

The Impact of Disease Course and Type of Episodes in Bipolar Disorder on Caregiver Burden



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SUMMARY

Objective: The aim of this study was to determine how the disease course and type of episodes in patients with bipolar I disorder (BPD-I) affect caregiver burden.

Materials and Methods: The study was conducted between February and July 2010, and included 89 euthymic-state BPD-I patients (55 with a natural course and 34 with ≥ 1 mixed episode or a rapid cycling course) diagnosed according to DSM-IV-TR criteria and 89 of their caregivers. The patients were evaluated using a sociodemographic clinical form, the Hamilton Depression Rating Scale (HAM-D), Young Mania Rating Scale (YMRS), and Global Assessment of Functionality Scale (GAFS). The caregivers were evaluated using a sociodemographic form and the Zarit Caregiver Burden Interview (ZCBI).

Results: In all, 44% of the BPD-I patients' caregivers had moderate to severe burden. More of the caregivers of patients with rapid cycling or mixed episodes had social relationships negatively affected by caregiver burden ($P < 0.01$). The mean YMRS score was higher in the caregivers with moderate to severe burden ($P < 0.01$). As patient age, YMRS score, number of manic episodes, duration of illness, and duration of caregiving during the euthymic period increased ($P < 0.05$) the level of caregiver-perceived dependency also increased; as caregiver age and the duration of caregiving increased, the perception of economic burden decreased

($P < 0.05$).

Conclusion: BPD-I patient caregiving, even when patients are in a euthymic state, results in considerable caregiver burden. Mixed episodes or rapid cycling increases the severity of caregiver burden, as does the number of manic episodes and the presence of subsyndromal manic features.

Keywords: Bipolar disorder; burden of caregiver; features of course

INTRODUCTION

Bipolar disorder (BPD) is a complex chronic mood disorder characterized by episodes of an exalted mood—known as mania—alternating with episodes of depression (Goodwin and Jamison 1990). Psychosocial and familial factors have been implicated in the occurrence and course of BPD (Mansell and Pedley 2008; Miklowitz 2007; Miklowitz and Johnson 2006; Johnson 2005). Recently, evidence-based research has shown that psychosocial interventions positively affect treatment outcome in BPD patients (Miklowitz 2008).

The families and caregivers of BPD patients experience considerable burden (Perlick et al. 2007, 1999; Chakrabarti and Gill 2002; Cook et al. 1994), which can be objective (loss of income, limited social activity, tension at home, etc.) or subjective (distress caused by the patient's irritating behavior and subjective distress related to the patient) (Platt 1985).

Due to the episodic nature and course of BPD (with a natural, mixed, or rapid cycling course), the burden experienced by the caregivers of BPD patients differs from that of the caregivers of patients with other psychiatric disorders (Perlick et al. 2007; Ogilvie et al. 2005). In contrast to other chronic

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disorders, such as schizophrenia, dementia, and unipolar depression, the coping patterns of the caregivers of BPD patients have not been thoroughly examined. The relatives of BPD patient experience an increase in the expenditure of time and money, as well as stress, distress, and sorrow (Reinares and Vieta 2004; Chakrabarti and Gill 2002; Perlick et al. 1999; Fadden et al. 1987). Among the caregivers of BPD patients that presented to the hospital, Perlick et al. (2001) observed that 93% had an intermediate or higher severity of burden, which persisted in 70% 15 months later. It was reported that the caregivers of patients with chronic mental disorders experience poor health and are prone to chronic medical diseases (Gallagher and Mechanic 1996), require primary care services (Perlick et al. 2005), have sleep disorders (Perlick et al. 2007), use psychotropic medications (Dyck et al. 1999), and are at risk of hospitalization (Gallagher and Mechanic 1996) to a greater degree than other caregivers. Clinical symptoms of depression have also been observed in the caregivers of BPD patients (Dyckve et al. 1999; Struening et al. 1995).

Caregiver burden was reported to increase when providing care to BPD patients whose most recent episode was depression and following sub-threshold depressive symptoms (Ostacher et al. 2008; Perlick et al., 2007; Perlick et al. 2004, 1999). Because of the episodic and cyclic nature of BPD, caregiver burden can vary with time. Even during remission in a euthymic state between mood episodes, impaired executive function persists in many BPD patients (Perlick et al. 2004).

Based on a PUBMED search no study has compared caregiver burden associated with providing care to BPD patients with a mixed episodes and rapid cycling. As BPD with mixed and rapid cycling episodes is associated with a severe course (Gonzalez-Pinto et al. 2011; Garcia-Amador et al. 2009), it was hypothesized that such patients would be associated with more severe caregiver burden. In order to test this hypothesis the present study divided BDI-I patients into 2 groups, based on a negative history of mixed or rapid cycling episodes and a history of ≥ 1 mixed episode or rapid cycling. The aim of this study was to determine how BPD course and type of episodes affect caregiver burden.

MATERIALS and METHODS

Sampling

The study was conducted at Raşit Tahsin Mood Center (RTMC), Bakırköy Professor Dr. Mazhar Osman Hospital of Psychiatry and Neurology, Istanbul, Turkey, between February and July 2010. The study included 89 patients diagnosed as BPD-I according to DSM-IV-TR diagnostic criteria and 89 of their caregivers (close family members or relatives of the patients). All the patients were in remission for ≥ 8 weeks, with a Young Mania Rating Scale (YMRS) score

≤ 7 and a Hamilton Depression Rating Scale (HAM-D) score $21 \leq 7$. The patients were informed about the study and each provided written informed consent. The study protocol was approved by the hospital's Ethics Committee.

