

Prodromes and Coping Strategies in Patients with Bipolar Disorder

Development and Psychometric Examination of Four Test Modules

Beatrix Breit-Gabauer^a Andrea Berg^a Sabine Demelbauer^a Andrea Schrott^b
Itha Stampfer^a Gerhard Lenz^a

^a Univ. Hospital for Psychiatry and Psychotherapy, Medical University of Vienna,

^b Statistikambulanz KG, Vienna, Austria

Keywords

Bipolar affective disorder · Coping · Coping with Depression Course · Questionnaire · Prodromes · Patient teaching · Prevention · Psychoeducation

Summary

Background: The aim of this study was to collect known items and develop categories to assess prodromes and coping strategies in bipolar affective disorders. The practical use of such a tool is to estimate more precisely a patient's knowledge and skills to recognize early a rising episode and to develop appropriate coping strategies, and treatment measurement. **Methods:** 94 patients with bipolar affective disorder according to ICD-10, who were participating in a study on cognitive behavior therapy in bipolar disorder as an adjunct to ongoing pharmacotherapy, were questioned by use of a 4-module structured interview: all prodromes and coping strategies reported by the patients were collected as items and categories were established. This process was evaluated by 2 raters. **Results:** Interrater-reliability for the classification of categories as initial stage in the development of a questionnaire was sufficient (kappa-values ranged between 0.66 and 1.00) Marker items for all 4 domains (prodromes of mania and depression, coping strategies in mania and depression) could be identified. **Conclusions:** The items and categories found can be used as a basis for the development of a questionnaire that can assess the prodromes and coping strategies before and after a cognitive-psychoeducational intervention.

Schlüsselwörter

Bipolare Störung · Coping · Coping with Depression Course · Fragebogen · Frühwarnsymptome · Patientenschulung · Prävention · Psychoedukation

Zusammenfassung

Hintergrund: Das Ziel dieser Arbeit war die Sammlung von Items und die Entwicklung von Kategorien, um kognitiv verfügbare Prodromalsymptome und Copingstrategien bei bipolar affektiven Störungen zu erfassen. Die praktischen Vorteile eines solchen Instrumentes sind die bessere Einschätzbarkeit der Kenntnisse und Fertigkeiten von Patienten, um eine sich ankündigende Episode frühzeitig zu erkennen und adäquate Copingstrategien zu entwickeln, sowie die Verlaufskontrolle (Treatment measurement). **Patienten und Methode:** 94 Patienten mit der ICD-10-Diagnose einer bipolar affektiven Störung, die an einer Studie zu kognitiver Psychoedukation bei bipolarer Störung als Zusatz zu einer laufenden Phasenprophylaxe teilgenommen hatten, wurden mit einem Interview aus vier Modulen befragt. Alle berichteten Frühwarnsymptome und Copingstrategien bei Manie und Depression wurden als Items erfasst, aus denen anschließend Kategorien gebildet wurden. Dieser Vorgang wurde durch 2 Untersucher evaluiert. **Ergebnis:** Die Interrater-Reliabilität der Klassifikation von Kategorien als Vorstufe für die Entwicklung eines Fragebogens war sehr gut (Kappa-Werte zwischen 0,66 und 1,00). Es konnten Marker-Items für alle vier Bereiche (Frühwarnsymptome für Manie / Depression, Copingstrategien bei Manie / Depression) identifiziert werden. **Schlussfolgerungen:** Die gefundenen Items und Kategorien können die Basis für die Entwicklung eines Fragebogens sein, um die Vorher-Nachher-Einschätzung von Frühwarnsymptomen und Copingstrategien als Teil einer kognitiv-psychoedukativen Intervention zu evaluieren.

Background

The present study on prodromes of manic and depressive phases and coping strategies during these phases is part of the Vienna Study of Cognitive-Psychoeducational Therapy for Bipolar Disorder [Lenz et al., 2009b]. Prodromes of bipolar disorder are symptoms that are first noticed by the patient – e.g., changes in experience, feeling, thought, or behavior [Molnar et al., 1988; Wong and Lam, 1999]. These ‘prodromes’ are not necessarily identical to the actual symptoms of the disorder. Both duration and intensity vary widely, typically from days to weeks, but in extreme cases from a few minutes to several months. The spectrum ranges from small changes in everyday life (e.g., shopping behavior) to self-injurious behaviors (e.g., promiscuous sexual behavior). The detection of premonitory symptoms of bipolar disorder would make a major contribution to preventing the phases from reaching their highest or lowest points, using medication or prudent handling [Hautzinger and Meyer, 2007].

