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Review Article

Disability and its treatment in bipolar disorder patients

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Bipolar disorders (BPD) are major, life-long psychiatric illnesses found in 2–5% of the population. Prognosis for BPD was once considered relatively favorable, but contemporary findings suggest that disability and poor outcomes are prevalent, despite major therapeutic advances. Syndromal recovery from acute episodes of mania or bipolar major depression is achieved in as many as 90% of patients given modern treatments, but full symptomatic recovery is achieved slowly, and residual symptoms of fluctuating severity and functional impact are the rule. Depressive–dysthymic–dysphoric morbidity continues in more than 30% of weeks in follow-up from initial episodes as well as later in the illness-course. As few as 1/3 of BPD patients achieve full social and occupational functional recovery to their own premorbid levels. Pharmacotherapy, though the accepted first-line treatment for BPD patients, is insufficient by itself, encouraging development of adjunctive psychological treatments and rehabilitative efforts to further limit morbidity and disability. Interpersonal, cognitive–behavioral, and psychoeducational therapies all show promise for improving symptomatic and functional outcomes. Much less is known about how these and more specific rehabilitative interventions might improve vocational functioning in BPD patients.

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Functional outcome among treated bipolar (manic-depressive) disorder (BPD) patients was long thought to be favorable in this supposedly relatively treatment-responsive, favorable-prognosis disorder. Indeed, an optimistic prognosis was basic in nosologically separating *manic-depressive insanity* from chronic psychotic disorders (*dementia præcox*, or schizophrenia) by Kraepelin a century ago (1). The previously widely accepted clinical and popular conception of the course of BPD is that it is marked by time-limited acute episodes of mania and major depression with recovery to euthymia and a favorable functional adaptation between episodes, and with a marked decrease of acute morbidity with effective mood stabilizing treatments (2).

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In contrast, the emerging picture of the course of BPD is quite different, and includes slow or incomplete recovery from acute episodes, continued risk of recurrences, and sustained morbidity over time even with continuous long-term use of modern treatments. Recovery from acute episodes of treated mania, even very early in the course of BPD, can require 3–6 months to no longer meet standard diagnostic criteria for an acute episode (*syndromal remission*), even longer to reach *symptomatic remission* defined as the presence of minimal symptoms, and longer still to attain the beginning of *recovery* defined as remission sustained for perhaps 2 months (3). Time to remission is even longer following repeated recurrences (4). Moreover, even with presumably adequate mood stabilizing treatments, the risk of future recurrences of mania and especially of depression in BPD patients remains high over years of follow-up (5). Recent long-term follow-up studies of bipolar I disorder (BP-I) patients in mid-course as well as from the onset of the illness indicate strikingly high

levels of sustained symptomatic morbidity, on the order of 30–50% of time observed over 2–14 years, about 2/3 to 3/4 of which is accounted for by depressive–dysthymic–dysphoric morbidity that persists or recurs despite treatment (6–9). It remains unclear to what extent such outcomes reflect limitations in effectiveness of modern treatments, especially against depressive morbidity, variable long-term adherence to recommended treatment, or individual variance in illness severity. Nevertheless, it is plausible to expect a relationship of such high levels of residual morbidity to functional disability.

Indeed, BPD is being recognized increasingly as associated with much more functional impairment than had been realized formerly, particularly with regard to social adjustment and vocational functioning. Social adjustment incorporates marital and residential status, interpersonal relationships, and leisure activities – all of which are impaired in many BPD patients (Table 1; 3–6, 10–46). Some modern studies have found that only 19–23% of adult BP-I patients were married, compared to an average of 60% of adults in the general population (10, 11). In addition, 19–58% of adult BP-I patients have been found not to be living independently, and most were residing with family members (12, 13). Ability to regain premorbid levels of social and vocational functioning in the community was found in 45% of BP-I patients in the 1970s (14) at the beginning of the modern psychopharmacological era, and, surprisingly, in only 24–36% in recent studies (3, 4, 15).

Unemployment rates among adult BP-I patients were only 15% in the 1970s (14) and, remarkably, as high as 57–65% in recent studies (13, 18), even following syndromal recovery from a first-lifetime manic episode. Only half of those who were employed at all had regained their own premorbid levels of work-hours and responsibilities, indicating at least partial vocational disability in as many as 80% of BP-I disorder patients! In other studies of first-episode BP-I patients, despite syndromal remission within 2 years of a first-lifetime manic or mixed episode in 99% of cases, only 40% of patients were functioning vocationally and socially at premorbid levels (3, 36). These extraordinarily high rates of unemployment or underemployment far-exceeded contemporaneous unemployment rates in the general US population (ca. 6%), and contrast particularly strikingly to the relatively high premorbid functioning characteristic of BPD patients. This impression is further supported by a recent finding that 65% of a large community sample of 2,839 BP-I patients were unemployed and that 40% were receiving disability or public assistance payments, despite high levels of education, including some college in 60%, and at least 4 years post-high school in 30% (13).