Among the patients included in the study, 67 (75.3%) were female and 22 (24.7%) were male. Based on clinical interviews and patient file review, 55 patients never had a mixed episode or rapid cycling (group 1), and 34 patients had had ≥ 1 mixed episode or rapid cycling (group 2). The 2 patient groups were compared with respect to caregiver burden. Moreover, factors associated with caregiver burden in the entire study group were assessed.

Inclusion/exclusion criteria

Patients and caregivers aged >18 years that had at least a primary school education were eligible to participate in the study. Each caregiver was evaluated via clinical interview by 2 psychiatrists, and caregivers with any psychiatric disorder were excluded from the study. Exclusion criteria for both patients and caregivers were diseases that cause cognitive dysfunction, such as mental retardation and dementia, and for patients only any chronic medical disease (diabetes mellitus, cardiac insufficiency, renal insufficiency, etc.).

Assessment tools

Sociodemographic clinical data form

The sociodemographic data collected included course of the disorder, family history, daily therapy administered, signs and symptoms that occurred during the study, and BPD episodes, and were obtained via clinical interviews and patient files. The patients were followed-up using a comprehensive patient follow-up form developed by Özerdem and Yazıcı (2004) based on The Working Group of Mood Disorders of The Psychiatric Association of Turkey, which was designed as the formal follow-up form of Systematized Application Follow-Up Program-Turkey (SKIP-Turkey) for use in patients with mood disorders.

The Hamilton Depression Rating Scale (HAM-D)

HAM-D is the most widely used scale for evaluating depression. It is not a diagnostic tool, but is used to provide an indication of depression and as a guide for evaluating the effectiveness of treatment. The original version of the scale, which was designed by Hamilton in 1960, contains 17 items, each of which is scored as 0-4; the maximum total score is 53. Williams developed a new version of the HDRS to improve the inter-rater reliability (Structured Interview for Hamilton Depression Rating Scale-21) (1978). The Turkish version of the scale was reported to be valid and reliable (Akdemir et al. 1996).

The Young Mania Rating Scale (YMRS)

YMRS (Young et al. 1978) is an 11-item diagnostic questionnaire used to measure the severity of maniac episodes. Each scale item measures 5 degrees of severity, and is evaluated by a psychiatrist. In all, 5 items are answered using a 5-point Likert-type scale items and the other 4 items use a 9-point Likert-type scale. The Turkish version of the scale was reported to be valid and reliable (Karadağ et al. 2001).

The Global Assessment of Functioning Scale (GAF)

GAF is a numeric (0-100) scale used to subjectively rate the overall level of functioning in adults. GAF score represents the sum of psychopathologic symptoms and results of psychosocial adjustment disorder. Low scores indicate a high level of and high scores indicate a low level of disorder (Endicott et al. 1976).

Scales used to evaluate caregivers

Sociodemographic data form

The study included 89 primary caregivers, of which 61 (68.5%) were female and 28 (31.5%) were male. The caregivers were evaluated using a sociodemographic data form prepared by the researchers.

Zarit Caregiver Burden Interview (ZCBI)

ZCBI was developed by Zarit, Reever, and Bach-Peterson (1980) in order to measure the severity of burden experienced by those providing care to patients. ZCBI can be completed by caregivers themselves or as part of an interview. Caregivers are asked to respond to 22 questions about the impact their patient's disabilities has on their life (impact on their mental and physical health, social and emotional life, economic status, and interpersonal relationships). Each item is scored on a 5-point Likert-type scale, based on how often they feel a particular way (never, rarely, sometimes, quite frequently, or nearly always). Higher scores indicate a greater degree of caregiver burden; total score ranges from 22 to 110. The degree of burden is estimated according to total score, as follows: 22-46: mild burden; 47-55: moderate burden; 56-110: severe burden. The Turkish version of the scale was reported to be valid and reliable (Özlu et al. 2010).

ZCBI includes 5 burden domains:

Domain 1: Stress and disruption of private life

Domain 2: Nervousness and sense of constraint

Domain 3: Disruption of social relationships

Domain 4: Economic burden

Domain 5: Dependency

Statistics

Statistical analysis was performed using SPSS v.18.0 for Mac. All data were analyzed using descriptive statistical methods (mean \pm SD and frequency), the paired-sample T-test for the comparison of parametrically distributed quantitative measurements between 2 groups, and the Mann-Whitney U test for the comparison of non-parametrically distributed quantitative measurements. The Kruskal-Wallis test was used to compare quantitative measurements between >2 groups, and the Mann-Whitney U test was used to evaluate the significance of between-group differences. Qualitative data were compared using the chi-square test for 4- or multiple cross-table relationships, and Pearson's or Spearman's correlation analysis was used to evaluate correlations between scale scores. In case of frequencies less than 25 in 4-crosstable relationships Yates' correction, and in case of frequencies less than 5 Fisher's exact test was made. Evaluations were based on a 95% confidence interval (CI) indicating statistical significance at the level of $P < 0.05$.