Many studies suggest that both cognitive therapy and psychoeducational units have positive effects, in combination with medication, especially if premonitory symptoms are detected [Colom and Lam, 2005; Zaretsky et al., 2008]. Detecting such symptoms is likely to be difficult for many patients, because while they do feel a fundamental change, they cannot identify a specific premonitory symptom. This is particularly true for prodromes of depression [Lam et al., 2001]. The inability to recognize premonitory symptoms, as well as their fluctuations and sometimes their short duration, makes intervention difficult [Mantere et al., 2008]. Some studies report the same observation that was made in this study: for some patients, it is difficult to determine when the prodromal phase ends and the actual episode breaks out, especially when the only change is in intensity [Smith and Tarrier, 1992; Hagerty et al., 1997]. The sooner countermeasures are taken in the prodromal phase, the more likely it seems to be able to avert an episode [Jackson et al., 2002].

Within a therapeutic context, knowledge about prodromes and coping strategies would allow the strengthening of specific useful strategies, or the avoidance of harmful ones, and improved detection of prodromes. A method that covers these aspects would also make treatment measurement possible. Specific (German-language) test procedures for this are not available [Wong and Lam, 1999]. Our aim was therefore to develop such a standardized procedure, or a precursor to one. Like the approach of Lam and Wong [1997], we preferred the methodological advantage of personal questioning of the patients in a structured interview, rather than a multiple-choice questionnaire. The arguments for this approach are obvious: in the absence of German-language studies or testing procedures for detecting prodromes and coping strategies in mania and depression, it seemed necessary first to compile, if possible without limitation, the bipolar patients’ recalled perceptions and strategies, to adequately cover the patients’ individual ex-

periences. Previous German-language procedures cover only coping in the broad sense (e.g., the Stress-Coping Questionnaire by Erdmann and Janke and [2008], the Coping Inventory for Stressful Situations by Kälin and Parker [1996], and the Differential Stress Inventory of Lefèvre and Kubinger [2004]).

Patients and Methods

Sample and Study Design

The development of the questionnaire modules was part of the Vienna Study of Cognitive-Psychoeducational Therapy for Bipolar Disorder. The total patient population consisted of 100 persons, all of whom met the ICD-10 criteria for bipolar affective disorder I or II [Lenz et al., 2009a]. Patients were treated for 14 weeks with either cognitive-psychoeducational group therapy, according to Schaub et al. [2004], or Therapy as Usual (TAU) with additional information provided on three occasions. Complete interviews were conducted with 94 patients for this study. All patients were, at baseline, taking ongoing pharmacotherapy, were 18–65 years of age, and had adequate knowledge of German and cognitive abilities (IQ > 80; multiple-choice vocabulary intelligence test MWT-B [Lehrl et al., 1991]). Regular monitoring by a psychiatrist in private practice provided ongoing medical supervision. The study was approved by the Ethics Committee of the Medical University of Vienna and the General Hospital of the City of Vienna (AKH), and meets the ethical standards of the Declaration of Helsinki in its expanded 1975 form and with the additions of 1983, 1989, and 1996 [World Medical Association, 1997]. A written statement of patient information and informed consent was signed by the patient, after receiving instruction. The specific objective of this study was the design and psychometric testing of a categorization schema for detecting the prodromes of mania and depression, as well as coping strategies during manic and depressive phases. The first step was to develop questions, in a structured interview, to facilitate the identification of prodromes and coping strategies. The wording had to ensure broad identification of likely modes of behavior and experience, as well as a high level of patient motivation. On that basis, a comprehensive, theory-based categorization schema had to be developed that would allow unambiguous allocation of patient responses to classifiable values. Each symptom or coping strategy mentioned was evaluated as a ‘yes answer’ to a fictitious item. The validity of the categorization schema had to be verifiable by double-evaluation of all 94 interviews. The third step was to set up the questionnaire i.e., the 4 questionnaire modules in the form of a structured interview that would be conducted by 1 of 4 psychologists. The subsequent analysis was made independently by 2 psychologists, based on the categorization schema. Furthermore, in calculating the psychometric test parameters [Lienert and Raatz, 1998], we examined how many answers in the 4 response modules were relevant (number of items) and whether there were ‘typical’ responses (‘marker’ or difficulty indices). Irrelevant categories had to be removed from the schema. The objectivity of the evaluation was tested against the control evaluation (reliabilities according to Cronbach).

Structured Interviews – Questionnaires on Prodromes of Mania and Depression and Corresponding Coping Strategies

The questionnaire did not have predetermined right or wrong answers. The questions were: ‘What prodromes of mania do you know about? For example, less sleep or no interest in sleeping’; ‘What prodromes of depression do you know about? For example, loss of interest in activities and people’; ‘How do you normally act when you feel a depressive phase coming on? For example, using your job to distract yourself from negative thoughts’; ‘How do you normally act when you feel a manic phase coming on? For example, spending time alone to avoid stimulation.’ The interviewers recorded the reported prodromes and coping strategies verbatim (tape-recording made validation possible). The items identified by

the patients were incorporated, or, where appropriate, similar answers were summarized into a suitable new item. The allocation of items on each scale was made using content criteria.

