative events are “a squabble with my children,” “arrived too late at work,” and “favorite soccer team lost a game;” reported positive events included “nice phone call with friend,” “pleasant dinner with partner,” and “saw a good movie on TV.” Although subjects were instructed to report only events or situations that actually took place in the preceding interval, some event reports clearly referred to internal states (e.g., ruminations about past events or anticipated events, physical symptoms) with no link to a current external situation. Such internal events were identified by team consensus following pre-established criteria; they represented 37 events of 1002 total events reported by bipolar patients and 52 events of the 1022 events in the control group. Internal events were excluded from the analysis. Subjects rated the valence (unpleasantness for negative events, pleasantness for positive events), stressfulness, and importance of events on 7-point scales (1, not at all to 7, very).

ESM forms completed more than 20 minutes after a beep were considered invalid. Subjects with fewer than 20 valid ESM reports (1 patient and 1 control) were excluded from the analyses. On average, patients completed somewhat

fewer valid reports than controls (patients: 78%, $SD = 13\%$; controls: 87%, $SD = 9\%$; Mann-Whitney U test, $p = 0.002$).

Statistical Analysis

ESM data were aggregated over each subject, with frequencies calculated as a percentage of total valid ESM reports. Differences between groups were assessed with the Mann-Whitney U test. We next performed multiple regression analysis with forward stepwise selection to assess how time use, coping styles (avoidance and seeking support), and diagnosis of bipolar disorder were associated with the frequency and stressfulness of daily hassles and uplifts. Because distributions of event frequency data were skewed, data were first normalized by square root transformations. Additional regression analyses were done with the following clinical variables: the number of previous episodes (to reduce the influence of outlying values we used a median split: ≤ 7 episodes vs. > 7 episodes, with manic and depressive episodes combined); the severity of subclinical depressive symptoms; and the severity of subclinical manic symptoms. Age was included in the analyses to avoid possible confounding of the effects of number of previous episodes. Alpha was set at 0.05 for all tests (2-tailed).

RESULTS

Sample Characteristics

The ESM procedure was completed by 38 patients and 38 controls. As shown in Table 1, bipolar subjects had a lower mean level of education, were less often married or living with a partner, and were less frequently in paid em-

TABLE 1. Sociodemographic and Psychological Measures for Bipolar Patients and Controls

	Patients <i>N</i> = 38	Controls <i>N</i> = 38	Test Statistic	<i>p</i>
Age, mean (<i>SD</i>)	46.2 (9.6)	44.4 (11.7)	$t = 0.74$	n.s.
Sex ratio (M/F)	19/19	15/23	$\chi^2 = 0.85$	n.s.
Education, <i>N</i> (%)			$\chi^2 = 8.20$	0.01
Elementary school	11 (29)	3 (8)		
Secondary school	14 (37)	11 (29)		
Higher education	13 (34)	24 (63)		
Marital status, <i>N</i> (%)			$\chi^2 = 8.94$	0.02
Married or living together	20 (53)	31 (82)		
Never married	11 (18)	2 (13)		
Divorced or widowed	7 (29)	5 (5)		
Work situation, <i>N</i> (%)			$\chi^2 = 30.51$	<0.001
Household	12 (32)	3 (8)		
Regular job or education	8 (21)	32 (84)		
Disabled, unemployed, or retired	18 (47)	3 (8)		
SCL-90 ^a	137.6 (46.9)	110.2 (22.3)	$t = 3.15$	<0.01
Coping styles (scale range)				
Seeking social support (6–24)	18.5 (3.8)	13.9 (3.6)	$t = 5.45$	<0.001
Avoidance (8–32)	22.9 (2.8)	14.9 (3.0)	$t = 12.03$	<0.001

^aThree patients had missing data on the SCL-90.

ployment. They also showed higher levels of psychological complaints (SCL-90) and reported more frequent use of both avoidant and support-seeking coping styles.