RESULT

There weren't any significant differences in gender, mean age, level of education, employment status, marital status, distribution of household members, social security, or social support between the patients, according to disease course and type of episodes ($P > 0.05$). In group 1 mean age was 35.13 ± 9.88 years, 74.5% were female, 47.3% were married, 47.3% were residing with their mother/father, 49% were residing with their partner, and 10% were employed. In group 2 mean age was 38.41 ± 9.46 years, 76% were female, 52.9% were married, 44.1% were residing with their mother/father, 50% were residing with their partner, 23.5% were employed (Table 1). In group 2 the duration of BPD was significantly longer ($P < 0.01$), the number of depressive episodes was significantly higher ($P < 0.01$), significantly more patients had depression as the most recent episode ($P < 0.01$), significantly more patients had a mixed state as the most recent episode ($P < 0.01$), and significantly more patients' first- and second-degree relatives had a history of BPD ($P < 0.01$) (Table 2).

When the sociodemographic data of the caregivers were compared with regard to the disease course and type of episodes, there weren't any significant differences in mean age, duration of caregiving, gender, marital status, level of education, employment status, or type of residence ($P > 0.05$) (Table 3). Group 2 had more female caregivers than male and group 1 had more male caregivers than female ($\chi^2 = 4.283$, $P < 0.05$) (Table 3). All the caregivers reported that prior to the study they had not received any formal training on BPD, but had been informed about the disorder by doctors during the follow-up of their patients.

Table 1. Patient sociodemographic characteristics, according to the disease course and type of episodes

		Group 1 (n = 55)	Group 2 (n = 34)		
		Mean ± SD	Mean ± SD	t	P
Age		35.13 ± 9.88	38.41 ± 9.46	-1.548	>0.05
Gender		n (%)	n (%)	χ^2	P
	Female	41 (74.5%)	26 (76.5%)	0.42	>0.05
	Male	14 (25.5%)	8 (23.5%)		
Marital status	Married	26 (47.3%)	18 (52.9%)	1.567	>0.05
	Single	21 (38.2%)	10 (29.4%)		
	Widow	0 (0%)	0 (0%)		
	Divorced	7 (12.7%)	6 (17.6%)		
	Separated	1 (1.8%)	0 (0%)		
Education	Primary school	29 (52.7%)	18 (52.9%)	6.900	>0.05
	Junior high	7 (12.7%)	1 (2.9%)		
	Senior high	8 (14.5%)	11 (32.4%)		
	University	11 (20.0%)	4 (11.8%)		
	Working	10 (18.2%)	8(23.5%)		
Employment status	Not working	19 (34.5%)	8(23.5%)	3.596	>0.05
	Retired	3 (5.5%)	3(8.8%)		
	Housewife	23 (41.8%)	15 (44.1%)		
Sharing life with	Mother/ Father	26 (47.3%)	15 (44.1%)	0.285	>0.05
	Partner/Child	27 (49.1%)	17 (50.0%)		
	Sister/ Brother	2 (3.6%)	2 (5.9%)		
Social security of any kind	No	4 (7.3%)	3 (8.8%)	0.70	>0.05
	Yes	51 (92.7%)	31 (91.2%)		
Social support other than caregiver	No	2 (3.6%)	0 (0%)	1.267	>0.05
	Insufficient	3 (5.5%)	2 (5.9%)		
	Yes	50 (90.9%)	32 (94.1%)		

Group 1: Patients with a natural course; group 2: patients with mixed episodes or a rapid cycling course; t: t test for independent sampling.

In terms of caregiver relationships to the BPD-I patients, 36 (38.2%) were life partners, 27 (30.3%) were mothers, 15 (16.9%) were fathers, 8 (9%) were sisters/brothers, 4 (4.5%) were children, 1 (1.1%) was an other person. Among the caregivers, 80 (90%) lived with their patients and 22 (24.7%) were responsible only for their patient—they did not care for other patients. In all, 12 (13.5%) caregivers had no children, 3 (3.4%) had 1 child, 27 (30.4%) had 2 children, 18 (20.2%) had 3 children, and 25 (28.1%) had ≥ 4 children. Financially, of the caregivers 12 (13.5%) were in bad, 57 (64%) in moderate, 19 (21.3%) in good, and 1 (1.1%) in very good status. The mean total monthly income covering all caregivers was 1709.78 ± 1092.23 TL, and the mean monthly income of 1 caregiver was 509.25 ± 289.57 TL.

The mean ZCBI total score was 45.55 ± 14.03. Based on ZCBI scores, 49 (55.1%) caregivers had mild caregiver burden, 21 (23.6%) had moderate burden, and 19 (21.3%) had severe burden. When the patients' sociodemographic data were evaluated according to ZCBI scores there weren't any significant differences between the caregivers with mild, moderate, and severe burden, in terms of patient mean age, gender, marital status, level of education, or employment status, or distribution of household persons ($P > 0.05$). A significant difference was observed between the professional distributions of the groups ($\chi^2 = 13.626$; $P < 0.05$). As compared to the caregivers with moderate burden, more of those with mild burden were providing care to employed BPD-I patients, and as compared to those with mild and moderate burden, more of those with severe burden were providing care