In summary, functional status is far more impaired in type I BPD patients than previously believed, and remains poorly documented in other forms of DSM-IV BPD (type II and cyclothymia). Remarkably, there is some evidence that functional outcome in type II BPD may be even worse than in type I (28, 29), contradicting any expectations that type II would be a less severe form of the disorder, and probably highlighting the importance of bipolar depression as a major contributor to disability among BPD patients. Consistent with that view, there is evidence of an association of impaired social and vocational functioning with strikingly high levels of sustained depressive–dysthymic morbidity in large series of BPD patients (9, 47). In the past decade, initial research efforts have begun to seek potential predictors of functional impairment in BPD patients, though efforts at developing and testing specific therapeutic and rehabilitative interventions aimed at improving functional outcomes have remained extraordinarily underdeveloped.

Predictors of functional outcome in bipolar disorder

Factors associated with, or predicting, poor functional outcomes among BP-I patients include: (i) prominent depressive morbidity (9, 18, 25, 30, 47); (ii) psychotic features (5, 12); (iii) relatively poor premorbid functioning (12, 15, 30, 48, 49); (iv) male sex (5, 23); (v) earlier onset (36, 50); (vi) more hospitalizations (5, 12, 19, 20); (vii) longer recent hospitalizations (36); (viii) drug or alcohol use comorbidity (20, 51); (ix) inadequate social supports (20, 35); (x) being single (22); (xi) relatively low socio-economic status (4, 5, 15, 20, 50); and (xii) not living independently (12, 52).

In a review of functional outcomes in 15 studies of BPD patients, Bauer et al. (47) reported that surprisingly few of the preceding 12 factors were consistently associated with functional outcome across studies, with the notable exception of depressive symptoms at follow-up. This finding is consistent with a report by Bland et al. (17) that 16% of patients with multiple episodes of non-bipolar major depression had lost productivity over 15 years, compared to only 2.8% who had single episodes, again suggesting that recurring or sustained depressive morbidity, in particular, is associated with functional decline. That bipolar II disorder (BP-II) patients have been found to have even greater functional impairments than type-I BPD patients further suggests that long-term depressive morbidity is a key intervening risk factor (28, 29).

Table 1. Symptomatic and occupational outcomes of bipolar I disorder patients

Study	Subjects n	F/U (yrs)	Patient location	Symptomatic/syndromal recovery	Social functioning outcome	Occupational outcome
Carlson et al. 1974 (14)	53	3.2	Inpatients	57% well since hospitalization	21% complete social withdrawal 13% rarely with friends 21% limited social activity 45% recovered major roles	15% fully unemployed 21% partially employed 23% in lower work status 41% in same or better job
Tsuang et al. 1979 (16)	86	30–40	Inpatients	50% good 21% fair 30% poor status	12% hospitalized 15% in supervised care 59% at home or with relatives	28% unemployed
Bland & Orn 1982[a] (17)	27	15	Inpatients	Most had mild impairment	Most had fair social adjustment	11% underemployed
O'Connell et al. 1985 (10)	60	1	Outpatients	48% ≥1 relapses	47% single 23% married 23% socially impaired 32% mildly socially impaired	N/A
Dion et al. 1988 (18)	44	0.5	Inpatients	80% syndromally recovered	34% not living independently	57% unemployed 21% at expected work level
Harrow et al. 1990 (5)	73	1.7	Inpatients	42% ≥1 manic relapses	36% impaired social adjustment	23% unemployed 42% fully employed
Tohen et al. 1990 (12)	75	4	Inpatients	28% no relapses	19% not living independently	28% unemployed
Tohen et al. 1990[a] (19)	24	4	Inpatients	46% no relapses	8% not living independently 8% poor social relations 17% in impaired households 8% socially impaired	13% unemployed
O'Connell et al. 1991 (20)	248	1	Outpatients	56% no relapses	48% good 29% fair 23% poor social adjustment	N/A
Bauwens et al. 1991[b] (21)	27	None	Outpatients	N/A	Socially impaired > normal controls	N/A
Romans & McPherson 1992 (22)	52	None	Outpatients	N/A	56% adequate social functioning	51% unemployed 22% underemployed 16% fully employed
Tohen et al. 1992[a] (23)	60	0.5	Inpatients	85% syndromally recovered	32% below premorbid impaired & residential status	32% functionally impaired
Coryell et al. 1993 (24)	148	5	Outpatients	N/A	32% never married 45% divorced or separated	62% employed within year 54% reduced work status
Gitlin et al. 1995 (25)	82	4.3	Outpatients	70% relapsed 37% ≤1 year 73% ≤5 years	39% good 7% poor social adjustment 45% good 9% poor family interactions	28% good 37% fair 35% poor
Goldberg et al. 1995 (26)	51	4.5	Inpatients	45% rehospitalized ≥1 times	37% moderate 22% poor social outcomes	Impairment > unipolar depressed
Stefos et al. 1996 (27)	21	4	Outpatients	52% no relapses	N/A	N/A
Cooke et al. 1996[b] (28)	68	None	Outpatients	N/A	Social impairment similar to depressive & medical controls	N/A

