Original Article/*Özgün Makale*

Klinik Psikoloji Dergisi (KPD)
DOI: 10.5455/kpd.260244381506 2019m000008

Types of environmental stressors and social support in bipolar disorder

Ayman Saleh[1] *0000-0001-8623-6927*, Kemal Kuşçu[2] *0000-0002-7251-4874*

Kaan Kora[3] *0000-0003-0081-1439*

Key words
bipolar disorder, environmental stressors, perceived support, reaction

Abstract

Environmental Stressors (ES) are among the triggering factors of mood fluctuations in Bipolar Disorder (BD). This study explored the types and intensity of ESs causing mood fluctuations and whether perceived support had an influence on that relationship. In this descriptive study, 24 patients, who were diagnosed with BD type I or II within the three years prior to current study were included; and 24 Healthy Controls (HC) were matched in terms of age, sex and educational level. Life Events and Difficulties Schedule (LEDS) was used to screen for numbers, domains, and threat level of life events (stressors < 1 month) and difficulties (stressors > 1 month), as well as positive support, and negative reactions to each stressor. Screening period included one year before the first manic or hypomanic episode. Compared to HC, BD patients reported higher numbers of total life events and difficulties particularly in education, work, medical health, partner and interpersonal relationships domains. Patients were exposed to greater negative reactions from others, especially after the onset of BD. There were no differences between the groups regarding perceived social support from others. Findings highlighted the triggering effect of severe ES on BD onset, types of ES, and perceived social reaction.

Anahtar kelimeler
bipolar bozukluk, çevresel stres, algılanan destek, tepki

Öz

Bipolar bozuklukta çevresel stres türleri ve sosyal destek

Bu çalışmada stresli yasam olaylarının ve zorlukların Bipolar Duygu Durum Bozukluklarındaki (BDB) etkisinin araştırılması amaçlanmıştır. Hastalığın öncesi ve sonrasındaki yaşam olaylarının ve zorlukların türlerinde ve şiddetinde, ayrıca kişiye verilen destekte değişiklik olup olmadığına bakılmıştır. Çalışmaya, çalışmanın başlangıç tarihinden üç yıl öncesine kadar BDB tip I ve/ya tip II tanısı almış 24 hasta katılmıştır. Yaşam Olayları ve Zorlukları Listesi (Life Events and Difficulties Schedule-LEDS) kullanarak, BDB tanısı konulmadan önceki yıl ve sonrasındaki yasam olaylarının (bir aydan kısa süren çevresel stres) ve zorluklarının (bir aydan uzun süren çevresel stres) sayısı, türü, şiddet derecesi, kişiye verilen olumlu ve olumsuz tepkiler ölçülmüştür. Ayrıca, yaş, cinsiyet ve eğitim seviyesi eşit olan 24 kişiden oluşturulmuş bir kontrol grubu da araştırmaya dâhil edilmiştir. Hasta grubunun, kontrol grubuna göre, daha çok stresli yaşam olayı ve zorluğuna maruz kaldığı görülmüştür. Ayrıca sorunların daha çok eğitim, iş ve tıbbi alanlarda; partnerle olan ilişkide ve kişiler arası ilişkilerde yoğunlaştığı bulunmuştur. Yasam olaylarının tehdit derecesi, BDB tanısı konulmadan önce, çok daha yüksek bulunmuştur. Her iki grup, stresli olaylarda eşit derecede olumlu destek almışlardır. Buna rağmen, BDB olan hastalar, özellikle hastalığın başlangıcından sonra, stresli yaşam olaylarının sonucunda daha çok olumsuz tepkiye maruz kalmışlardır. BDB başlamasında, stresli yasam olaylarının ve zorluklarının önemli bir role sahip olduğu görülmektedir. Ayrıca, olumsuz tepkilerin BDB açısından önemli bir sebep olabileceği düşünülmüştür.

Saleh, A., Kuşçu, K., & Kora, K. (2019). Types of environmental stressors and social support in bipolar disorder. *Klinik Psikoloji Dergisi, 3*(1), 26-33.

Ayman Saleh· salehayman@gmail.com

[1] MD, Children's National Health Center, 111 Michigan Ave, NW, Washington, D.C., 20010.
[2] Prof. Dr., Department of Psychiatry, Marmara University Pendik Hospital, İstanbul, Turkey.
[3] Prof. Dr., İstanbul, Turkey.