Table 2. Comparison of patient clinical features, according to disease course

		Group 1 (n = 55)	Group 2 (n = 34)		
		Mean ± SD	Mean ± SD	t/z	P
Age at onset of disorder		24.00 ± 7.89	22.65 ± 7.24	t = 0.911	>0.05
Duration of disorder		11.29 ± 7.80	16.24 ± 8.55	t = -2.800	<0.01
Number of depressive episodes		1.25 ± 1.45	3.53 ± 3.23	z = -3.802	<0.01
Number of manic episodes		3.71 ± 2.39	4.35 ± 4.35	z = -0.543	>0.05
Number of mixed episodes		0.00 ± 0.00	1.50 ± 1.21	z = -7.735	<0.01
		n (%)	n (%)	χ ²	P
First episode type	Depression	17 (30.9%)	15 (52.9%)	3.508	>0.05
	Mixed	0 (0%)	1 (2.9%)		
	Mania	38 (69.1%)	18 (52.9%)		
Last episode type	Depression	14 (25.5%)	11 (32.4%)	20.182	<0.01
	Mixed	0 (0%)	11 (32.4%)		
	Mania	28(50.9%)	7 (20.6%)		
	Hypomania	13 (23.6%)	5 (14.7%)		
Disorder in first-degree relatives		22 (40%)	21 (61.8%)	3.986	<0.05
Disorder in second-degree relatives		17(30.9%)	18 (52.9%)	4.274	<0.05
		Mean ± SD	Mean ± SD	z	P
HAM-D		0.71 ± 1.21	1.00 ± 1.27	-1.302	>0.05
YMRS		0.13 ± 0.51	0.03 ± 0.17	-0.878	>0.05
GAF		79.36 ± 11.82	75.88 ± 10.55	-1.492	>0.05

Group 1: Patients with a natural course; group 2: patients with mixed episodes or a rapid cycling course; t: t test for independent sampling; z: Mann-Whitney U test.

Table 3. Caregiver sociodemographic features, according to patient disease course and type of episodes.

		Group 1 (n = 55)	Group 2 (n = 34)		
		Mean ± SD	Mean ± SD	t	P
Age		47.44 ± 11.40	51.68 ± 14.63	-1.527	>0.05
Duration of caregiving		10.33 ± 8.11	12.38 ± 7.80	-1.178	>0.05
		n (%)	n (%)	χ ²	P
Gender	Female	20 (36.4%)	20 (58.8%)	4.283	<0.05
	Male	35 (63.6%)	14 (41.2%)		
Marital status	Married	49 (89.1%)	28 (82.4%)	4.489	>0.05
	Single	4 (7.3%)	1 (2.9%)		
	Widow	0 (0%)	1 (2.9%)		
	Divorced	2 (3.6%)	4 (11.8%)		
Education	Primary school	32 (58.2%)	18 (52.9%)	3.700	>0.05
	Junior high	4 (7.3%)	6 (17.6%)		
	Senior high	10 (18.2%)	7 (20.6%)		
	University	9 (16.4%)	3 (8.8%)		
Employment status	Working	18 (32.7%)	9 (26.5%)	0.389	>0.05
	Not working	37 (67.3%)	25 (73.5%)		
Residence	Same house	51 (92.7%)	29 (85.3%)	0.590	>0.05
	Same apartment	4 (7.3%)	5 (14.7%)		

Group 1: Patients with a natural course; group 2: patients with mixed episodes or a rapid cycling course; t: t test for independent sampling.

Table 4. Comparison of ZCBI scores in the caregivers of patients in group 1 and group 2.

ZCBI Domains	Group	Mean ± SD	t	P
ZF1	1	12.74 ± 4.63	-1.534	>0.05
	2	14.58 ± 6.69		
ZF2	1	5.60 ± 2.40	-1.566	>0.05
	2	6.52 ± 3.16		
ZF3	1	4.09 ± 1.37	-2.545	=0.01*
	2	5.14 ± 2.53		
ZF4	1	10.70 ± 3.16	0.209	>0.05
	2	10.55 ± 3.48		
ZF5	1	5.45 ± 2.60	-1.256	>0.05
	2	6.14 ± 2.40		
ZCBI total	1	43.80 ± 11.92	-1.615	>0.05
	2	48.38 ± 16.71		

Group 1: Patients with a natural course; group 2 patients with mixed episodes or a rapid cycling course; ZF1: stress and disruption of private life; ZF2: nervousness and sense of constraint; ZF3: disruption of social relationships; ZF4: economic burden; ZF5: dependency; t: t-test for independent sampling.
*Statistically significant.

0.01) and severe burden ($z = -2.742$, $P < 0.01$) groups. There weren't any significant differences between the caregivers with mild, moderate, and severe-burden between the groups with regard to gender, level of education, employment, or marital status ($P > 0.05$).

In 25 (28.1%) of the patients the most recent episode was depression. When the ZCBI factor points of patients with and without the most recent episode being depression were evaluated, no differences were noted between these two groups as to total points and factors ($P > 0.05$). When the caregivers' ZCBI scores were assessed according to disease course and type of episodes in their patients, the mean disruption of social relationships (ZF3) score was 4.09 ± 1.37 in the caregivers of patients in the group with a natural course (group 1) and 5.14 ± 2.53 in those providing care to patients in the group with ≥ 1 mixed episode or with a rapid cycling course (group 2); the difference was significant ($t = -2.545$; $P < 0.05$). There weren't any significant differences between the 2 groups' caregivers with regard to the other ZCBI factor scores or total ZCBI score ($P > 0.05$) (Table 4).

Table 5. Some factors associated with ZCBI scores.