Statistical Analyses

All statistical analyses were done using SPSS 17.0 software, with the α level set at $p = 0.05$. Means (μ), standard deviation (σ), and range were calculated by descriptive procedures. Difficulty indices refer to the percentage of entries. The internal consistency of the scales was tested using Cronbach's α , and the inter-rater reliability with Cohen's κ . Spearman correlations (one sided) were used for examining retest reliability and validity, and a multivariate analysis of variance (after testing the homogeneity of variances and covariances using Box's M test) to examine differences among the various people administering the test (objectivity of implementation). Mann-Whitney U tests were used to test for differences between the symptoms/strategies identified for mania and depression.

Results

The average age of study participants at baseline was 39.8 ± 11.4 [18–65]; 40.4% were male. 71 of the patients were diagnosed as 'bipolar I,' the other 23 as 'bipolar II.' The average duration of illness was 15.4 ± 11.1 years [1.5–53.9]. 35.1% of patients had no high school diploma; the others did have one. 43.3% rated themselves as 'unemployable,' 37.8% as 'employable,' and 18.9% as 'unemployed.' The average number of episodes of illness in the 12 months prior to the start of the study was 2.6 ± 2.2 [0–8]; the number of hospital admissions in the same period was 1.0 ± 1.3 [0–8]. 48% of the patients belonged to the control group (TAU with brief information provided; age: 41.5 ± 11.8 years; 40.0% male); the experimental group also received cognitive-psychoeducational therapy (age: 38.2 ± 11.0 years; 40.8% male). For all analyses, the baseline data (at T0 [no treatment]) of all 94 patients were used (the only exception being stability: control group at T0 and T3 – i.e., at baseline and after 3 months).

Scaling – Subscales and Items of the Prodrome and Coping Strategies

An average of 3.9 ± 2.8 [0–12] prodromes were identified for mania; 4.0 ± 2.8 [0–15] for depression; 1.9 ± 1.7 [0–7] coping strategies were identified for mania and 2.4 ± 2.2 [0–10] for depression. 14% of the patients could not identify a single prodrome for mania; 12% identified none for depression – i.e., there was no difference between mania and depression, with respect to the patient's non-identification of prodromes ($p = 0.704$). 10% of the patients could identify neither a prodrome of mania nor one of depression (all data refer to T0). 23% of patients identified no coping strategies for mania, and 18% none for depression; here too there was no difference between mania and depression ($p = 0.073$). 11% did not identify a coping strategy for either of the two phases.

The items compiled were classified according to content criteria scales. Table 1 shows the 10 scales of the mania prodrome and the 8 scales of the depression prodrome. Items in a scale that deal with the same issues were grouped together,

without evaluation of the symptoms (e.g., disabled in everyday life / not disabled; self-injurious / not self-injurious; noticeable by others / not noticeable; or socially desirable / undesirable). Other categories did not seem sensible at this early phase of development of the process and should follow the acquisition of more data (questionnaire data). The categorization of coping strategies was likewise theory-based and according to positive/negative/neutral strategies, the last of which was rarely mentioned (table 2).

Analysis of Difficulty and Item Selection

For the difficulty indices per item (percentage of scored responses that supported the underlying construct), a scattering over the entire range of values was sought (or at least of $p = 0.2$ to 0.8) [Kubinger, 2006; Bortz, 2005; Bortz and Döring, 2006.] The study's use of a free answer format means that significantly lower difficulty indices are to be expected than with questionnaires. For a large portion of items (40–80%), the difficulty index was <0.05 – i.e., they were answered positively by $<5\%$ of patients. Only 8–12% of the items were in the sought-for range.

The most typical prodromes of mania (highest difficulty indices) were: 'little need for sleep' (0.49), 'increased activity' (0.36), 'changed speech/voice' (0.26), 'irritated, tense' (0.21), and 'spending money' (0.18). The following prodromes were especially common for depression: 'social withdrawal' (0.47), 'changes in thinking; memory and concentration difficulties' (0.45), 'loss of interest in activities and people' (0.45), and 'increased need for sleep' (0.45).

The most typical coping strategies in manic phases were 4 positive strategies: 'doctor visit/adjustment of medication' (0.23), 'rest periods' (0.17), 'spending time alone to avoid stimulation' (0.09), and 'calm activities' (0.06). Only one of the negative strategies can be described as typical, which is 'enjoying the exhilaration' (0.18). Among the typical coping strategies in the depressive phases, positive conduct was clearly predominant: 'social contact' (0.22), 'doctor visit / adjustment of medication' (0.20), 'pleasant activities' (0.15), 'taking walks' (0.15), 'sports' (0.13), 'doing something good for oneself' (0.10), 'television' (0.09), 'increased activity' (0.08). In addition, 3 neutral strategies and no negative strategies were identified.

Reliability

The reliability (internal consistency) of a testing procedure quantifies the extent to which the questions (items) cover the same attribute – i.e., the effectiveness of the measuring instrument [Lienert and Raatz, 1998]. Here the entries are not so much different manifestations of one prodrome, as qualitatively different behaviors which were grouped together thematically.