Received 04 Mar 2019
Accepted 15 Jun 2019

KPD 2019; 3(1):26-33

Bipolar Disorder (BD) affects an average of 1% of the general population and among the leading causes of disability worldwide (Miklowitz & Johnson, 2009). It is associated with higher levels of academic difficulty, occupational impairment, social dysfunction, and lower socioeconomic status (Copeland et al. 2009; Miklowitz & Johnson, 2009). Environmental Stress (ES) is considered one of the major etiological factors of BD (Johnson, 2005). ES may trigger mood episodes and were found to be related to severe courses of BD (Ellicott, Hammen, Gitlin, Brown, & Jamison, 1990; Johnson, 2005). Hence, having a better understanding of ES may help in predicting future symptomatology of BD and identifying need for protective interventions including emotional support, social support, and early treatment.

Interpersonal events are the most common type of ES reported by BD patients. This includes emotional abuse, sexual abuse, and emotional neglect (Etain et al. 2013). Childhood traumas, particularly emotional and sexual abuse, were associated with higher rates of affective dysregulation, earlier age of BD onset, and increased suicide attempts (Coulston, Tanious, Mulder, Porter, & Malhi, 2012; Etain et al. 2013). Certain ESs were found to be associated with BD characteristics. For instance, childhood sexual and physical abuse were found to be associated with rapid cycling mood episodes and psychotic symptoms respectively (Etain et al. 2013).

The treatment and disease process of BD will also cause a major shift in the patient's lifestyle, relationships, and types of ES experienced. For example, intense mood fluctuations and impulsive behaviors may expose the patient to the stresses of hospitalization, accidents, and other stressful incidents. Furthermore, BD patients may experience long lasting life difficulties, including educational, vocational, financial problems, and social relationship difficulties. (Michalak, Yatham, Kolesar, & Lam, 2006).

Negative ESs may trigger depressive as well as manic episodes of BD (Christensen et al. 2003). Types of ESs and individual variables (cognitive processes and psychological defense mechanisms) may contribute to the mood episode (Lemberger et al. 1985). Several reports described incidents of "funeral mania" in BD patients. These are manic episodes in the setting of a recent death of a close family member (Kessing, Agerbo, & Mortensen, 2004). Psychodynamic theories postulate that BD patients tend to develop defensive reactions towards negative life events by avoiding threatening information and developing an overly reactive emotional state that could prompt manic episodes (Lyon, Startup, & Bentall, 1999; Myin-Germeys, Krabbendam, Delespaul, & Van Os, 2003). Lyon et. al. (1999) explains that ES may bring latent negative self-representations to the conscious level which may trigger defensive manic responses and, as a result, patients may become grandiose and manic (Lemberger et al. 1985).

In addition, positive life events may dysregulate the behavior activation system in BD patients. The behavioral activation system is known to regulate affect, cognition, and behaviors when achieving incentives and ambitions. Dysregulation in the behavioral activation system may lead to heightened levels of positive affect, energy and goal pursuit (Sutton & Johnson, 2002). Goal attainment life events, including passing a difficult exam or winning a prize, may over stimulate the behavior activation system and, as a result, trigger manic episodes (Depue, Collins, & Luciana, 1996).

Disruption in the daily circadian rhythm caused by ES may be another triggering mechanism for mood episodes (Ehlers, Frank, & Kupfer, 1988). Increase in manic episodes have been noticed after exposure to ES that disrupt sleep circadian cycle (Leibenluft, Albert, Rosenthal, & Wehr, 1996). Controlled experimental studies indicated that more than 10% of BD patients with ongoing depression developed hypomanic or manic symptoms after planned sleep deprivation (Colombo, Benedetti, Barbini, Campori, & Smeraldi, 1999).

Social reactions to life events may intensify or buffer the effects of ES. Social support could be explained by the actual received support from a social network, or the individual's perception of provided support. Studies showed that perceived support is more important than received support in predicting adjustment to ES (Wethington & Kessler, 1986). Perceived positive social support may protect individuals from the pathogenic effects of high stress (Cohen & Hoberman, 1983; Lincoln, Chatters, & Taylor, 2005). In contrast, overly expressed emotions or family criticism has been shown to predict poorer outcomes (Butzlaff & Hooley, 1998).

In this descriptive study the frequency, intensity, types of life events, and life difficulties present before and after the onset of BD were examined. Additionally, the effect of perceived social support and negative reactions of others experienced by the patients were evaluated.