Of the patients, 31 had a bipolar I disorder and 7 a bipolar II disorder, with a mean age of onset of 29.6 years (median = 26.5; range 16–61). The median number of previous episodes (manic and depressive) was 7, with a range from 1 to 38 (manic episodes: median = 2, range 0–26; depressive episodes: median = 4, range 0–17). Current age was unrelated to the number of previous episodes (Spearman $r = 0.02$, $n = 31$, $p = 0.93$). Scores on the symptom scales indicated low levels of subsyndromal symptomatology (HRSD: mean = 2.9, range = 0–8; Young Mania Rating Scale: mean = 1.7, range = 0–10). Mean score on the Social Adjustment Scale – Self Report was 1.8 ($SD = 0.5$), indicating a moderate level of social impairment (Weissman et al., 1978).

Time Use

After each ESM beep, subjects described what they were doing, which other people were present, and where they were. As shown in Figure 1, patients spent significantly less time working than controls, more time on passive leisure activities, more time alone, and less time with colleagues. Bipolar subjects also spent significantly more time at home than controls and less time at the workplace. These categories are clearly interrelated; subjects who spent more time at home also spent more time alone, more time on passive leisure activities, less time working, less time with colleagues, and less time at the workplace (all $|rs| > 0.41$, $ps < 0.001$).

Frequencies and Appraisals of Daily Hassles and Uplifts in Relation to Time Use and Coping

As shown in Table 2, bipolar patient and control groups did not differ significantly in total frequencies or mean appraisal scores for either negative or positive events. Patients, however, reported significantly fewer work-related events than controls.

In a series of regression analyses, we next examined whether individual differences in time use, coping styles (avoidance and seeking support), or age might help clarify the paucity of significant differences between patient and control groups in daily event frequencies and appraisals. To restrict the number of independent variables, time at home was the only time use variable used as a predictor in the regression analysis, because this variable showed substantial variability and was correlated with other time use variables (see above). Age, diagnosis of bipolar disorder, and avoidant coping had no significant effects and were excluded from the final models. Results indicated that negative events were more frequent in subjects who spent less time at home (R^2 change = 13%, F change = 11.1, $p = 0.001$) and reported seeking social support more frequently as a coping style (R^2 change = 6%, F change = 5.8, $p = 0.02$); the total model thus accounted for 19% of the variance in the frequency of negative events ($F = 8.8$, $df = 2.73$, $p < 0.001$). A similar pattern was observed for positive events, with more frequent events in subjects who scored higher on coping by seeking support (R^2 change =