ZCBI scores	HAM-D (a)	YMRS (a)	GAF (a)	Patient age (a)	No. of depressive episodes (b)	No. of manic episodes (b)	No. of mixed episodes (b)	Total duration of disorder (b)	Duration of caregiving (b)
Total	0.049	0.163	-0.270*	0.093	0.016	0.173	0.080	0.034	0.124
ZF1	0.106	0.071	-0.214*	0.001	0.134	0.110	0.110	-0.037	0.139
ZF2	-0.073	0.193	-0.137	0.190	-0.071	0.183	0.057	0.075	0.214*
ZF3	-0.043	0.070	-0.141	0.232*	0.052	0.146	0.037	0.114	0.197
ZF4	0.091	0.132	-0.304**	-0.212*	-0.124	0.009	-0.067	-0.165	-0.256*
ZF5	0.005	0.218*	-0.213*	0.231*	0.037	0.298**	0.091	0.210*	0.239*

(a): Pearson's correlation coefficient; (b): Spearman's correlation coefficient.
* $P < 0.05$,
** $P < 0.01$.

to retired patients. There weren't any significant differences in social security ($P > 0.05$) or social support other than that by caregiver ($P > 0.05$) between the 2 groups. Comparison of groups 1 and 2 according to ZCBI showed that there weren't any significant differences in age at onset of disorder, first mood episode type and its duration, or the number of previous depressive, manic, and mixed episodes ($P > 0.05$).

There weren't any significant differences in mean HAM-D or GAF ($P > 0.05$) scores of the patients with caregivers that had mild, moderate, and severe caregiver burden, but there was a significant difference in the YMRS mean score ($\chi^2 = 6.643$, $P < 0.05$); the mean YMRS score in the patients of caregivers with mild burden was significantly lower than in those with caregivers that had moderate burden ($z = -2.354$, $P <$

When some factors associated with ZCBI total score were assessed in the caregivers of patients in groups 1 and 2, GAF score was observed to increase along with a decrease in ZCBI total score ($P < 0.05$), ZCBI stress and disruption to private life (ZF1) score ($P < 0.05$), ZCBI dependency (ZF5) score ($P < 0.05$), and ZCBI economic burden (ZF4) score ($P < 0.01$). Moreover, as the mean YMRS score increased in both patient groups the ZCBI dependency (ZF5) score increased ($P < 0.05$). There was a significant positive relationship between patient age and ZCBI dependency (ZF5) score ($P < 0.05$), and a significant negative relationship between patient age and ZCBI economic burden (ZF4) score ($P < 0.05$) (Table 5). As the number of manic episodes and duration of BPD increased, the ZCBI dependency (ZF5) score increased ($P <$

0.01 and $P < 0.05$, respectively). As duration of caregiving increased, the ZCBI nervousness and sense of constraint (ZF2) ($P < 0.05$) and dependency (ZF5) scores ($P < 0.05$) increased, whereas the ZCBI economic burden (ZF4) score decreased ($P < 0.05$) (Table 5).

Among the caregivers, 19 (21.3%) had a chronic disease, but there wasn't a significant difference in any ZCBI factor score or ZCBI total score between the caregivers with and without a chronic disease ($P > 0.05$).

DISCUSSION

In the present study the effect of BPD-I patients' sociodemographic and clinical features on caregiver burden was assessed in the caregivers of BPD-I patients that had had ≥ 1 mixed episode or a rapid cycling course, and those that had a natural course. Of the 89 patients included in the study, 67 (75.2%) were female. The distribution of BPD-I was equal in both genders (Schulman et al., 2002). The present findings are not generalizable to the general bipolar patient population, as the majority of patients were female. The patients in the present study were randomly selected and included those with a rapidly cycling course and mixed episodes, which are predominantly noted in females (Suppes et al. 2005; Kessing 2004; Arnold 2003; Arnold et al. 2000; Tondo and Baldessarini 1998). A positive family history of psychiatric disorders was very common in the BPD-I patients with a rapid cycling course and mixed episodes, which is in agreement with some earlier reports (Avashti et al. 1999) and is in contrast to others (Serretti et al. 2002; Maj et al. 1994). In addition, the number of depressive episodes was significantly higher in group 2, which is in concordance with the literature, and indicates that the use of antidepressants for depression enhances mania and thus rapid cycling (Perugi et al. 2000).

ZCBI has been used primarily in studies on the caregivers of patients with schizophrenia and dementia (Liew et al. 2010; Miyamoto et al. 2010; Hanzawa et al. 2008; Ankri et al. 2005; Zarit et al. 1980), and to the best of our knowledge the present study is the first to examine the impact of BPD course and episodes on caregiver burden. Perlick et al. reported that $>90\%$ of caregivers had moderate-severe burdened based on the Social Behavior Assessment Scale (SBAS) (Platt 1980); however, 10% and 35% of their study group comprised bipolar II and schizoaffective patients, respectively, and their sample included hospitalized patients and patients discharged for ≤ 2 weeks (Perlick et al. 1999). The present study's sample consisted of BPD-I patients in the euthymic state and their caregivers. Among the caregivers, 44.9% had moderate-severe burden, as opposed to 31% and 46% reported by Lam et al. (2005) and Goossens et al. (2008), respectively. In the present study 90% of the patients lived with their families. Living in the same home with a BPD patient might create a

sense of insufficient and less autonomy in the caregiver, thus increasing caregiver burden. On the other hand, assessing the ways of coping in the group with no burden might contribute to the therapy.

In the present study more retired patients were given care by caregivers with severe burden than by those with mild and moderate burden. In this case, the severe burden felt by the caregiver might be caused by more long time of period to be spent with the patient. Earlier studies have reported that among caregivers with severe burden, they often care for patients with a low level of education and those that are their spouses. Severe caregiver burden has been associated with an increase in responsibilities associated with marriage and expectations of the partners higher than those of the parents (Chadda et al. 2007; Perlick et al. 2007). In the present study there wasn't a significant differences between the patients and caregivers with regard to level of education or marital status.