Table 1. Continued

Study	Subjects n	F/U (yrs)	Patient location	Symptomatic/syndromal recovery	Social functioning outcome	Occupational outcome
Robb et al. 1997[b] (29)	68	None	Outpatients	N/A	Spousal relations 56% impaired Family relations 46% impaired Social relations 44% impaired	Average 57% functional impairment
Coryell et al. 1998 (30)	113	15	Inpatients + Outpatients	20% poor symptomatic outcomes	27% impaired relationships 18% impaired household responsibilities	34% underemployed
Strakowski et al. 1998[a,c] (15)	83	1	Inpatients	61% syndromally recovered 39% symptomatically	64% below premorbid functioning	N/A
Keck et al. 1998 (4)	134	1	Inpatients	48% syndromally recovered 26% symptomatically	76% not functionally recovered	N/A
Benazzi 1999[d] (31)	30	None	Outpatients	N/A	Socially adjustment = unipolar psychotic depression comparison subjects	N/A
Pradhan et al. 1999 (32)	77	None	Outpatients	N/A	N/A	58% unemployed
Shapira et al. 1999 (33)	27	None	Outpatients	N/A	Socially adjustment = normal controls	48% unemployed
Arnold et al. 2000[b] (34)	44	None	Outpatients	N/A	Socially impaired > community controls	N/A
Hammen et al. 2000 (35)	52	2	Outpatients	N/A	N/A	44% underemployed
Tohen et al. 2000[a,c] (36)	146	2	Inpatients	98.6% syndromally recovered	60% below premorbid occupational & residential functioning	60% functionally nonrecovered
Kusznir et al. 2000[b] (37)	61	None	Outpatients	N/A	31% inadequate community functioning	29% unemployed 35% underemployed 36% employed
Özerdem et al. 2001[b] (38)	108	ca. 2	Inpatients + Outpatients	85% remained euthymic	N/A	Low unemployment rate
Tsai et al. 2001 (39)	101	2	Outpatients	N/A	36% fair 17% poor social functioning 24% never married	N/A
Judd et al. 2002 (6)	146	12.8	Outpatients	Symptomatic 47.3% of time	N/A	N/A
Frangou 2002 (40)	425	None	Outpatients	N/A	54% living independently 32% single	74% unemployed
Kupfer et al. 2002[b] (13)	2,839	None	Outpatients	>50% ill ≥1 of past 6 months	58% live with parents 28% live independently 74% never married	65% unemployed
Abood et al. 2002[b] (11)	91	None	Inpatients	N/A	55% single 19% married	24% employed 49% unemployed
Tohen et al. 2003 (3)	166	2	Inpatients	97.5% syndromally recovered	N/A	64% functionally nonrecovered
Calabrese et al. 2003[b] (41)	1,167	None	Outpatients	N/A	Socially impaired > normal controls	Work performance < controls
Goldberg & Harrow 2004 (42)	34	2 4.5 10	Inpatients	Good outcomes: 41% 47% 41%	N/A	56%-64% working ≥ 6/12 past months

Table 1. Continued

Study	Subjects n	F/U (yrs)	Patient location	Symptomatic/syndromal recovery	Social functioning outcome	Occupational outcome
Blairy et al. 2004 (43)	144	None	Outpatients	N/A	Socially impaired > normal controls	Work performance < controls
Dickerson et al. 2004[b] (44)	117	None	Outpatients	N/A	N/A	51% unemployed 21% partially employed 27% employed
Fagiolini et al. 2005[b] (45)	103	None	Outpatients	N/A	Significant impairment in social functioning and family relationships	Significant impairment in working ability
Kebede et al. 2006 (46)	264	2.5	Outpatients	Improved with follow-up, but below normative general population	35–86% socially impaired	N/A
Total/Average	7,739	0.5–40	Mixed	Variable clinical recovery	Socially impaired: ca. 41%	Underemployed: ca. 47%

F/U = follow-up (none = only to end of study); N/A = data not available.
Subjects assumed to be outpatients if not stated.
[a]First-episode patients; [b]Bipolar I and II patients; [c]Psychotic bipolar disorder patients; [d]Bipolar I, depressed patient with psychotic features.