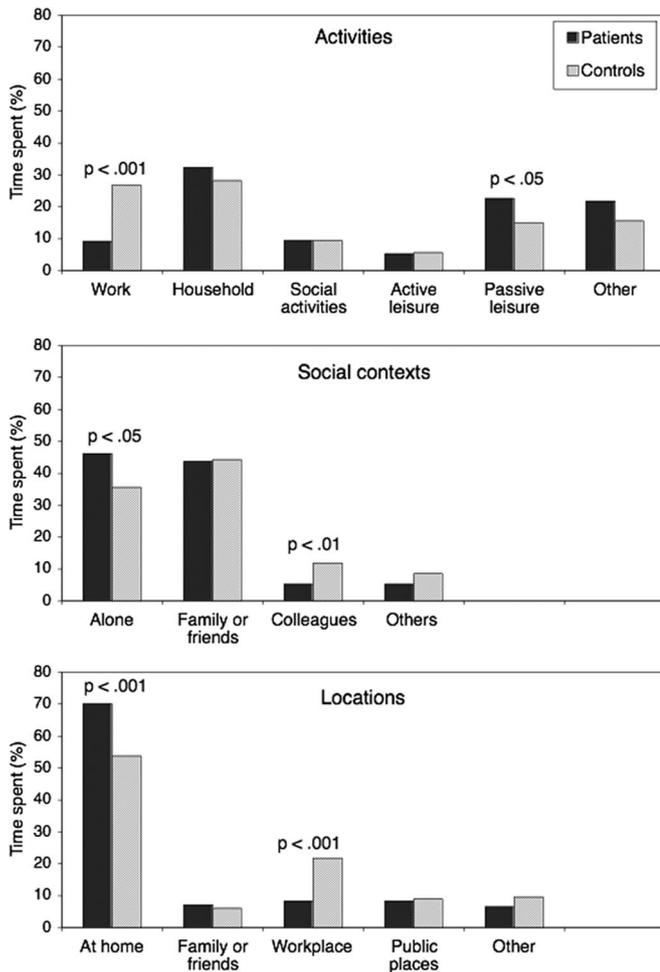


FIGURE 1. Time use in remitted bipolar patients and controls. Time spent in each category of activity, social context, and location was first calculated as a percentage of an individual subject's total valid experience sampling method reports. Bars indicate the mean percentages for bipolar ($n = 38$) and control ($n = 38$) groups. Between-group differences were assessed with Mann-Whitney U tests.

16%, F change = 14.2, $p < 0.001$) and who spent less time at home (R^2 change = 8%, F change = 7.9, $p = 0.006$). Together these 2 variables explained 24% of the variance in positive event frequency ($F = 11.7$, $df = 2.73$, $p < 0.001$). None of the independent variables contributed significantly to the regression models of the stressfulness of negative and positive events. In summary, time use and support-seeking coping were related to the number but not the stressfulness of daily events. However, even when corrected for differences in time use and coping, the number and appraised stressfulness of daily events in patients and controls were similar.

The Influence of Employment on Time Use and Experience of Daily Events

Because it is plausible that differences in time use and exposure to work-related events between patients and controls may simply reflect differences in employment status, we performed additional analyses on employed (regular job or

TABLE 2. Frequencies and Appraisals of Daily Events in Bipolar Patients and Controls

ESM Measure	Patients	Controls
Negative events		
Frequencies ^a		
Total	16.2 (18.0)	15.4 (13.2)
Work*	2.0 (4.5)	3.9 (5.2)
Family and friends	5.1 (6.7)	4.3 (4.5)
Household	2.6 (3.9)	1.5 (2.8)
Leisure	1.3 (2.4)	1.8 (2.4)
Other	5.3 (9.3)	3.9 (5.1)
Appraisals ^b		
Unpleasantness	5.0 (1.3)	4.9 (0.9)
Importance	4.2 (1.5)	4.2 (1.2)
Stressfulness	4.0 (1.7)	3.6 (1.4)
Positive events		
Frequencies ^a		
Total	35.5 (26.0)	32.7 (25.7)
Work†	3.4 (7.3)	6.2 (7.8)
Family and friends	12.9 (10.2)	12.0 (10.9)
Household	4.1 (6.9)	3.2 (4.2)
Leisure	9.4 (10.9)	7.1 (8.1)
Other	5.7 (7.5)	4.2 (4.7)
Appraisals ^b		
Pleasantness	5.8 (0.7)	5.9 (0.8)
Importance	5.6 (1.1)	5.3 (1.0)
Stressfulness	2.0 (0.9)	1.9 (0.8)

^aFrequencies are expressed as mean (SD) percentage of valid ESM responses.
^bAppraisals were rated on 7-point scales and are presented as mean (SD). Mean appraisal scores were calculated on subgroups of participants because 2 patients and 2 controls reported no negative or positive events during the sampling period, and 3 additional patients reported no negative events.

* $p < 0.05$.
 † $p < 0.01$ (Mann-Whitney U tests).

education) and unemployed subgroups (see Table 1). The resulting 4 subgroups were compared using Kruskal-Wallis tests on event frequencies, event appraisals, and activity patterns. No between-group differences were found for total frequencies of negative and positive events or mean appraisal scores. As expected, the 4 subgroups differed significantly on frequencies of negative and positive work-related events and on work-related time use variables (time spent working, time at the workplace, and time with colleagues) ($p < 0.001$). Moreover, significant differences were found for time spent on household chores ($p < 0.05$), passive leisure time ($p < 0.05$), and time spent at home ($p < 0.001$). We next performed 2-sample Mann-Whitney tests to identify which subgroups differed from each other. The results indicated that all differences in work-related event exposure and time use were between employed and unemployed patients or between employed and unemployed controls. No differences were found between the 2 employed subgroups or between the 2 unemployed subgroups. These results suggest that patients, as a group, are less frequently exposed to work-related events than controls and have different time use patterns as a consequence of their being less frequently employed. To gain additional insight in potential factors that may influence

