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Validity of the WHIPLASHED as a tool to identify bipolar disorder in women

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Abstract

Background: The aim of this study was to investigate the validity of the WHIPLASHED clinician-administered interview, a mnemonic of questions on clinical factors and illness course used to screen for bipolar disorder, as a self-report questionnaire.

Methods: Participants ($n = 82$) were females recruited from an outpatient academic women's mental health clinic. Relevant symptom data were extracted from a self-report questionnaire designed to parallel the WHIPLASHED interview questions. A score of ≥ 5 on WHIPLASHED was defined as a positive screen for bipolar spectrum disorder by its developer. We examined the capacity of self-reported WHIPLASHED scores ≥ 5 to differentiate bipolar from unipolar depression in women. Diagnostic assessments were conducted with the Mini International Neuropsychiatric Interview.

Results: Women were diagnosed with unipolar ($n = 54$) and bipolar ($n = 28$) depression. The majority of subjects were white (67%), employed (68%) and married (57%) with a mean age of 36.8 years. The receiver operating characteristic curve demonstrated that WHIPLASHED had strong predictive ability ($AUC = 0.877$) in differentiating bipolar from unipolar depression. A cutoff score of ≥ 5 generated 96% sensitivity and 52% specificity, while raising the threshold to ≥ 6 generated 89% sensitivity and 76% specificity for a bipolar disorder diagnosis.

Limitation: Our sample was small and composed of female patients at a single treatment center.

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Contributors

Study design and protocol: DRM, K LW, CTC.

Collected study data: DRM, SDF, DS, EP, TP, CTC.

Statistical analyses and data interpretation: DRM, AY, JC, K LW, CTC.

Significant writing: DRM, K LW, CTC.

All authors have read and approved the final version of the manuscript.

Conflict of interest

None of the authors report competing interests.

Conclusions: In this sample, WHIPLASHED was a valid screening tool to differentiate bipolar from unipolar depression. While existing instruments focus on primary symptoms of bipolar disorder, the WHIPLASHED is useful in exploring subtypes of bipolar disorder in which depression dominates the clinical course.

Keywords

Bipolar disorder; Manic-depressive; Mania; Bipolar depression; Screening for bipolar disorder; MDQ

1. Introduction

The estimated lifetime prevalence of bipolar disorder (BD) in the United States is approximately 4.4% (Merikangas et al., 2007). While the lifetime prevalence of BD is similar in men and women, women with BD have higher rates of depressive symptoms, rapid cycling and anxiety disorders (Altshuler et al., 2010).

A 10-year delay for accurate diagnosis of BD and appropriate treatment is common due to the wide range of symptoms that patients experience (Hirschfeld et al., 2003). A lack of routine and structured screening also contributes to the lag between symptom onset and formal diagnosis of BD (Lish et al., 1994). The duration of the delay in diagnosis differs between men and women, with women misdiagnosed with unipolar depression for almost 2 years longer than men, and maintenance treatment is initiated 5.5 years later than men (Viguera et al., 2001).

The inpatient hospitalization rate for patients with BD is 39.1% compared to 4.5% for all other patients with psychiatric diagnoses (Peele et al., 2003). Suicide rates in patients with BD average 1% annually, which is 60 times higher than the international population rate of 0.015% annually (Baldessarini et al., 2006). Delayed diagnoses lead to suboptimal treatments, such as antidepressant monotherapy when bipolar I depression is mistaken for unipolar depression, which may exacerbate mood symptoms or result in rapid cycling (Ghaemi et al., 2004). For these reasons, it is critical to distinguish bipolar from unipolar depression.

Formal diagnostic interviews currently used to diagnose BD include the Structured Clinical Interview for DSM-IV (SCID) and the Mini International Neuropsychiatric Interview (MINI). While several screening tools exist for major depressive disorder, few tools are available to screen for BD. The Mood Disorders Questionnaire (MDQ), a brief self-report measure that assesses lifetime occurrence of manic symptoms, is currently the most commonly studied screening measure for BD. A positive score is defined as seven or more symptoms during the same period that caused moderate or serious problems. The sensitivity with these criteria is 73% with a specificity of 90% (Hirschfeld et al., 2000). Sharma and Xie (2011) investigated the sensitivity and specificity of the MDQ in a population of postpartum women with major depressive disorder and BD diagnoses, which yielded a sensitivity of 75% and specificity of 87%. These sensitivities of the MDQ suggest that a quarter of the bipolar population is not detected with this measure, which may result in misdiagnosis and ineffective treatment. Clark et al. (2015) found that coupling the MDQ

with the Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-report scale designed for use postnatally by Cox et al. (1987), increased the identification of BD in the early postpartum period in 50% of women with conventional MDQ scoring and 70% with exclusion of the impairment criterion. Using an even broader construct of BD beyond the restrictive DSM criteria may allow for better detection (i.e., increased sensitivity) as well as more timely and appropriate treatment (Akiskal, 1996).