Cognitive functioning in bipolar disorder

In addition to other potential determinants of functional impairment in BPD, cognitive impairment may be an important factor. Emerging neuropsychological research findings support the view that BPD patients usually perform similarly or better on measures of cognitive functioning compared to schizophrenia patients, but somewhat less well than unipolar depressives (not necessarily matched for illness-severity or hospitalization), and substantially less well than normal, age-matched, controls (53–58). BPD patients most consistently show evidence of impairments in executive functioning (58–65), attention (58, 61–65), verbal and working memory (59, 60, 63, 65), and visuospatial functioning (64, 65). Recent studies of currently euthymic BPD patients suggest that such deficits can persist even after apparent clinical recovery, and so are not entirely to be ascribed to acute, state-related, cognitive deficits well known to occur in acute episodes of affective illness. Indeed, qualitatively remarkably similar, though less severe, patterns have been found in neuropsychological assessments of cognitive functions among euthymic BPD and schizophrenia patients (53, 58–63).

Since most patients reported in the preceding cognitive studies were medicated with lithium, anticonvulsants, antipsychotics, sedatives, or other central depressant psychotropic drugs, and many were at risk for comorbid abuse of alcohol and illicit drugs, the possible contributions of neuropharmacological-neurotoxic factors to cognitive deficits in BPD patients remain to be defined and differentiated from illness-specific factors. Discontinuation of lithium treatment in a small number of euthymic BPD outpatients was associated with modest, but statistically significant improvements in tests of memory and response times, followed by worsening after lithium was restarted (66).

Other variables, such as a more severe or longer course of illness, and earlier illness onset, also are associated with cognitive impairments in BPD patients (67). This relationship to illness duration is consistent with a finding that BP-I patients recovering from a first episode of mania performed nearly as well as normal controls in neuropsychological testing (68). Nevertheless, whether illness-associated or chemically induced, cognitive impairments influence attention, memory, analytic, organizational, and judgment abilities, and these deficits have been strongly and consistently associated with functional impairment, at least among schizophrenia patients (69–72). It is plausible that

such deficits may influence functional ability in BPD patients. Indeed associations have been observed between cognitive impairment and lesser employment status (44, 63) and poor social outcomes (63), as well as greater numbers of illness episodes (63, 67, 73, 74) in BPD patients.

In summary, prominent variables found to be associated with functional impairment in BPD patients include residual depressive symptoms as well as specific deficits in cognitive functioning documented by neuropsychological testing. Additional relationships of functional impairment to other illness factors, comorbid substance-use, or adverse treatment effects remain unclear and inadequately investigated, but it is reasonable to suspect that both affective and cognitive factors contribute importantly to the major and prevalent vocational and social dysfunctions observed in BPD patients. Such deficits and dysfunctions increasingly strongly encourage efforts to devise treatments that can reverse or limit their impact on the course and outcome of BPD.

Psychotherapies and functional impairment in bipolar disorders

Although pharmacological interventions are widely accepted as the primary treatment for acute phases and major episodic recurrences in BPD, their substantial limitations and adverse-effect burdens are well documented (2). Highly prevalent medication non-adherence, breakthrough episodes, residual morbidity, comorbidity of substance use and anxiety disorders, as well as the social and vocational impairment just reviewed among apparently pharmacologically well-treated BPD patients, all indicate the importance of developing better methods of treatment and clinical management for BPD patients. Improved treatment methods that address the interplay between individual vulnerability and stress are required. Specific targets for psychosocial interventions include treatment-adherence, sobriety, symptom-management, interpersonal relationships, cognitive impairments, stress-management, and stable daily routines.

In the past two decades, a small, but growing number of studies of psychosocial treatments for BPD patients have begun to address these broad therapeutic indications. Interventions that have been evaluated include: (i) interpersonal; (ii) cognitive–behavioral; and (iii) psychoeducational approaches – often employed in various combinations in individual patients, groups, or with families.

Interpersonal interventions have largely been studied in a group format to provide a supportive environment and to facilitate examination of psychological aspects of the illness and its impact on relationships. Discussions typically focus on concerns about illness-recurrence, instability of relationships with friends and family, temptations to seek mania, denial of illness, and differentiating normal from pathological moods. Cognitive–behavioral therapy (CBT) has also been applied in BPD, usually in groups. This approach promotes healthy thinking styles by correcting distorted thinking that contributes to depression, mania, psychosis, and interpersonal difficulties. Psychoeducation in groups of patients, with or without family members, also is used increasingly to provide basic information about BPD and its treatment. Finally, Interpersonal and Social Rhythm Therapy, an individual-based interpersonal therapy, is aimed at reducing interpersonal stress and promoting healthy sleep, nutrition, and exercise regimens.