METHOD

Participants

30 participants who presented with an initial manic or hypomanic episode within three years prior to study were interviewed. 6 patients did not meet the inclusion criteria and were excluded from the study. Patients were between 18 and 65 years of age. They participated from inpatient or outpatient units at the Marmara University Hospital (N = 10) and the Bakırköy Psychiatric Hospital (N = 14) in Istanbul - Turkey; between November 2009 - February 2010. BD patients had DSM-IV diagnoses of BD type I or Type II (Total N = 24), and an interview was conducted by a psychiatrist to confirm the diagnosis as assessed by the Structured Clinical Interview for DSM Disorders (SCID-I). To ensure that patients were euthymic at the time of the study, only patients who scored 2 points or less in the Young Mania Rating Scale and 7 points or less in the Hamilton Depression Rating Scale were included. Exclusion criteria were determined as the presence of a schizoaffective disorder or a mood disorder secondary to a medical condition or substance use.

Table 1. Demographics and Psychiatric History Comparison

Variable	BD (N=24)	Control (N=24)	*p*
Age (years)	27.1(7.3)	27.7(6.8)	0.95
Sex, women %	50	50	0.99
Education (years)	11.5(2.5)	11(1.8)	0.20
Marital Status %			
- Never Engaged	66.7	62.5	0.863
- Married/ Cohabiting	16.7	37.5	**0.050**
- Divorced/Separated	16.7	0	0.096
Living Situation %			
- Alone	8.3	20.8	0.872
- With Parents	70.8	29.2	**0.039**
- With Roommate	4.2	12.5	0.912
- With Spouse	16.7	37.5	0.632
Employment, unemployed %	70.8	20.8	**0.001**
Financial Aid, receives %	58.3	20.8	**0.008**
Psychiatric Family history, present %	50	8.3	**0.014**

Note: Values in parentheses are standard deviations**.**

Healthy Controls (HC) (N = 24) were enrolled from Marmara University Hospital. They were matched with BD patients by age, sex and educational level. HC were screened with SCID-I and confirmed to have no active psychopathology, history of psychiatric disorder, or first-degree family history of BD at the time of evaluation.

Table 2. Comparison of BD Course, Life Events, Positive Support and Negative Reactions Between Groups

	Males (N=12)	Females (N=12)	*p*
Mood Episodes	27	29	0.873
Manic Episodes	18	20	0.756
Depressive Episodes	8	7	0.934
Mixed Episodes	1	2	0.676
Total Life Events	57	65	0.755
BD Non-Related Events	44	51	0.745
Events with Positive Support	26	33	0.789
Events with Negative Reaction	7	5	0.650

Life events and difficulties that happened three years prior to the participation of the study were investigated for all subjects (BD patients and HC), using the Life Events and Difficulties Schedule (LEDS). Survey period included one year before the first manic or hypomanic episode. The screening periods for HC were divided according to the matched BD patient.

Ethical approval was obtained from both Marmara University and the Bakırköy Psychiatric Hospital Institutional Ethical Review Boards. All subjects were provided written informed consent.

Measures

Assessment of Life Events and Difficulties The LEDS is a semi-structured interview that was developed by Brown and Harris in 1978 (McDaniel, 1980). The schedule measures 95 different life events and difficulties which were categorized into 10 different domains including Education, Work-Related, Birth Related, Shelter, Financial/Asset, Legal/Forensic, Medical, Partner Relationship, Interpersonal Relationships, Death, or Other. The schedule also screens for often consensually denied negative events (e.g. severe illness or major loss), and major role transitions which may not be categorized under negative events (e.g. births, promotions, starting a new job). The LEDS also measures the situations that may have involved severe emotional reactions which may not typically defined as a major life events (e.g., breaking bad news to a non-close other) (McDaniel, 1980).