employment status in bipolar patients, we performed additional analyses comparing employed and unemployed patients on clinical characteristics and coping styles. Although there was a trend towards more previous manic episodes in unemployed patients (median = 2.5, range = 0–25 vs. median = 1, range = 0–5; Mann-Whitney *U* test; $p = 0.051$), no significant differences were found with respect to age, the previous number of depressive episodes, illness duration, severity of current symptoms, social functioning, or use of avoidant and support-seeking coping styles.

Relationship Between Daily Events and Clinical Variables in Bipolar Patients

Failure to detect differences between patients and controls in most daily stress measures may have been due to the considerable heterogeneity in clinical characteristics within the patient group. We therefore conducted additional regression analyses to assess the influence of selected clinical variables on the frequency and stressfulness of daily events. None of these variables showed a significant association with the event frequencies or the stressfulness of positive events. However, the stressfulness of negative events was positively related to both HRSD-scores (R^2 change = 38%, F change = 18.7, $p < 0.001$) and the number of previous episodes (R^2 change = 8%, F change = 5.5, $p = 0.04$) (total model: $R^2 = 46%$, $F = 12.7$, $p < 0.001$). To determine whether the influence of previous episodes was polarity specific, we performed additional univariate regression analyses with the number of depressive episodes (≤ 4 vs. > 4) and the number of manic episodes (≤ 2 vs. > 2) entered separately. Patients with more than 4 previous depressive episodes experienced negative events as more stressful ($R^2 = 12%$, $F = 4.2$, $p = 0.05$), whereas the number of previous manic episodes had no significant effect.

DISCUSSION

Contrary to expectation, individuals with bipolar disorder in remission reported similar frequencies of daily hassles and uplifts compared with controls and did not differ in their perceptions of events in terms of intensity, importance, or stressfulness. Higher frequencies of daily hassles have been reported in current major depression (Ravindran et al., 1995) and subclinical cyclothymia (Lovejoy and Steuerwald, 1995). In these studies, events were assessed retrospectively with a checklist completed at the end of each day (Lovejoy and Steuerwald, 1995) or over the past 4 weeks (Ravindran et al., 1995), whereas the present ESM study measured events repeatedly over the day, a method that is less susceptible to recall biases (Eckenrode and Bolger, 1995). Interestingly, a recent ESM study in patients with current unipolar depression also found no differences from healthy controls in the frequency of negative daily events, but depressed patients did experience fewer positive events and rated both negative and positive events as more stressful (Peeters et al., 2003). Taken together, the results of these studies imply that both differences in study populations and differences in event assessment may have contributed to the discrepant results.

Subsyndromal symptoms and previous episodes seem to be related to stressful events; the findings indicate that these relations are polarity specific, as bipolar patients with higher scores on the HRSD and more than 4 previous depressive episodes rated negative events as more stressful, whereas current subsyndromal manic symptoms and previous manic episodes had no significant effects. These findings are consistent with the hypothesis that past and current depressive symptoms generate stressful events and conditions (Hammen, 1991; Harkness et al., 1999; Rudolph et al., 2000). However, because stressfulness ratings of events were based on subjective reports, we cannot rule out that similar daily events are appraised as more stressful in patients with more past and current depressive symptoms. This alternative explanation is in line with the hypothesis that individuals with previous depressive episodes have a dormant set of negative and depressogenic cognitions that become reactivated when the individuals are in a mildly depressed mood (Segal et al., 1996; Teasdale, 1988). Although this hypothesis was formulated for recovered patients with recurrent unipolar depression, it is reasonable to assume that similar processes occur in bipolar patients with recurrent depressive episodes. Both subsyndromal depressive symptoms and a high number of previous episodes have been associated with an increased risk of relapse in bipolar disorder (Coryell et al., 1998; Keller et al., 1992; Kessing et al., 1998). Future studies are needed to clarify whether the negative prognostic impact of these clinical variables might be mediated by the actual occurrence or the perception of stressful daily events.