The reliabilities of the prodromes (mania and depression) turned out to be low, as expected (Cronbach's α ; for each of the original evaluations at baseline). Patients who know a par-

Tab. 1. Prodromes of mania and depression.
Scales and items at time T0

Mania	Depression
<i>Scale 1: Mood</i> Irritable, tense No anxiety Morning high Happiness Aggressiveness Uncertain, anxious	<i>Scale 1: Mood</i> Irritable, tense Anxiety Helpless, despondent, desperate Reduced affect Sadness Morning low Bad mood
<i>Scale 2: Activity and energy</i> Raised/lowered libido Increased activity Reduced activity/housework Yearning for freedom Begin many activities; driven Impulsive Hyper Drive to move around Increased workload	Need for security Listlessness Joylessness <i>Scale 2: Activity and energy</i> Diminished capacity Sluggish, lackadaisical Exhausted, unmotivated Stagnation Reduction of activity Lacking in spirit Overcoming agitation
<i>Scale 3: Thoughts</i> Beginning unrealizable projects Visions, keeping a diary Sense of connection to a higher power Self-centeredness, elevated self-esteem Facile, creative Megalomania Acting ignorant, arrogant Impaired concentration Racing thoughts More ideas, fantastic, magical Feel of being able to do anything Optimistic attitude Overestimating oneself Intense perception of colors, shapes Interest in beautiful things (clothes) Changed perception of reality Interest in other people	<i>Scale 3: Thoughts</i> Changed thinking, memory/concentration Loss of interest in activities/people Sense of futility Feeling unattractive Suicidal thoughts Difficulty making decisions Feeling guilty Self-doubt, diminished self-confidence Feeling unable to do anything Aimlessness Pessimism Emptiness
<i>Scale 4: Sleep</i> Less need for sleep	<i>Scale 4: Sleep</i> Increased need for sleep, sleep disturbance, fatigue
<i>Scale 5: Substance abuse</i> Increased consumption of alcohol/nicotine/ drugs	<i>Scale 5: Substance abuse</i> Increased consumption of alcohol/nicotine/ drugs
<i>Scale 6: Change in behavior</i> Listening to loud music Walking Outgoing, talkative, extroverted Contentious, argumentative, disrespectful Going out Faster driving	<i>Scale 6: Change in behavior</i> Social withdrawal Quarrelsomeness Failure to keep appointments Physical neglect More television, music Seeking contact
<i>Scale 7: Somatic/autonomic change</i> Changed eating and drinking habits Somatic, autonomic change	<i>Scale 7: Somatic/autonomic change</i> Changed eating and drinking habits Somatic, autonomic change
<i>Scale 8: Medication</i> Forgetting/discontinuing medication	<i>Scale 8: Changed facial expression/gestures</i> Changed speech
<i>Scale 9: Changed facial expression/gestures</i> Changed speech/voice	
<i>Scale 10: Dealing with money</i> Spending money	

Tab. 2. Copingstrategien zu Manie und Depression – Skalen und Items zum Zeitpunkt T0

Mania	Depression
<i>Scale 1: Positive strategies</i>	<i>Scale 1: Positive strategies</i>
Close observation	Acupuncture/light therapy
Regular meals	Doctor visit/adjustment of medication
Playing with pets	Sports
Social withdrawal	Reading the group literature
Not going on vacation	Watching television
Doctor visit/adjustment of medication	Taking walks
Talking to friends/relatives	Solarium
Spending time alone to avoid stimulation	Increased activity
Calm activities (reading, drawing, listening to music, ...)	Social contact
Visit therapists	Doing something good for oneself
Engage relatives in monitoring	Therapy
Reality-oriented thinking	Pleasurable activities (music, reading, crafts, ...)
Relaxation techniques	Distraction
Rest periods	
Taking walks	<i>Scale 2: Negative strategies</i>
Intellectual control	Increased alcohol/nicotine consumption
	Ignoring the disorder
<i>Scale 2: Negative strategies</i>	Going to the doctor when it is too late
Discontinuing medication/taking it too late	Feeling powerless to do anything
Working more	Increased coffee consumption
Enjoying the exhilaration	Moping about
More sexual contacts	Lack of personal hygiene
Spending money	
Readiness for conflict	<i>Scale 3: Neutral strategies</i>
Increased activity	Retreating
Being more decisive	Sleeping more
More social contacts	Waiting
Attempts to conceal symptoms	Reduced activity
Not noticing the mania	
More social contacts	
<i>Scale 3: Neutral strategies</i>	
Too fast, out of touch with reality	
Doing something good for myself	
Taking care of one's appearance	

ticular item on a scale do not necessarily also know other prodromes on the same scale; knowledge of a prodrome on one scale does not sensitize one to other prodromes on that scale. The reliabilities of the coping strategies were higher (except for neutral strategies) than for the prodromes, especially with respect to the 'positive strategies' (maximum value: 0.54) (table 3).