Table 3. Comparison of Life Events, Positive Support and Negative Reactions Between Groups

	TE			PE			NR		
	BD	C	*p*	BD	C	p	BD	C	*p*
Total Events	122	38	**<0.001**	59	23	0.760	12	0	**0.024**
BD Unrelated Events	46	N/A	N/A	3	N/A	N/A	1	N/A	N/A
Education	10	2	**0.030**	6	1	0.868	1	0	0.601
Work-Related	13	2	0.098	4	1	0.864	4	0	0.323
Birth Related	1	1	1.000	1	0	0.334	0	0	1.000
Shelter	8	6	0.545	2	2	0.876	0	0	1.000
Financial/Asset	1	4	0.163	0	1	0.680	0	1	0.670
Forensic/Legal	6	4	0.843	3	2	1.000	3	0	0.765
Medical	42	8	**<0.001**	25	7	0.090	0	0	1.000
Partner Relation	19	5	0.076	6	3	0.678	3	0	0.343
Interpersonal Relationship	13	3	**0.024**	3	3	0.930	1	0	0.053
Death and Other Events	9	3	0.130	6	3	0.298	0	0	1.000

TE: Total Number of Life Events, PE: Number of Events with Positive Support, NR: Events with Negative Reaction, C: Control Group, N/A: non-applicable

The LEDS defines ES that lasts less than one month as "events" whereas ES that lasts for longer than a month as "difficulties." The LEDS classifies each life event and difficulty based on "Threat Level" intensity (1. very severe threat, 2. severe threat, 3. moderate threat, and 4. mild threat), identification of the temporal course (onset and offset), and level of intimacy of "Other" individuals involved in the event. After the BD onset, the incidents that occurred due to active symptoms were classified as "Disorder Related" stressors (e.g. having a car accident due to increased impulsivity during a manic episode).

The LEDS devoted a "Crises Support" section which surveys the presence of "Other" individuals (e.g. family members, friends or other significant persons), who would be identified as a support figure; their closeness, forgiveness levels, and emotional and practical support they provided to the patient. This information was summarized in the perceived understanding of Positive Support or Negative Reaction to the event (1. Significant, 2. Important, 3. Fair, 4. None).

All interviews were conducted by the first author Ayman Saleh, M.D. The life events, life difficulties, and severity of life events were rated independently by coauthor Kemal Kuşçu M.D. The LEDS has been found to have acceptable values of reliability and validity (Wethington, Brown, & Kessler, 1995).

Statistical Analysis

All analyses were conducted using SPSS 17.0 (SPSS Inc, Chicago, IL). Due to non- normal distribution of the data, univariate differences between diagnostic groups in terms of demographic and clinical variables using chi-square tests for categorical variables and Mann-Whitney *U* test and Wilcoxon test for continuous variables were conducted. Spearman`s rho test was used for correlation analysis. Statistical significance level was accepted as $p = 0.05$.

Table 4. Comparison of Life Events Before and After BD Onset

	Before BD			After BD		
	BD (N=24)	Control (N=24)	*p*	BD (N=24)	Control (N=24)	*p*
Total Life Events	50	18	**0.001**	72	20	**<0.001**
Education	3	1	0.389	7	1	0.078
Work-Related	6	0	**0.039**	7	2	0.201
Birth Related	1	1	1.000	0	0	1.000
Shelter	4	2	0.623	4	4	1.000
Financial/Asset	1	3	0.310	0	1	0.311
Forensic/Legal	4	2	0.932	2	2	0.589
Medical	10	1	**0.005**	32	7	**0.001**
Partner Relation	10	4	0.150	9	1	**0.040**
Interpersonal Relationship	4	2	0.351	9	1	**0.040**
Death and Other Events	7	2	0.142	2	1	0.971

RESULTS

48 subjects were divided into 2 main groups: (1) 24 participants with BD diagnosis and (2) 24 HCs were matched in terms of age, sex and education level. Compared to HC, BD patients were more likely to be unemployed, depending on others financially, living with parents as adults, and less engaged in partner relationship. Also, BD patients had higher level of family history of psychiatric disorders (Table 1). No gender difference was found between groups in terms of number of mood episodes, type of life events, perceived support and negative reactions from others (Table 2).

BD patients were found to experience three times the number of stressful life events compared to HC; particularly in the domains of education, medical and interpersonal relationship (Table 3). Although there were no differences between groups in perceived positive support, BD patients were exposed to significantly higher levels of negative reactions (Table 3). BD group also reported higher numbers of total life events in several domains before and after the onset of BD (Table 4). Accumulated threat level of life events before the onset of BD was significantly higher in the BD patients ($p < 0.001$), compared to HC. However, there were no differences between after onset BD and HC in threat level or in life event domains.