When caregiver burden was evaluated according to BPD course and type of episodes the caregivers of patients with a rapid cycling course or mixed episodes had more burden related to social relationships, which is in agreement with reports that BPD with a mixed course is associated to a greater degree with general psychopathology, catatonic symptoms, suicide, and poor course than is BPD with pure manic episodes (Braunig et al. 1998; Goldberg et al. 1998; Cohen et al. 1988). It was reported that caregiver burden increases with the number of depressive episodes, and that BPD patients whose initial episode is depressive exhibit weaker psychosocial and clinical adaptation than patients whose initial episode is manic/hypomanic (Perlick et al. 1999). As the number of manic episodes, duration of caregiving, and duration of illness and subsyndromal manic symptoms increased in the present study's patients, ZCBI dependency scores in the caregivers increased. This finding led us to think that coping with mania is more difficult in our society than in western societies.

None of the caregivers in the present study received formal training on BPD; we think this lack of psychoeducation might have negatively affected the caregivers' abilities to cope with their patients, especially those with manic symptoms. In contrast to the present findings, Reinares et al. (2006) reported that there wasn't an association between the number of past mood episodes and caregiver burden. They also reported that the caregivers of patients whose most recent episode was depression had severe burden and a greater degree of burden related to ZCBI stress and disruption of private life. In addition, they reported that the degree of burden was significantly higher in the caregivers of patients that had episodes during the previous 2 years (Reinares et al. 2006). In the present study depression as the most recent episode did not affect caregiver burden. It was reported that caregiver burden increases in those providing care to patients whose most recent episode was depression with persistent sub-threshold depressive

symptoms (Perlick et al. 2007, 2004, 1999; Chakrabarti and Gill 1992). In the present study sub-threshold manic symptoms caused a sense of increased burden in caregivers. The mean YMRS score in the patients cared for by caregivers with mild burden was lower than those cared for by caregivers with moderate and severe burden; as YMRS score increased, caregivers complained of more nervousness and increased sense of constraint. In this respect, the results of our study differ from those of studies made in the western societies; this is perhaps due to our inclination of our people to show increased mood symptoms.

The present study's findings indicate that caregiver burden was not associated with their sociodemographic characteristics, but with disease course and clinical features of the BPD-I patients. Studies on caregiver burden in BPD have reported that the partners of patients experience more severe burden (Perlick et al. 2007), that male caregivers and caregivers of low socioeconomic status have more burden, and that as caregiver age increases the perception of burden decreases (Perlick et al. 1999). In the present study chronic disease in the caregivers did not affect the severity of burden, whereas Perlick et al. (2007) reported that more of the caregivers with severe burden had physical health problems, presented to healthcare centers, had low social support, and provided financial support to their patients. Such factors as duration of BPD, duration of caregiving, residing with the patient, and BPD symptoms were reported to be among the determinants of burden (Schulze and Rössler 2005). In the present study as duration of caregiving increased ZCBI nervousness and sense of constraint, and dependency scores increased, and ZCBI economic burden scores decreased. Moreover, as caregiver age and duration of caregiving increased ZCBI disruption of social relationships and dependency scores increased. Furthermore, as patient age increased ZCBI disruption of social relationships and dependency scores increased, whereas perceived economic burden decreased. These findings indicate that as the duration of caregiving increased the caregivers became accustomed to economic hardship and were more likely to have experienced nervousness and a sense of constraint, disruption of social relationships, and dependency.

As the present study's BPD-I patients' GAF scores increased, there was a decrease in caregiver perception of stress and disruption of private life, economic burden, and perception of dependency. Moreover, higher GAF scores—in other words the level of patient functioning—was associated with a decrease in the perceived level of burden, as previously reported (Perlick et al. 2007; Reinares et al. 2006). It has been reported earlier that the severity of BPD episodic symptoms is positively correlated with the degree of caregiver burden. Other factors associated with burden are duration of disorder, duration of caregiving, living with the patient, stigmatization, referring to psychiatrists, family atmosphere, and patients

acting violently towards themselves and others, as well as such demographic variables as age, gender, and level of education (Kjellin and Östman 2005; Schulze and Rössler 2005).

The course and clinical features of BPD negatively affect caregiver burden, even when patients are in a euthymic state. The present findings show that manic episodes and sub-threshold manic symptoms were associated with more severe caregiver burden. Maintaining the highest possible level of patient functionality can facilitate patient autonomy and consequently decrease the severity of caregiver burden. The present study's BPD-I population is not representative of the general bipolar population, because it included patients treated at a specialized center for mood disorders, more female patients than males, patients with remission of ≥ 2 months, and difficult-to-treat patients. Additionally, caregivers with psychiatric problems were excluded from the study, considering that psychiatric problems might affect the cognition of burden. Additional comprehensive studies, with larger patient and caregiver groups, that administer such diagnostic scales as SCID-I and SCID-II to caregivers, and compare the severity of burden in caregivers with and without psychiatric disorders are warranted.

In conclusion, mixed episodes and a rapid cycling course in BPD patients causes disruption of social relationships in their caregivers. Controlling symptoms in the euthymic state, increasing patient social functioning, and psychoeducation for patients' families are likely strategies for decreasing the severity of caregiver burden. This study on bipolar patients in euthymic state provides data on in which field psychoeducation and psychotherapy should be given to the patient in remission and caregiver during follow-up in the outpatient clinic.