Stability

To analyze temporal stability (retest reliability) using correlation analysis of the scales, patients in the control group (TAU + info, n = 45) were used, both at baseline and 3 months later. Only for some scales (especially given the response format) did this yield satisfactory proof of stability ($r_{\max} = 0.53$, $r_{\mu} = 0.18$). The highest evidence of stability was achieved for the scales 'sleep' (mania prodromes, $r = 0.53$) and 'activity and energy' (depression prodromes, $r = 0.34$), and for positive coping strategies (depression, $r = 0.34$).

Objectivity of Implementation

Objectivity of implementation is provided in the interviews, if the data collected do not depend on 'random or systematic variations in behavior' of the interviewer [Kubinger, 2006, p. 35]. No systematic differences were found among the 4 interviewers.

Objectivity of Evaluation – Inter-Rater Correlation

Objectivity of evaluation (or classification accuracy) refers to the unambiguous allocation of patient responses to the categories [Lienert and Raatz, 1998]. All were verified by double-evaluation of all 94 interviews. Inter-rater agreement (Cohen's κ) between the original and control evaluation turned out to be very satisfactory, and equally good for all 4 parts of the questionnaire (all values > 0.70). The range of agreement is from 0.73 to 1.00; the average agreement of the 4 modules is 0.90 / 0.90 / 0.86 / 0.92 at T0 and 0.88 / 0.92 / 0.88 / 0.94 at T3.

Tab. 3. Reliability coefficients

	Item	α^a	μ (σ)	Median (range)
Prodromes of mania (n = 88)				
Scale 1: Mood	6	0.19	0.51 (0.66)	0 (0–4)
Scale 2: Activity and energy	9	–0.03	0.86 (1.04)	1 (0–5)
Scale 3: Thoughts	17	–0.10	0.84 (1.02)	1 (0–4)
Scale 4: Sleep	1	–	0.55 (0.62)	1 (0–3)
Scale 5: Substance abuse	1	–	0.02 (0.15)	0 (0–1)
Scale 6: Change in behavior	6	0.26	0.45 (0.89)	0 (0–3)
Scale 7: Somatic and autonomic change	2	–0.10	0.16 (0.45)	0 (0–2)
Scale 8: I don't know	1	–	0.09 (0.28)	0 (0–1)
Scale 9: Medication	1	–	0.02 (0.15)	0 (0–1)
Scale 10: Changed facial expression and gestures	1	–	0.29 (0.54)	0 (0–3)
Scale 11: Dealing with money –	1	–	0.19 (0.42)	0 (0–2)
Prodromes of depression (n = 87)				
Scale 1: Mood	10	0.18	0.84 (1.06)	0 (0–4)
Scale 2: Activity and energy	7	0.10	0.52 (0.86)	0 (0–5)
Scale 3: Thoughts	12	0.23	0.96 (1.05)	1 (0–5)
Scale 4: Sleep	1	–	0.51 (0.62)	0 (0–2)
Scale 5: Substance abuse	1	–	0.01 (0.10)	0 (0–1)
Scale 6: Change in behavior	6	0.13	0.78 (1.05)	0 (0–4)
Scale 7: Somatic and autonomic change	2	–0.04	0.32 (0.64)	0 (0–3)
Scale 10: Changed facial expression and gestures	1	–	0.04 (0.25)	0 (0–2)
Coping strategies, mania (n = 94)				
Scale 1: Positive strategies	16	0.36	1.13 (1.60)	0 (0–7)
Scale 2: Negative strategies	13	0.04	0.62 (1.00)	0 (0–4)
Scale 3: Neutral strategies	2	–0.02	0.02 (0.15)	0 (0–1)
Coping strategies, depression (n = 94)				
Scale 1: Positive strategies	13	0.54	1.55 (2.14)	1 (0–10)
Scale 2: Negative strategies	7	0.18	0.09 (0.32)	0 (0–2)
Scale 3: Neutral strategies	4	0.07	0.52 (0.86)	0 (0–3)
^a Cronbach's α .				

Validity – Regarding Other Test Procedures

The testing of convergent or divergent validity was not possible for the prodromes, due to lack of adequate comparison procedures. The following were used for coping strategies: the Stress-Coping Questionnaire [SVF; Erdmann and Janke, 2008], the Freiburg Questionnaire on Coping with Illness [FKV; Muthny, 1989], and the Sheehan Disability Scale [SDS; Sheehan, 2000].

The constructs covered in the SVF (positive and negative strategies for coping with stress) are only similar at first glance to the coping strategies we assessed. Questions posed and behavior covered by the SVF are, however, much more general – e.g.: 'If I have been affected by anything or anyone, internally aroused or thrown off balance ...' Low positive correlations would be expected between the value of positive stress-coping strategies (SVF) and the number of positive coping strategies (for mania and depression), as well as between negative stress-coping strategies (SVF) and the number of nega-

tive coping strategies (for mania and depression). For both positive and negative coping strategies, only low significant correlations were detected ($r_{\max} = 0.18$); the divergent validities were consistently negative, although also low ($r_{\mu} = -0.04$, only somewhat significant).