Table 5. Comparison of Life Difficulties Between Groups

	BD (N=24)	Control (N=24)	*p*
Total Life Difficulties	50	29	**0.046**
BD Unrelated Difficulties	37	N/A	N/A
Education	2	4	0.503
Work-Related	13	4	**0.040**
Birth Related	1	0	0.310
Shelter	2	5	0.388
Financial/Asset	10	8	0.330
Forensic/ Legal	0	0	1.000
Medical	6	3	0.650
Partner Relation	2	3	1.000
Interpersonal Relationship	13	2	**0.005**
Other Difficulties	0	2	0.310
Grief	1	0	0.310

BD patients reported higher total number of life difficulties, particularly in work-related and interpersonal relationship domains, compared to HC (Table 5). When life difficulties were compared before and after BD onset, BD patients reported higher level of interpersonal relationship difficulty before the BD onset compared to HC; however, they reported higher numbers of total life difficulties, and work-related

KPD 2019; 3(1):26-33

Table 6. Comparison of Life Difficulties Before and After BD Onset

	Before BD			After BD		
	BD (N=24)	Control (N=24)	*p*	BD (N=24)	Control (N=24)	*p*
Total Difficulties	19	12	0.594	39	17	**0.031**
Education	0	2	0.151	2	2	1.000
Work-Related	3	2	0.680	10	2	**0.031**
Birth Related	0	0	1.000	1	0	0.311
Shelter	0	1	0.317	2	4	0.388
Financial/Asset	5	3	0.649	5	5	1.000
Forensic/ Legal	0	0	1.000	0	0	1.000
Medical	2	1	0.967	4	2	0.613
Partner Relation	1	1	1.000	1	2	0.555
Interpersonal Relationship	10	1	**0.010**	3	1	0.539
Other Difficulties	0	1	0.317	0	1	0.317
Grief	1	0	0.317	0	0	1.000

difficulty after the BD onset than before the onset (Table 6). There were no statistical differences between groups in threat levels of life difficulties or in domains.

DISCUSSION

In this retrospective study, life events and difficulties experienced by BD patients three years prior to the participation of the study were examined. HC was matched in terms of age, sex and education level. ES types showed remarkable changes after the onset of BD including increase in medical, partner, and interpersonal relationship related short term life crises; and work related long term difficulties (Geller et al. 2000). These changes provide an idea about functionality and may explain the social isolation and socioeconomic level of BD patients.

Individuals who were exposed to negative reactions as a consequence of ES reported significant increase in physiological and emotional dysregulation (Campbell-Sills, Barlow, Brown, & Hofmann, 2006). Negative reactions from individuals who were identified as a major support may result in cognitive distortions like personal unworthiness, distorted perception of the ES, and, as a result, become a robust trigger to mood symptoms. By contrast, perceived positive support was found to be a predictor for recovering from depressive symptoms (Johnson, Winett, Meyer, Greenhouse, & Miller, 1999).

Exposure to severe threatening ES and the onset of BD could be explained by the “three hit concept” (Malkoff-Schwartz et al. 1998). The synergic effect of genetic predisposition (e.g. family history of mood disorders) and environmental factors (e.g. negative reactions) may change the outcomes of current ES (Daskalakis, Bagot, Parker, Vinkers, & de Kloet, 2013). Alternatively, ES may result in amplification of the Hypothalamic-Pituitary-Adrenal axis response that prompts mood symptoms (Heim, Newport, Mletzko, & Miller, 2008). Duplicating our prior results, interpersonal relationship difficulties seems to be one of the most common predictors of mood disorders (Saleh et al. 2017). In particular, emotional and sexual abuse were founded to be strongly associated with depressive mood episodes (Koverola, Pound, Heger, & Lytle, 1993; Saleh et al. 2017).

Several methods may be utilized to decrease the impact on ES on individuals who are under high risk of developing BD (Soares-Weiser et al. 2007). Psychoeducation about the effect of ES was found to be

effective in preventing the relapse in BD (Bond & Anderson, 2015). Interpersonal and social rhythm therapy was found to be effective in treating and delaying BD mood episodes (Frank, Swartz, & Kupfer, 2000). Psychological support, enhancing perceptions of cause and vulnerability, reproductive decision making, risk modification, and early intervention methods were recommended for siblings and offspring of BD patients as risk reduction modalities for BD (Peay, Hooker, Kassem, & Biesecker, 2009).