WHIPLASHED is a mnemonic developed by Ronald Pies (2007) for clinicians to administer as a brief interview regarding BD clinical risk factors, illness course, and the characteristics of depressive episodes. The ten letters of WHIPLASHED each stand for a clinical domain that suggests bipolar disorder (Table 1). The aim of this study was to assess the validity of the WHIPLASHED as a self-report questionnaire to identify BD in women and differentiate it from unipolar depression.

2. Methods

The data were obtained from women who contributed to the Assessing Stress, Health, Emotion and Regulation (ASHER) Registry Database of the Asher Center for the Study and Treatment of Depressive Disorders, an urban outpatient women's mental health clinic at Northwestern University. The Registry is a longitudinal program developed to study clinical phenotypes and biomarkers. Women were eligible to participate if they were receiving psychiatric treatment (psychotherapy and/or medication management) for a mood or anxiety disorder at the Asher center and were between the ages of 18 and 65. Women with a primary psychotic disorder or a diagnosis of substance use disorder that was active within 6 months prior to recruitment were not eligible to participate. Registry participants in this study completed a baseline visit, which included a clinician-administered diagnostic assessment (the MINI) (Sheehan et al., 1998), the Columbia Suicide Severity Rating Scale (Posner et al., 2011), a comprehensive assessment of treatment history (Oquendo et al., 2003), a general medical interview as well as DNA and blood collection. Self-reports included the WHIPLASHED, Childhood Trauma Questionnaire (Bernstein et al., 1994), Inventory of Depressive Symptomatology (Rush et al., 1996), Generalized Anxiety Disorder 7-item scale (Spitzer et al., 2006) and Internal State Scale (Bauer et al., 1991). Subjects provided written informed consent prior to the completion of the baseline assessment. All identifiable data were stored in locked cabinets in a locked office. Deidentified research data was coded with a participant ID and collected and stored in a secure REDCap database. All study procedures were approved by the Northwestern University Institutional Review Board.

The registry data include demographics such as patient age, race, marital status and employment status. Subjects ($N=82$) included women, aged 19.5 to 62.1 years. Clinicians (licensed psychiatrists and psychologists) blind to the results of participants' self-report questionnaires administered the Mini International Neuropsychiatric Interview (MINI) version 5.0.0 (Sheehan et al., 1998) to make individual diagnoses. Each MINI was reviewed in regular meetings among the study clinicians to reach a consensus diagnosis. Criteria from the WHIPLASHED were constructed into a series of binary response (yes/ no) questions delivered as a self-report by computer to registry participants (Table 1). A yes response was scored as 1 and a no response was scored as 0. If a response of yes was given to any question

within a domain, the domain was given a score of 1. The maximum possible WHIPLASHED score was a 10. The WHIPLASHED self-report questionnaire did not include a question about a history of delusions, hallucinations, and other psychotic features as represented by letter “D” in the mnemonic; therefore, this item was obtained from the MINI assessment of psychotic symptoms. Women who responded “yes” to questions pertaining to one of the following experiences were determined to have had positive psychotic symptoms: 1) paranoid beliefs, 2) delusional thinking (e.g., referential and persecutory), 3) ideas of reference, 4) auditory hallucinations, 5) visual hallucinations.

3. Statistical analysis

Descriptive statistics (frequency and percent for categorical variables; mean and standard deviation for continuous variables) were used to summarize patient characteristics. To assess associations between group (bipolar diagnosis as determined by the MINI) and categorical measures, analyses involved Pearson’s Chi-Squared tests (or Fisher’s Exact tests in the event of expected cell counts less than five). Analyses also involved the independent two-sample *t*-test to compare mean age across the two groups.

To explore the sensitivity and specificity of different WHIPLASHED cutoff scores in predicting BD, we constructed a receiver operating characteristic (ROC) curve and corresponding sensitivity and specificity for each possible cutoff score in our sample. An optimum cutoff score for WHIPLASHED was determined by the integer score yielding the best balance between sensitivity and specificity, both statistically and clinically. The area under the curve (AUC) served as a measure of capacity of the WHIPLASHED to distinguish the two groups across the range cutoff scores. The AUC in this context is the probability that the WHIPLASHED score for a randomly chosen patient with BD will be higher than that of a randomly chosen patient with unipolar depression. The predictive ability for WHIPLASHED score was considered excellent for AUC values between 0.9 and 1, good for AUC values between 0.8 and 0.9, fair for AUC values between 0.7 and 0.8, poor for AUC values between 0.6 and 0.7, and values less than 0.6 indicate failure in predictive ability (Swets, 1988). Analyses were performed using R Foundation for Statistical Computing, Vienna, Austria, Version 3.2.0. All analyses assumed a two-sided 5% level of significance. No corrections were made for multiple hypothesis tests as this analysis is exploratory.