For positive coping strategies, 3 of the 5 dimensions of the convergent validities in Coping with Illness (FKV) were to be expected: 'active problem-oriented coping (F2),' 'diversion and self-revalorization (F3),' and 'religiosity and search for meaning (F4)'; for negative coping strategies, the relevant dimensions were 'depressive processing (F1)' and 'trivialization and wishful thinking (F5).' Only for 'active problem-oriented coping' were significant positive correlations with positive coping strategies detectable ($r_{\mu} = 0.3$); the average correlation of scales 3 and 4 was 0.07. The correlations of the negative coping strategies were very low and not significant ($r_{\mu} = -0.05$). A look at the divergent validities shows negative significant correlations between positive coping strategies and

scale 5 ($r_{\mu} = -0.32$), but not for scale 1; there is no significant correlation between the negative coping strategies and scales 2, 3, and 4 ($r_{\mu} = -0.03$).

The disorders covered by the SDS (rating scale 0–10) are allocated to 3 domains: work/career, leisure activities, and family life/household. Each scale has the cut-off for ‘abnormal’ values at ≥ 5 ; using these cut-off values, a (ranked) total cut-off value can be calculated, which indicates how many sub-scales showed values that were above the cut-off value (0–3). Neither for the general cut-off value nor for the 3 scale values of the SDS can significant correlations between the positive or negative coping strategies be established ($r_{\text{P}\mu} = -0.05$, $R_{\text{N}\mu} = 0.06$).

Discussion

The study succeeded in 4 aspects which are relevant to practical therapeutic work with patients diagnosed as bipolar I/II, namely, to develop German-language categorization schemas of prodromes perceived by patients and coping strategies used by patients, schemas that help to assess how well patients recognize prodromes, and what coping strategies they use and how adequate these are.

The average number of prodromes identified was, at 3.9 and 4.0, respectively, significantly higher than those in the work of Lam and Wong [1997] (2.9 ± 1.1 for mania and 2.2 ± 1.0 for depression). The percentage of those who could not name a single prodrome was comparable for mania and depression (14% and 12%). By contrast, in Lam and Wong [1997], 7.5% identified no prodrome of mania and 25% none of depression. Mantere et al. [2008] actually reported that about 50% of patients identified no prodrome. There were no differences between mania and depression for the number of coping strategies named (23% and 19%); in Lam and Wong [1997], the figures were 18% and 10.3% of patients.

There were 10 scales of mania prodromes, 8 of depression prodromes, and 3 scales each for coping strategies of 1–17 items (see tables 1 and 2).

Also because of the survey strategy that was chosen, only 20–60% of all items achieved a difficulty index ≥ 0.05 , so that identification of the most typical marker items was achieved. ‘Reduced sleep’ had also been identified in previous studies as the most common prodrome for mania (55% by Lam et al. [2001], 53% by Wong et al. [1999], and 58% by Lam and Wong [1997]). ‘Increased activity’ takes second place (45% with Wong et al. [1999], and Lam et al. [2001] and 56% with Lam and Wong [1997]). ‘Increased talkativeness’ is in third place (Wong et al. [1999] 34%, and Lam et al. [2001] 18%), followed by ‘euphoria,’ ‘racing thoughts,’ and ‘irritability/sensitivity’ (25% in both studies). ‘Spending money’ is found exclusively in the study by Lam et al. [2001], at 5%. Fava and Kellner [1991] analyzed 24 studies of prodromal symptoms

and, prior to manic phases, increased activity, positive mood, and less need for sleep headed the list of typical prodromes. Smith and Tarrrier [1992] had comparable findings in questioning 20 patients: ‘I feel good emotionally,’ ‘ideas fly by too quickly,’ ‘my senses seem sharper,’ ‘energetic/very active,’ ‘I feel creative,’ ‘I talk more,’ and ‘I need a lot of sleep.’ The results thus present no major discrepancies and can be considered as validated. Comparable entries are found in the literature for prodromes of depression: ‘lack of interest in activities and people’ takes first place (45% in Lam and Wong [1997], 29% in Lam et al. [2001]); ‘sadness’ is named by 21% and 16% of people, respectively, followed by ‘increased need for sleep’ (17% and 13%), ‘inability to let go of fears and worries’ (17% and 18%), and ‘loss of drive and increased need for sleep’ (14% and 13%). Fava and Kellner [1991] identify ‘depressive mood,’ ‘loss of energy,’ and ‘difficulty concentrating’ as typical; for Smith and Tarrrier [1992]: ‘cannot perform normal activities,’ ‘low self-confidence,’ ‘no desire to see other people,’ ‘low energy,’ ‘nothing seems fun,’ ‘cannot get up in the morning,’ ‘feel sad, and ‘cannot concentrate.’ Here too, there is valid consensus on the prodromes detected in all 4 studies.