REFERENCES

- Akdemir A, Örsel S, Dağ İ ve ark. (1996) Hamilton depresyon derecelendirme ölçeğinin (HDDÖ) geçerliliği, güvenilirliği ve klinikte kullanımı. *Psikiyatri Psikoloji Psikofarmakoloji Dergisi* 4:251-9.
- Ankri J, Andrieu S, Beaufile B et al (2005) Beyond the global score of the Zarit Burden Interview: useful dimensions for clinicians. *Int J Geriatr Psychiatry* 20:254-60.
- Arnold LM, McElroy SL, Keck PE Jr (2000) The role of gender in mixed mania. *Compr Psychiatry* 41:83-7.
- Arnold LM (2003) Gender differences in bipolar disorder. *Psychiatr Clin North Am* 26:595-620.
- Avasthi A, Sharma A, Malhotra S et al (1999). Rapid cycling bipolar disorder: a descriptive study from North India. *J Affect Disord* 54:67-73.
- Barrowclough C, Tarrrier N, Lewis S et al (1999) Randomised controlled effectiveness trial of a needs-based psychosocial intervention service for carers of people with schizophrenia. *Br J Psychiatry* 174:505-11.
- Braunig P, Krüger S, Shugar G (1998) Prevalence and clinical significance of catatonic symptoms in mania. *Compr Psychiatry* 39:35-46.
- Chadda RK, Singh TB, Ganguly KK (2007) Caregiver burden and coping: A prospective study of relationship between burden and coping in caregivers of patients with schizophrenia and bipolar affective disorder. *Soc Psychiatry Psychiatr Epidemiol* 42:923-30.