All of these psychotherapeutic interventions provide information about BPD, its symptoms and treatments, explore the effects of the illness on self-esteem and interpersonal relations, promote treatment-adherence, and encourage maintenance of predictable and appropriately-paced daily activity-rest cycles. Findings from studies of such interventions with BPD patients, including their impact on symptomatic, social and vocational outcome, are summarized in Table 2, as well as in previous reviews on this topic (75, 76), on which the updated tabulated summary is partly based (77–112). In addition, Table 3 summarizes rates of favorable outcomes by treatment method and outcome measures. Numbers of trials, by outcomes, rank: symptomatic (65) > rehospitalization (36) > social functioning (22) >> vocational functioning (6). Proportions of trials showing apparent benefit ranked: social functioning (59.1%) > vocational functioning (33.3%) ≥ rehospitalization (27.8%) = symptomatic improvement (27.7%). Proportions of trials showing favorable overall effects, by intervention-type, ranked: interpersonal (40.0%) ≥ cognitive–behavioral (37.5%) > psychoeducational (26.4%). Social and vocational functioning were least-often studied, but social functioning was consistently most improved with all three treatment methods.

Contributions and limitations of psychotherapies

In general, studies of interpersonal, cognitive-behavioral, and psychoeducational interventions with BPD patients, irrespective of specific procedural details, suggest that such interventions can facilitate clinically important improvements, not

Table 2. Outcomes in psychotherapy studies with bipolar disorder patients

Study	Design	Treatment	Experimental n	Control n	Duration (months)	Symptomatic outcome	Hospitalization outcome	Social outcome	Vocational outcome
Interpersonal									
Davenport et al. 1977 (77)	Control	Couples Group	12	53	47	–	N (+)	NSA (*)	–
Mayo 1979 (78)	Pre-Post	Couples Group	12	0	24	–	NP (+)	SRSR (+)	–
Volkmar et al. 1981 (79)	Pre-Post	Couples Group	20	0	24	–	NP (+)	NSA (+)	JA (+)
Retzer et al. 1991 (80)	Pre-Post	Family	20	0	14.4	–	N (*)	–	–
Van Loenen et al. 1991 (81)	Pre-Post	Group	14	0	12.5	–	N (+)	–	–
Cerbone et al. 1992 (82)	Pre-Post	Group	43	0	12	AES (*)	N (*)	IFS (*)	PS (*)
Graves 1993 (83)	Pre-Post	Group	14	0	35	–	N (+)	–	–
Frank et al. 1997 (84)	Control	Individual	18	20	6	HAMD+MRS (0)	–	SRM (*)	–
Frank et al. 2005 (85)	Control	Individual	87	88	28.7	HAMD+MRS (0)	–	SRM (*)	–
Cognitive-Behavioral									
Cochran 1984 (86)	Control	Individual	14	14	1.5	CR (+)	N (+)	–	–
Post-trial follow-up			14	14	1.5	CR (+)	N (+)	–	–
Post-trial follow-up			14	14	4.5	CR (+)	N (*)	–	–
Palmer et al. 1995 (87)	Pre-Post	Group	4	0	4.25	SCL90+ISS (+)	–	SAS (+)	–
Zaretsky et al. 1999 (88)	Pre-Post	Individual	11	0	5	HAMD+BDI (*)	–	–	–
Lam et al. 2000 (89)	Control	Individual	12	11	6	BHS (*)/BDI+HAMD+MRS (+)	–	SPS (*)	–
Post-trial follow-up			12	11	6	MRS+HAMD (*)/BHS+BDI (+)	N (+)	SPS (*)	–
Weiss et al. 2000 (90)	Pre-Post	Group	21	24	4	YMRS+ASI (*)/HAMD (0)	NP (+)	–	–
Fava et al. 2001 (91)	Pre-Post	Individual	15	0	5	BPRS (*)	–	–	–
Patelis-Siotis et al. 2001 (92)	Pre-Post	Group	38	0	3.5	HAMD+YMRS (+)	–	GAF (*)	–
Scott et al. 2001 (93)	Control	Individual	21	21	6	BDI+ISS (*)/SCL90 (+)	–	GAF (*)	WASA (+)
Scott & Tacchi 2002 (94)	Pre-Post	Individual	8	0	6	SCL90 (+)	–	–	–
Lam et al. 2003 (95), 2005 (96)	Control	Individual	51	52	6	BDI+BHS (*)/HAMD (+)/MRS (0)	ND (*)	SPS (+)	–
Post-trial follow-up					6	HAMD+BDI+MRS+BHS (+)	ND (*)	SPS (+)	–
					18	HAMD+DAS+MRS (0)	–	SPS (*)	–
					24	HAMD (0)/MRS (*)	ND (+)	SPS (0)	–
Psychoeducation									
Powell et al. 1977 (97)	Pre-Post	Group	40	0	7.5	–	ND (*)	–	–
Ellenberg et al. 1980 (98)	Pre-Post	Group	13	0	12	–	N (+)	–	–
Kripke & Robinson 1985 (99)	Pre-Post	Group	17	0	102	–	N (+)	NSA (+)	–
Van Gent et al. 1988 (100)	Control	Group	20	14	2.5	ZSML/STAI/SCL90 (all 0)	N+ND (0)	–	–
Post-trial follow-up					3	ZSML/STAI/SCL90 (all 0)	N+ND (0)	–	–
Post-trial follow-up					15	ZSML/STAI/SCL90 (all 0)	N+ND (0)	–	–
Clarkin et al. 1990 (101)	Control	Family	12	9	6	PEF (0)	–	RPTS (*)	RPTS (0)
Post-trial follow-up					18	PEF (0)	–	RPTS (*)	RPTS (+)
Van Gent et al. 1993 (102)	Control	Group	15	20	1.25	–	–	–	–
Post-trial follow-up					3	ZSML+STAI+SCL90 (0)	N (0)	IPP (0)	–
Post-trial follow-up					15	ZSML+STAI+SCL90 (0)	N (0)	IPP (0)	–
Hallensleben 1994 (103)	Pre-Post	Group	37	0	4	–	NP (+)	–	–