With respect to the positive coping strategies that are predominant in mania, Lam et al. [2001] distinguished 3 types of coping strategies: ‘changed behavior,’ ‘early medical intervention strategies’ (in the present study, combined as ‘positive strategies’), and ‘stimulating coping strategies’ (here: ‘negative coping strategies’). They verified that patients with positive strategies are less likely to develop a new manic phase (12.5% vs. 45.5%), and that patients who used negative strategies more frequently developed a new manic phase (50.0% vs. 23.1%). The coping strategies identified by Wong and Lam [1999] are comparable in content, but are referred to more frequently, due to the questionnaire design; that is, the present study is not contradicted by their findings.

Positive coping strategies also predominate in depressive phases. Lam et al. [2001] set up a comparable categorization of strategies, differentiating the positive strategies between cognitive (e.g., distraction from negative thoughts) and behavioral (e.g., activity). However, as this categorization was not always unambiguous, we did not use it but favored the three-way division of strategies. The above-mentioned strategies are comparable to those used by Lam and Wong [1997].

The low reliabilities of the prodromes can be explained by low difficulty indices and the pending validation of the scale structure (on the basis of available data that are not yet testable/revisable). Further studies should clarify whether reliabilities can be improved by making the item formulations more precise.

The very low reliability for ‘neutral’ coping strategies can be explained by the fact that this is not strictly a scale, but rather deals with residual items. Furthermore, only 4 neutral strategies were mentioned. The focus of the analysis was, therefore, on the positive and negative strategies. The reliabilities of some of the coping strategies are substantially higher

than those of the prodromes; this is particularly true for the 'positive strategies.' However, they fall short of expectations; the probable causes here are also the free response format and the resulting low maximal scores.

There is satisfactory retest reliability for only some of the scales (stability of 3 months). One explanation for this is that awareness/skills in a subset of patients within this time-frame actually improved (0.0–31.1% improvement of patients on the scales of prodromes for mania, 0.0–28.9% for prodromes of depression, 2.2–44.1% for coping strategies for mania, and 4.4–43.2% for coping strategies for depression).

The objectivity of implementation – at least for skilled interviewers – is accepted as given; Lam et al. [2003] also found agreements of $\kappa = 0.69$ for prodromes of mania and $\kappa = 0.79$ for prodromes of depression.

The objectivity of evaluation is highly satisfactory. With the procedure in questionnaire form, no further increase in objectivity of evaluation is to be expected. The very good reliability values are indicators of the quality of the categorization schema for prodromes and coping strategies.

Only low correlations are established between the SVF and the coping strategies we covered, which probably could be explained by the variation in how narrowly the questions were posed. Only the FKV scale for 'active problem-oriented coping' shows convergent reliability for positive coping strategies, and the 'trivialization' scale shows divergent reliability. The SDS does not involve coping strategies or prodromes.

Due to the lack of alternative methods (in German-speaking countries) with comparable constructs for coverage, the categorization schemas developed can be deemed advantageous from the standpoint of testing theory [Bräunig et al., 2006], but this circumstance implies that testing of the external validities is not possible. Expert ratings would indeed be valuable from the standpoint of content, but seem problem-

atic, because potential sources of error mean that the expense of longer-term behavioral observation is high.

The process allows a quick overview of the patients' resources and awareness with regard to coping strategies and the identification of prodromes. The repeated questioning facilitates treatment measurement, e.g., to evaluate the success of an intervention. The patient's precise awareness of known prodromes or available coping strategies facilitates targeted intervention, whose objectives could be pinned down better – e.g., increasing the available (positive) coping strategies, avoidance of negative coping strategies, improved awareness of possible prodromes, or improved perception of prodromes and the reaction to them. Meyer and Hautzinger [2006] also emphasize the need for early detection and associated possibilities for timely intervention.

For future work, the categorization schemas presented here make it easy to develop a questionnaire or 4 questionnaire modules (multiple-choice format or analog format). The resulting benefits would be: greater economy in assessment and evaluation (and therefore better integration into everyday diagnostic/therapeutic procedure), better acceptance by users and patients, less possibility of falsification, and greater ease of normalization. Due to the already very good testing values, the possibility of improvement in the objectivity of implementation and evaluation cannot be assumed. Especially with regard to economy and appropriateness, great improvements can be expected in future revisions: less skill required by the user, reduced processing time for the test, possible group testing, simple analysis/interpretation.