- Chakrabarti S, Gill S (2002) Coping and its correlates among caregivers of patients with bipolar disorder: a preliminary study. *Bipolar Disord* 4:50-60.
- Chakrabarti S, Kulhara P, Verma SK. (1992) Extent and determinants of burden among families of patients with affective disorders. *Acta Psychiatr Scand* 86:247-52.
- Cohen S, Khan A, Robison J (1988) Significance of mixed features in acute mania. *Compr Psychiatry* 29:421-6.
- Cook JA, Lefley HP, Pickett SA et al (1994) Age and family burden among parents of offspring with severe mental illness. *Amer J Orthopsychiat* 64:435-47.
- Dyck DG, Short R, Vitaliano PP (1999) Predictors of burden and infectious illness in schizophrenia caregivers. *Psychosom Med* 61:411-9.
- Endicott J, Spritzer R, Fleiss J et al (1976) The Global Assessment Scale. *Arch Gen Psychiatry* 33:766-71.
- Fadden G, Bebbington P, Kuipers L (1987) Caring and its burdens. A study of the spouses of depressed patients. *Br J Psychiatry* 151:660-7.
- Gallagher SK, Mechanic D (1996) Living with the mentally ill: Effects on the health and functioning of other household members. *Soc Sci Med* 42:1691-701.
- Garcia-Amador M, Colom F, Valenti M et al (2009) Suicide risk in rapid cycling bipolar patients. *J Affective Disord* 117:74-8.
- Goldberg JF, Garno JL, Leon AC et al (1998) Association of recurrent suicidal ideation with nonremission from acute mixed mania. *Am J of Psychiatry* 155:1753-5.
- Gonzalez-Pinto A, Barbeito S, Alonso M et al (2011) Poor long-term prognosis in mixed bipolar patients: 10-year outcomes in the Vitoria prospective naturalistic study in Spain. *The J Clin Psychiat* 72:671-6.
- Goodwin FK, Jamison KR (1990) Manic-depressive illness. New York: Oxford University Press.
- Goossens PJJ, Wijngaarden BV, Knoppert-Van Der K EAM et al (2008) Family caregiving in bipolar disorder: caregiver consequences, caregiving coping styles and caregiver distress. *Int J Soc Psychiatry* 54:303-16.
- Hanzawa S, Tanaka G, Inadomi H et al (2008) Burden and coping strategies in mothers of patients with schizophrenia in Japan. *Psychiatry Clin Neuroscience* 62:256-63.
- Johnson SL (2005) Mania and dysregulation in goal pursuit: a review. *Clin Psychol Rev* 25: 241-62.
- Karadağ F, Oral ET, Yalçın FA ve ark. (2001) Young Mani Derecelendirme Ölçeğinin Türkiye'de Geçerlik ve Güvenilirliği. *Türk Psikiyatri Derg* 13:107-14.
- Kessing LV (2004) Gender differences in the phenomenology of bipolar disorder. *Bipolar Disord* 6:421-5.
- Kjellin L, Östman M (2005) Relatives of psychiatric inpatients: do physical violence and suicide attempts of patients influence family burden and participation in care? *Nord J Psychiatry* 59:7-11.
- Lam D, Donaldson C, Brown Y et al (2005) Burden and marital and sexual satisfaction in the partners of bipolar patients. *Bipolar Disord*. 7:431-40.
- Liew TM, Luo N, Chionh HL et al (2010) Predicting gains in dementia caregiving. *Dement Geriatr Cogn Disord* 29:115-22.
- Maj M, Magliano L, Pirozzi R et al (1994) Validity of rapid cycling as a course specifier for bipolar disorder. *Am J Psychiatry* 151:1015-9.
- Mansell W, Pedley R (2008) The ascent into mania: a review of psychological processes associated with the development of manic symptoms. *Clin Psychol Rev* 28: 494-520.
- Miklowitz DJ, Johnson SL (2006) The psychopathology and treatment of bipolar disorder. *Annu Rev Clin Psychol* 2:199-235.
- Miklowitz DJ (2007) The role of the family in the course and treatment of bipolar disorder. *Curr Dir Psychol Sci* 16:192-6.
- Miklowitz DJ (2008) Adjunctive psychotherapy for bipolar disorder: state of the evidence. *Am J Psychiatry* 165:1408-19.
- Miyamoto Y, Tachimori H, Ito H (2010) Formal caregiver burden in dementia: impact of behavioral and psychological symptoms of dementia and activities of daily living. *Geriatr Nurs*. 31:246-53.
- Ogilvie AD, Morant N, Goodwin GM (2005) The burden on informal caregivers of people with bipolar disorder. *Bipolar Disord*. 7:25-32.
- Ostacher MJ, Nierenberg AA, Losifescu DV (2008) Correlates of subjective and objective burden among caregivers of patients with bipolar disorder. *Acta Psychiatr Scand* 118:49-56.
- Özdemir A, Yazıcı O, Oral ET et al (2004) Establishment of a registry program for bipolar illness in Turkey. *International Society of Affective Disorders 2nd Biennial Conference-Cancun, Mexico, J Affective Disord* 78 (Suppl 1): 86.
- Özlü A, Yıldız M, Aker T (2009) Zarit Bakıcı Yük Ölçeğinin Şizofreni hasta yakınlarında geçerlilik ve güvenilirlik çalışması. *Nöropsikiyatri Arşivi - Archives of Neuropsychiatry* 46(Özel Sayı):38-42.
- Perlick D, Clarkin JF, Sirey J et al (1999) Burden experienced by care-givers of persons with bipolar affective disorder. *Br J Psychiatry* 175:56-62.
- Perlick DA, Rosenheck RR, Clarkin JF et al (2001) Impact of family burden and patient symptom status on clinical outcome in bipolar affective disorder. *J Ner Ment Dis* 189:31-7.
- Perlick DA, Rosenheck RA, Clarkin JF et al (2004) Impact of Family Burden and Affective Response on Clinical Outcome Among Patients With Bipolar Disorder. *Psychiatr Serv* 55:1029-35.
- Perlick DA, Hohenstein JM, Clarkin JF et al (2005) Use of mental health and primary care services by caregivers of patients with bipolar disorder: A preliminary study. *Bipolar Disord* 7:126-35.
- Perlick DA, Rosenheck R, Miklowitz DJ (2007) STEP-BD Family Experience Collaborative Study Group. Prevalence and correlates of burden among caregivers of patients with bipolar disorder enrolled in the Systematic Treatment Enhancement Program for Bipolar Disorder. *Bipolar Disord* 9:262-73.
- Perugi G, Micheli C, Akiskal HS et al (2000) Polarity of the first episode, clinical characteristics, and course of manic-depressive illness: a systematic retrospective investigation of 320 bipolar I patients. *Compr Psychiatry* 41:13-8.
- Platt S (1985) Measuring the burden of psychiatric illness on the family: an evaluation of some rating scales. *Psychol Med* 15:383-93.
- Reinares M, Vieta E (2004) The burden on the family of bipolar patients. *Clin Approaches Bipolar Disord* 3:17-23.
- Reinares M, Vieta E, Colom F et al (2006) What really matters to bipolar patients caregivers: Sources of family burden. *J Affect Disord* 94:157-63.
- Serretti A, Mandelli L, Lattuada E et al (2002) Rapid cycling mood disorder: clinical and demographic feature. *Compr Psychiatry* 43:336-43.
- Shulman KI, Schaffer A, Levitt A, Herrmann N. Effects of gender and age on phenomenology and management of bipolar disorder: a review. In: Maj M, Akiskal HS, Lopez Ibor JJ, Sartorius N eds. *Bipolar Disorder*. Chichester, UK: John Wiley and Sons, 2002:359-97.
- Schulze B, Rössler W (2005) Caregiver burden in mental illness: review of measurement, findings and interventions in 2004-2005. *Current Opinion in Psychiatry* 18:684-91.
- Struening EL, Stueve A, Vine P et al (1995) Factors associated with grief and depressive symptoms in caregivers of people with serious mental illness. In JR Greenley (Ed), *Research in Community and Mental Health* (Vol 8, pp 91-124). Greenwich (CT): JAI Press Inc.
- Suppes T, Mintz J, McElroy SL et al (2005) Mixed hypomania in 908 patients with bipolar disorder evaluated prospectively in the Stanley Foundation Bipolar Treatment Network: a sex-specific phenomenon. *Arch Gen Psychiatry* 62:1089-96.
- Tondo L, Baldessarini LU (1998) Rapid cycling in women and men with bipolar manic-depressive disorders. *Am J of Psychiatry* 155:1434-6.
- Williams BW (1978) A structured interview guide for Hamilton Depression Rating Scale. *Arch Gen Psychiatry* 45:742-7.
- Young RC, Biggs JT, Ziegler et al (1978) A rating scale for mania: reliability, validity, and sensitivity. *Br J Psychiatry* 133:429-35.
- Zarit S, Reever K, Bach-Peterson J (1980) Relatives of the impaired elderly: Correlates of feeling of burden. *Gerontologist* 20:649-55.