Time use comparisons showed that bipolar subjects were more often alone and at home, worked less, and spent more time in passive leisure activities, which could be attributed to their being less frequently employed. The current study shows that this sheltered lifestyle may well reduce exposure to daily hassles but may simultaneously limit exposure to daily uplifts. These patterns could be the result of active avoidance of the potential demands and stresses of work and social relationships, as has been reported by individuals recovered from an episode of depression (Coyne and Calarco, 1995; Coyne et al., 1998; Kirk et al., 2000). However, the current finding that employed and unemployed patients had similar scores on avoidant coping points to the possibility that the sheltered lifestyle of remitted bipolar patients simply reflects the loss of work and close relationships that are common sequelae of bipolar disorder (Dion et al., 1988; Goldberg et al., 1995).

Results further indicated that seeking social support was associated with more frequent positive events, as well as with increased exposure to negative events. It seems plausible that the interaction between seeking support and daily hassles and uplifts will depend on the availability and quality of close relationships. This issue deserves further attention, as previous studies have shown that bipolar patients with high levels of perceived social support recover more quickly from the index episode and show fewer depressive symptoms during follow-up (Cohen et al., 2004; Johnson et al., 1999). The results of these studies did not support the hypothesis that social support buffers the negative impact of major life events

on the course of bipolar disorder. The current findings suggest an alternative hypothesis: the beneficial influence of social support on the course of bipolar disorders may be based on its being an important source of positive daily experiences. Little is known, however, about the influence of daily uplifts on the course of mood disorders and its relation to social support levels.

The findings of the present study have possible implications for treatment. Recent studies have shown that mindfulness-based cognitive therapy (MBCT) is effective in preventing recurrence in recovered patients with unipolar depression with 3 or more previous episodes (Teasdale et al., 2000; Ma and Teasdale, 2004). MBCT is designed to teach patients to be aware of ruminative patterns of negative thinking reactivated by dysphoria and respond to them in an intentional and skillful manner (Segal et al., 2002). The present study suggests that negative thinking patterns may also be present in remitted bipolar patients with dysphoric mood; it would thus be interesting to investigate whether MBCT is also effective in preventing depressive recurrences in these patients. Other psychosocial treatment programs for patients with bipolar disorder contain elements intended to restore occupational functioning and counteract social isolation (for a review see Jones, 2004). The possibility that these interventions increase exposure to negative as well as to positive experiences underscores the importance of combining them with training in communication and stress management skills.

Limitations

The study had a number of limitations. First, an objective validation of the reported events was not feasible, and it was therefore not possible to evaluate the accuracy of an individual's perceptions. Second, although we have interpreted the regression results in terms of the influence of time use, coping, and clinical characteristics on the experience of daily events, causal relationships cannot be established given the cross-sectional design of the study. Third, statistical comparisons of employed versus unemployed subgroups may not have had adequate power to detect significant patterns, in particular due to the small numbers of employed bipolar patients ($N = 8$) and unemployed control subjects ($N = 6$).

Conclusion and Future Directions

Using the ESM to assess daily events, we found no evidence that outpatients with remitted bipolar disorder experienced more frequent daily hassles and fewer daily uplifts than healthy controls. These negative findings may reflect group differences in time use and coping styles. Bipolar patients with residual depressive symptoms and a higher number of previous depressive episodes found negative events to be particularly stressful, which may contribute to their vulnerability for recurrence. Prospectively designed studies, however, are needed to clarify whether daily events influence the course of bipolar disorder and the mechanisms through which this may occur. Finally, more information is needed about other aspects of daily stress, such as emotional and neuroendocrine reactivity to daily events, which might be more sensitive indicators of stress vulnerability. Other ESM

studies have shown that mood responses to daily events in patients with schizophrenia (Myin-Germeys et al., 2001) or current depression (Peeters et al., 2003) differ from those in healthy controls. Future analyses of data collected in remitted bipolar disorder and control groups will therefore focus on differences in emotional and cortisol reactivity to daily events.

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