Limitations of the Study and Future Research

The current study has limitations that may impact results. The study retrospectively questioned ES and may be subjected to memory bias. To address memory bias, the questioned period was limited to three years before the study, and specific questions were asked for each life event and difficulty. Moreover, BD patients who are only in euthymic mood were included to avoid secondary memory problems. Another limitation includes diagnostic unification because we included patients with BD type I and II, which may contribute to the number of mood episodes and related life events. Furthermore, the LEDS is a scale that was developed in 1980 in London, and the study was completed in 2010 in Turkey. There could be some types of stressors which were missed due to generational and regional differences, but this will apply to both groups. No studies had compared the validity of LEDS in Turkish language.

Future studies can focus on investigating types of ES specific for pediatric population and early onset BD. Moreover, the researches should investigate ES changes in current technological era. For instance, internet and social media related ES, school and cyberbullying, and the effect of demographic family changes on pediatric population.

REFERENCES

Bond, K., & Anderson, I. M. (2015). Psychoeducation for relapse prevention in bipolar disorder: A systematic review of efficacy in randomized controlled trials. *Bipolar Disorders*, *17*, 349-362.

Butzlaff, R. L., & Hooley, J. M. (1998). Expressed emotion and psychiatric relapse: A meta-analysis. *Archives of General Psychiatry*, *55*, 547-552.

Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. *Behaviour Research and Therapy*, *44*, 1251-1263.

Christensen, E. M., Gjerris, A., Larsen, J. K., Bendtsen, B. B., Larsen, B. H., Rolff, H., Ring, G., & Schaumburg, E. (2003). Life events and onset of a new phase in bipolar affective disorder. *Bipolar Disorders*, *5*, 356-361.

Cohen, S., & Hoberman, H. M. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*, *13*, 99-125.

Colombo, C., Benedetti, F., Barbini, B., Campori, E., & Smeraldi, E. (1999). Rate of switch from depression into mania after therapeutic sleep deprivation in bipolar depression. *Psychiatry Research*, *86*, 267-270.

Copeland, L. A., Miller, A. L., Welsh, D. E., McCarthy, J. F., Zeber, J. E., & Kilbourne, A. M. (2009). Clinical and demographic factors associated with homelessness and incarceration among VA patients with bipolar disorder. *American Journal of Public Health*, *99*, 871-877.

Coulston, C. M., Tanious, M., Mulder, R. T., Porter, R. J., & Malhi, G. S. (2012). Bordering on bipolar: The overlap between borderline personality and bipolarity. *Australian & New Zealand Journal of Psychiatry*, *46*, 506-521.

Daskalakis, N. P., Bagot, R. C., Parker, K. J., Vinkers, C. H., & de Kloet, E. R. (2013). The three-hit concept of vulnerability and resilience: Toward understanding adaptation to early-life adversity outcome. *Psychoneuroendocrinology*, *38*, 1858-1873.

Depue, R. A., Collins, P. F., & Luciana, M. (1996). A model of neurobiology—Environment interaction in developmental psychopathology. In M. F. Lenzenweger & J. J. Haugaard (Eds.), *Frontiers of developmental psychopathology* (pp. 44-77). New York, NY, US: Oxford University Press.

Ehlers, C. L., Frank, E., & Kupfer, D. J. (1988). Social zeitgebers and biological rhythms: A unified approach to understanding the etiology of depression. *Archives of General Psychiatry*, *45*, 948-952.

Ellicott, A., Hammen, C., Gitlin, M., Brown, G., & Jamison, K. (1990). Life events and the course of bipolar disorder (Volume 1: Bipolar Disorder). In S. E. Hyman (Ed), *The Science of Mental Health* (pp. 1194-1198). New York, NY: Routledge.

Etain, B., Aas, M., Andreassen, O. A., Lorentzen, S., Dieset, I., Gard, S., Kahn, J.-P., Bellivier, F., Leboyer, M., & Melle, I. (2013). Childhood trauma is associated with severe clinical characteristics of bipolar disorders. *The Journal of Clinical Psychiatry*, *74*, 991-998.

Frank, E., Swartz, H. A., & Kupfer, D. J. (2000). Interpersonal and social rhythm therapy: Managing the chaos of bipolar disorder. *Biological Psychiatry*, *48*, 593-604.

Geller, B., Bolhofner, K., Craney, J. L., Williams, M., DelBello, M. P., & Gundersen, K. (2000). Psychosocial functioning in a prepubertal and early adolescent bipolar disorder phenotype. *Journal of the American Academy of Child & Adolescent Psychiatry*, *39*, 1543-1548.

Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: insights from HPA axis studies in humans. *Psychoneuroendocrinology*, *33*(6), 693-710.