Table 2. Continued

Study	Design	Treatment	Experimental n	Control n	Duration (months)	Symptomatic outcome	Hospitalization outcome	Social outcome	Vocational outcome
Clarkin et al. 1998 (104)	Control	Family	18	15	11	SADS (0)	–	GAS (*)	–
Perry et al. 1999 (105)	Control	Individual	34	35	NA	–	–	SFI (*)	SFI (*)
Miklowitz et al. 2000 (106)	Control	Family	31	70	9	SADS (*)	–	–	–
Post-trial follow-up			22	43	24	SADS (*)	–	–	–
Rea et al. 2003 (107)	Control	Family	28	25	9	–	N (0)	–	–
Post-trial follow-up					15	–	N (*)	–	–
Colom et al. 2003 (108)	Control	Group	60	60	5	–	NP+N (0)	–	–
Post-trial follow-up					24	–	NP (0)/N (*)	–	–
Colom et al. 2003 (109)	Control	Group	25	25	5	–	N (*)	–	–
Post-trial follow-up					24	–	N (*)	–	–
Miklowitz et al. 2003 (110, 111)	Control	Family + Individual	30	70	12	SADS (*)	–	–	–
Simon et al. 2005 (112)	Control	Group + CM[a]	212	229	12	PSR (*)	N (+)	–	–

Outcome statistics: (*) = significant effect of experimental intervention; (+) some effect, but nonsignificant; (0) = minimal or no effect.
Symptom Ratings: AES = Affective Episode Scale; HAMD = Hamilton Rating Scale for Depression; MRS = Beck-Rafaelsen Mania Rating Scale; CR = Chart Review; SCL90 = Hopkins Symptom Checklist-90; ISS = Internal State Scale; BDI = Beck Depression Inventory; BHS = Beck Hopelessness Scale; YMRS = Young Mania Rating Scale; ASI = Addiction Severity Index drug composite score; BPRS = Brief Psychiatric Rating Scale; ZSML = Zwart-Spooren Mood List; STAI = Spielberger State-Trait Anxiety Inventory; PEF = Psychiatric Evaluation Form; SADS = Schedule for Affective Disorders and Schizophrenia–Change Version; PSR = Psychiatric Rating Scale.
Hospitalization: N = Hospitalizations; NP = Patients hospitalized; ND = Days hospitalized.
Social Function Ratings: NSA = Non-structured assessment; SRSR = Social Adjustment Rating Scale; IFS = Interpersonal Functioning Scale; SRM = Social Rhythm Metric; SAS = Social Adjustment Scale; SPS = MRC Social Performance Scale; GAF = Global Assessment of Functioning Scale; RPTS = Role Performance Treatment Scale; IPP = Inventory of Psychosocial Problems; GAS = Global Assessment Scale; SFI = Social Functioning Interview.
Vocational Ratings: JA = Job attainment; PS = Productivity Scale; WASA = Work & Social Adjustment Scale; RPTS = Role Performance Treatment Scale; SFI = Social Functioning Interview
[a]CM = Case Management: initial assessment and care planning, monthly telephone monitoring including brief symptom assessment and medication monitoring, feedback and coordination with the mental health treatment team – all provided by a nurse care manager.