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References

- Bortz J: Statistik für Human- und Sozialwissenschaftler. Berlin, Springer, 2005.
- Bortz J, Döring N: Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler. Berlin, Springer, 2006.
- Bräunig P, Krüger S, Rathgeber K: Diagnostik; in Deutsche Gesellschaft für Bipolare Störungen e.V. (Hrsg): Weißbuch. Bipolare Störungen in Deutschland. Stand des Wissens. Defizite. Was ist zu tun? Ed 2. Norderstedt, BoD, 2006, pp 87–159.
- Colom F, Lam D: Psychoeducation: Improving outcomes in bipolar disorder. *Eur Psychiatry* 2005;20:359–364.
- Erdmann G, Janke W: Stressverarbeitungsfragebogen. Stress, Stressverarbeitung und ihre Erfassung durch ein mehrdimensionales Testsystem, ed 4. Göttingen, Hogrefe, 2008.
- Fava GA, Kellner R: Prodromal Symptoms in Affective Disorders. *Am J Psychiatry* 1991;148(7):823–830.
- Hagerty BM, Williams RA, Liken M: Prodromal symptoms of recurrent major depressive episodes: a qualitative analysis. *Am J Orthopsychiatry* 1997;67:308–314.
- Hautzinger M, Meyer TD: Psychotherapie bei bipolaren affektiven Störungen Ein systematischer Überblick kontrollierter Interventionsstudien. *Nervenarzt* 2007;78:1248–1260.
- Jackson A, Cavanagh J, Scott J: A systematic review of manic and depressive prodromes. *J Affect Disord* 2003;74:209–217.
- Kälin W, Parker JDA: Deutsche 12-Item Kurzform des «Coping Inventory für Stressful Situations» (CISS) von NS Endler und JDA. Parker. Universität Bern, Institut für Psychologie, 1996.
- Kubinger KD: Psychologische Diagnostik. Theorie und Praxis psychologischen Diagnostizierens. Göttingen, Hogrefe, 2006.
- Lam DH, Watkins ER, Hayward P, Bright J, Wright K, Kerr N, Parr-Davis G, Sham P: A randomized controlled study of cognitive therapy for relapse prevention for bipolar affective disorder. *Arch Gen Psychiatry* 2003;60:145–152.
- Lam DH, Wong G: Prodromes, coping strategies, insight and social functioning in bipolar affective disorders. *Psychol Med* 1997;27:1091–1100.
- Lam DH, Wong G, Sham P: Prodromes, coping strategies and course of illness in bipolar affective disorder – a naturalistic study. *Psychol Med* 2001;31:1397–1402.
- Lefèvre S, Kubinger KD: Differentielles Stress Inventar. Mödling, Schuhfried, 2004.
- Lehrl S, Merz J, Burkard G, Fischer S: Mehrfach-Wortschatz-Intelligenztest. Göttingen, Hogrefe, 1991.
- Lenz G, Bergthaler A, Breit-Gabauer B, Demelbauer S, Stampfer I, Aigner M, Freidl M, Ossege M: «Cognitive behavior therapy (CBT) versus psychoeducation (PE) in bipolar disorder: a randomized controlled study». *World J Biol Psychiatry* 2009a;10 (suppl 1):135.
- Lenz G, Berg A, Breit-Gabauer B, Demelbauer S, Stampfer I, Aigner M, Freidl M, Nosiska D, Ossege M, Schaffer M: Cognitive Behavior therapy (CBT) versus Psychoeducation (PE) in bipolar disorder: a randomized controlled study. *Bipolar Disord* 2009b;11(1):11.
- Lienert G, Raatz U: Testaufbau und Testanalyse. Weinheim, PVU, 1998.

- Mantere O, Souminen K, Valtonen HM, Arvilommi P, Isometsä E: Only half of bipolar I and II patients report prodromal symptoms. *J Affect Disord* 2008; 111:366–371.
- Meyer TD, Hautzinger M: Psychoedukation und Psychotherapie; in Deutsche Gesellschaft für Bipolare Störungen e.V. (Hrsg): Weißbuch. Bipolare Störungen in Deutschland. Stand des Wissens. Defizite. Was ist zu tun? Norderstedt, BoD, 2006, pp 325–397.
- Molnar GJ, Feeney MG, Fava GA: Duration and symptoms of bipolar prodromes. *Am J Psychiatry* 1988;145:1576–1578.
- Muthny FA: FKV. Freiburger Fragebogen zur Krankheitsverarbeitung. Göttingen, Hogrefe, 1989.
- Schaub A, Bernhard B, Gauck L: Kognitiv-psychoedukative Therapie bei bipolaren Erkrankungen. Göttingen, Hogrefe, 2004.
- Sheehan DV: Sheehan Disability Scale; in Handbook of Psychiatric Measures. Washington, DC, American Psychiatric Association, 2000, pp 113–115.
- Smith JA, Tarrrier N: Prodromal symptoms in manic depressive psychosis. *Soc Psychiatry Psychiatr Epidemiol* 1992;27:245–248.
- Wong G, Lam D: The development and validation of the coping inventory for prodromes of mania. *J Affect Disord* 1999;53:57–65.
- World Medical Association: World Medical Association declaration of Helsinki. Recommendations guiding physicians in biomedical research involving human subjects. *JAMA* 1997;277:925–926.
- Zaretsky A, Lancee W, Miller C, Harris A, Parikh SV: Is cognitive-behavioural therapy more effective than psychoeducation in bipolar disorder? *Can J Psychiatry* 2008;53:441–448.