Johnson, S. L. (2005). Life events in bipolar disorder: Towards more specific models. *Clinical Psychology Review*, *25*, 1008-1027.

Johnson, S. L., Winett, C. A., Meyer, B., Greenhouse, W. J., & Miller, I. (1999). Social support and the course of bipolar disorder. *Journal of Abnormal Psychology*, *108*, 558.

Kessing, L. V., Agerbo, E., & Mortensen, P. B. (2004). Major stressful life events and other risk factors for first admission with mania. *Bipolar Disorders*, *6*, 122-129.

Koverola, C., Pound, J., Heger, A., & Lytle, C. (1993). Relationship of child sexual abuse to depression. *Child Abuse & Neglect*, *17*, 393-400.

Leibenluft, E., Albert, P. S., Rosenthal, N. E., & Wehr, T. A. (1996). Relationship between sleep and mood in patients with rapid-cycling bipolar disorder. *Psychiatry Research*, *63*, 161-168.

Lemberger, L., Bergstrom, R., Wolen, R., Farid, N., Enas, G., & Aronoff, G. (1985). Fluoxetine: Clinical pharmacology and physiologic disposition. *The Journal of Clinical Psychiatry*, *46*, 14-19.

Lincoln, K. D., Chatters, L. M., & Taylor, R. J. (2005). Social support, traumatic events, and depressive symptoms among African Americans. *Journal of Marriage and Family*, *67*, 754-766.

Lyon, H. M., Startup, M., & Bentall, R. P. (1999). Social cognition and the manic defense: Attributions, selective attention, and self-schema in bipolar affective disorder. *Journal of Abnormal Psychology*, *108*, 273.

Malkoff-Schwartz, S., Frank, E., Anderson, B., Sherrill, J. T., Siegel, L., Patterson, D., & Kupfer, D. J. (1998). Stressful life events and social rhythm disruption in the onset of manic and depressive bipolar episodes: A preliminary investigation. *Archives of General Psychiatry*, *55*, 702-707.

McDaniel, E. (1980). Social origins of depression: A study of psychiatric disorder in women. *The Journal of Nervous and Mental Disease*, *168*, 570-571.

Michalak, E. E., Yatham, L. N., Kolesar, S., & Lam, R. W. (2006). Bipolar disorder and quality of life: A patient-centered perspective. *Quality of Life Research*, *15*, 25-37.

Miklowitz, D. J., & Johnson, B. S. L. (2009). Social and familial factors in the course of bipolar disorder: Basic processes and relevant interventions. *Clinical Psychology: Science and Practice*, *16*, 281-296.

Myin-Germeys, I., Krabbendam, L., Delespaul, P., & Van Os, J. (2003). Do life events have their effect on psychosis by influencing the emotional reactivity to daily life stress? *Psychological Medicine*, *33*, 327-333.

Peay, H., Hooker, G., Kassem, L., & Biesecker, B. (2009). Family risk and related education and counseling needs: Pperceptions of adults with bipolar disorder and siblings of adults with bipolar disorder. *American Journal of Medical Genetics Part A*, *149*, 364-371.

Saleh, A., Potter, G. G., McQuoid, D. R., Boyd, B., Turner, R., MacFall, J. R., & Taylor, W. D. (2017). Effects of early life stress on depression, cognitive performance and brain morphology. *Psychological medicine*, *47*, 171-181.

Soares-Weiser, K., Vergel, Y. B., Beynon, S., Dunn, G., Barbieri, M., Duffy, S., Geddes, J., Gilbody, S., Palmer, S., & Woolacott, N. (2007). A systematic review and economic model of the clinical effectiveness and cost-effectiveness of interventions for preventing relapse in people with bipolar disorder. In *NIHR Health Technology Assessment programme: Executive Summaries*: NIHR Journals Library.

Sutton, S., & Johnson, S. (2002). Hypomanic tendencies predict lower startle magnitudes during pleasant pictures. In Psychophysiology (Vol. 39, pp. S80-S80): WILEY-BLACKWELL 111 RIVER ST, HOBOKEN 07030-5774, NJ USA.

Wethington, E., Brown, G. W., & Kessler, R. C. (1995). Interview measurement of stressful life events. *Measuring stress: A guide for health and social scientists*, 59-79.

Wethington, E., & Kessler, R. C. (1986). Perceived support, received support, and adjustment to stressful life events. *Journal of Health and Social behavior*, 78-89.