Table 3. Summary of findings from research trials of psychosocial treatments for bipolar disorder patients

Outcomes	Psychosocial Interventions			Outcome totals
	Interpersonal	Cognitive-behavioral	Psychoeducational	
Symptomatic	1/5 (20.0%)	13/38 (34.2%)	4/22 (18.2%)	18/65 (27.7%)
Hospitalization	2/7 (28.6%)	3/8 (37.5%)	5/21 (23.8%)	10/36 (27.8%)
Social	4/6 (66.7%)	5/9 (55.6%)	4/7 (57.1%)	13/22 (59.1%)
Vocational	1/2 (50.0%)	0/1 (0%)	1/3 (33.3%)	2/6 (33.3%)
Method totals	8/20 (40.0%)	21/56 (37.5%)	14/53 (26.4%)	43/129 (33.3%)

Data are rates of significant superiority of experimental psychotherapeutic interventions among measured outcomes or trials, based on findings detailed in Table 2.

only in relapse-risk, hospitalization rates, and symptom-ratings, but also in social and vocational functioning. However, the available evidence is not adequate to support critical, differential assessment of especially favorable targets for particular interventions. Nevertheless, there is at least suggestive evidence that symptomatic improvement has been especially likely with CBT, and less clear with psychoeducational or interpersonal interventions. Reduced rehospitalization and improved social functioning were evident in at least some studies of all three types of psychosocial interventions. However, lack of uniform and comprehensive assessment measures limits comparison of results obtained with particular methods. Interestingly, vocational outcome was considered in only five (15%) of the 34 identified studies of psychosocial interventions (Table 2). This striking lack of attention to vocational outcomes in BPD treatment studies appears to parallel a broader lack of effort to address vocational problems associated with this disorder, and warrants further comment.

Despite high levels of functional impairment in many BPD patients and their relatively high premorbid academic and vocational functioning, we have found no reports of vocational interventions specifically designed for such patients, in striking and ironic contrast to extensive rehabilitative efforts for schizophrenia patients, whose premorbid achievements and prognosis are generally much less favorable (113). This lack of rehabilitative efforts for BPD patients may reflect: (i) the invalid impression that BPD patients respond well to treatment and usually recover to premorbid functioning following discrete acute episodes of illness; (ii) a general dearth of studies of all psychosocial interventions for BPD patients (75, 76); (iii) an evidently widely held myth that BPD patients do not cooperate with psychotherapeutic interventions; and (iv) an assumption that rehabilitative interventions have been only minimally successful in other severe psychiatric illnesses including schizophrenia.

Interestingly, although few studies of vocational interventions have specified outcomes in particular psychiatric disorders, there is some consensus that better functional as well as symptomatic outcomes occur in major affective disorder patients than in those with schizophrenia or other chronic psychotic disorders (52, 114–116). In addition, the very few studies of psychosocial interventions for BPD in which vocational outcome was specifically assessed suggest that some general interventions, including individual and group psychotherapy, may have a positive influence on vocational status as well as symptomatic and interpersonal outcomes (79, 82, 93, 96). Such findings suggest that vocational and social functioning of patients with BPD might be further improved by rehabilitative efforts specifically designed to address their needs, that such interventions are worthy of study.

In summary, efforts to limit or reverse prevalent functional impairment in BPD patients have been very limited, largely symptom-focused, and primarily medication-based. Some efforts are gradually emerging to educate patients about relationships among stress, vulnerability, symptoms, medication, and coping skills. Nevertheless, published studies of such psychoeducational interventions remain infrequent, and most have placed a heavy emphasis on symptom-reduction. Future research should expand the study of interventions that emphasize social and vocational skills and that are designed to address specific needs of BPD patients. Interventions might usefully address common social issues encountered by BPD patients, including unstable interpersonal relationships, concerns about disclosure of illness, stigma, unpredictable mood shifts, medication acceptance and dealing with profound financial, interpersonal and career losses. Group interventions appear to be especially effective and efficient in providing for discussion and practice of solutions to such problems. Vocational interventions also might usefully include specific cognitive remediation that addresses impairments often observed in BPD. Additional therapeutic targets include common

workplace problems of over-extension, productivity and social pressures, needs for special accommodations due to symptoms or adverse effects of medication, career adjustments, and job losses due to illness. Future interventions also should aim at integrating the several treatment approaches already discussed, as well as exploring elements of psychosocial interventions that have proven efficacy with other patient populations. In particular, future studies might adapt elements of evidence-based vocational rehabilitation interventions that have proved to be effective for patients diagnosed with schizophrenia or substance-use disorders.

Vocational interventions

Vocational interventions have become an increasingly important component of services provided to the repeatedly or chronically mentally ill. At a minimum, they have been viewed as means of promoting reintegration of patients into society, and of limiting expensive and disruptive hospitalizations (117–119). A broad range of rehabilitative programs has been developed to deal with heterogeneous populations of impaired, psychiatrically ill persons. However, the illnesses of the patients involved are heavily represented by chronic psychotic disorders, mainly schizophrenia, with severely impaired vocational functioning. Reported interventions include: (i) sheltered workshops; (ii) assertive case management; (iii) transitional employment; (iv) job clubs; (v) skills-training; (vi) hospital-based programs; (vii) outpatient group and individual psychosocial rehabilitation; and (viii) individual vocational counseling (116). The research literature on outcomes of such programs for the mentally ill generally supports the impression that various rehabilitative efforts can increase rates of partial or sheltered employment, but that results for competitive employment are less favorable or sustained (118, 120). Indeed, psychotic-disorder patients with chronic disabilities are among the least likely members of society to be competitively employed, with rates as low as 15–20% (121).

In the 1980s, an alternative vocational model referred to as 'supported employment', initially introduced for persons with mental retardation, was adapted for use with the chronically mentally ill. It has yielded promising results for competitive employment compared to traditional rehabilitative programs (122). Several principles of supported employment include directly assisting patients in finding employment, minimal prevocational training ('place-then-train' models), unlimited duration of support, and integration of vocational and clinical approaches. Among six experimental studies of supported employment programs for chronically mentally ill persons reviewed by Bond et al. (122), 58% of patients achieved competitive employment compared to only 21% of control subjects exposed to traditional rehabilitative methods. Outcomes were similar in seven other non-experimental studies (122). Such supported-employment programs have not been studied with BPD patients, but their success with even more impaired, severely and chronically mentally ill persons suggests that such programs, or elements of them, may also promote improved vocational functioning of BPD patients.

Approaches likely to be particularly appropriate for BPD patients are those seeking to integrate vocational rehabilitation with symptomatic treatment and broader psychosocial interventions. However, social stigma associated with rehabilitative programs for severely impaired, chronically mentally ill patients is a barrier for many BPD patients with relatively high premorbid functioning. Whereas BPD is associated with some cognitive impairments that are *qualitatively* similar to those of schizophrenia patients, their severity is typically less, as is the degree of social and occupational disability. Thus, interventions geared toward aiding patients with chronically and severely impaired cognition and perception, as well as deficits in communication and social-skills, and more limited premorbid attainments, may not optimally address the needs of BPD patients. Accordingly, we strongly recommend that more consideration be given to designing interventions that address the particular cognitive and mood impairments associated with BPD, as well as the often considerable premorbid attainments of such patients in efforts aimed at restoring them to or even above their premorbid levels of vocational training and functioning.

Conclusions

Functional impairment in vocational and social adjustment is commonly encountered among patients diagnosed with BPD. Such disabilities are increasingly strongly associated with relatively poorly treated depressive-dysphoric components of the disorder, which account for substantial proportions of time in long-term follow-up, despite application of available mood stabilizing and other psychotropic medicinal treatments.

Current treatment of BPD largely aims at symptom-management, and medication has been the primary and, often, the only treatment provided.

Due to substantial therapeutic limitations and adverse effects of available pharmacological treatments, especially for depression, sustained dysthymia, and mixed-dysphoric-irritable states characteristic of BPD, adjunctive psychosocial treatments are emerging to supplement pharmacotherapies. They are designed to address the often severe psychological problems and sometimes severe functional disabilities of BPD patients. Few non-pharmacological interventions have been studied systematically among BPD patients, and rarely have their results been compared to those in other disorders. Nevertheless, emerging observations suggest that some psychosocial interventions may lead to improved social, and perhaps vocational functioning as well as contributing to reductions in the symptomatic expression of illness, improved adherence to medical treatment, and reduced need for rehospitalization.

Specifically, we offer the following recommendations for improving psychosocial and rehabilitative interventions for BPD patients: (i) Integration of elements of psychotherapeutic interventions with demonstrated efficacy in BPD (e.g., CBT, interpersonal social rhythm therapy, and psychoeducation) might lead to improved treatments. (ii) Social and vocational interventions with preliminary research-support and demonstrated efficacy with other patient populations, notably supported employment, should be pursued for BPD patients. (iii) There is an urgent need to develop social and vocational interventions that more specifically address the needs of BPD patients with relatively intact cognitive functioning and previously successful occupational functioning. (iv) It would be helpful to incorporate assessments of neuropsychological functioning routinely within initial comprehensive clinical evaluations intended to guide rational and specific treatment-planning. (v) Cognitive remediation interventions are needed that target impairments in executive functioning, attention, memory impairment, and visuospatial functioning characteristic of BPD patients, and assess their impact on social and vocational functioning. (vi) Comprehensive assessment measures of social and vocational functioning should supplement the limited information provided by standard clinical scales such as the Global Assessment of Functioning and Global Assessment of Symptoms scales. (vii) Finally, we re-emphasize the striking disparity between the great need for specific, clinically-effective, and economically feasible rehabilitative interventions for BPD patients and the very limited efforts made so far to develop and test such interventions.

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