4. Results

Of the 82 women in this study, 54 had a diagnosis of unipolar disorder and 28 had a diagnosis of BD. Of the 28 subjects with BD, 15 were diagnosed as bipolar type I, seven were diagnosed as bipolar type II and six were diagnosed as bipolar NOS. The majority of participants included in this study were white (67%), employed (68%), and married (57%), with a mean age of 36.8 (s.d. 10.1) years. There was no significant difference in age, race, employment status or marital status between the two groups defined by diagnosis (Table 2).

The overall WHIPLASHED score in this sample ranged from one point to 10 points with a mean of 5.48 ± 2.16 . In our sample, the ROC curve characterizing the relationship between the WHIPLASHED tool score and diagnosis of BD had an AUC = 0.877 with 95% CI

(0.799–0.955) (Fig. 1). Table 3 lists the sensitivity and specificity for each possible threshold value of the WHIPLASHED score.

Table 4 lists the frequency of each symptom identified by a letter of WHIPLASHED by group. As expected, the bipolar depression group was more likely than the unipolar depression group to score positive for a history of hypomanic symptoms ($p < 0.001$). Five participants who endorsed hypomanic symptoms were determined to have unipolar depression once evaluated with the MINI. The bipolar depression group were also more likely to score positive for a history of antidepressant-induced hypomania or mania ($p < 0.001$), abrupt cessation and/or termination of depressive episodes ($p = 0.047$), an increase in energy prior to depression onset ($p < 0.001$), hyperphagia and/or hypersomnia ($p = 0.004$), and a family history of BD ($p = 0.002$). Although not statistically significant, the women with BD showed increased frequency of all other composite symptoms characteristics and individual items when compared to women with unipolar depression (Table 4).

5. Discussion

Our results suggest WHIPLASHED was a valid tool for differentiating bipolar depression from unipolar depression in this sample of women. The proposed cutoff score of at least five points (Pies, 2007) on the WHIPLASHED scale was extremely sensitive (96%) in its ability to screen for BD, but it had a high false positive rate (48%). With a score of six or more, the sensitivity was 89% and specificity was 76%, which was the best compromise between sensitivity and specificity in this sample.

Growing public awareness of the impact of depression on women and their children has led to increased efforts to screen for perinatal depression. Education and screening of perinatal women is required by law in some states including New Jersey, Illinois and West Virginia (Rhodes and Segre, 2013). The postpartum period is a vulnerable time for women with BD with approximately 49%–67% of women experiencing mood disturbance after delivery (Freeman et al., 2002). The EPDS is the most commonly used screening tool for postpartum depression (Boyd et al., 2005). Similarly the PHQ-9 is a 9-item self-report questionnaire commonly used to screen for depression and is validated for use in perinatal populations (Sidebottom et al., 2012). While these measures are useful, screens are needed to differentiate bipolar from unipolar depression, particularly in primary care clinics and during the postpartum period when women with BD are at higher risk for episode recurrence compared to those with a history of unipolar depression (Viguera et al., 2011). Adding the WHIPLASHED to these screening measures would help to identify women who may have BD. If an individual has a score of 6 or more, referral to a psychiatrist is necessary to confirm a diagnosis. Negative outcomes of failing to differentiate bipolar from unipolar depression include misdiagnosing depression as unipolar and may lead to inappropriate treatment and exacerbation of mood symptoms. Misdiagnosis may also lead to a more persistent, treatment-resistant illness (Sit, 2004). Adding the MDQ is a method to determine which patients may need to be referred for consultation for a bipolar disorder diagnostic evaluation (Clark et al., 2015; Merrill et al., 2015). The WHIPLASHED is a promising assessment to distinguish bipolar and unipolar depression, which in our sample yielded a higher sensitivity (89%) compared to that of the MDQ (73%). Further investigation is

warranted to determine the effectiveness of the WHIPL-ASHED as a screening tool in perinatal populations.

Additional risk factors for BD that are not included in the WHIPL-ASHED scale include a history of suicide attempt and substance use disorder (SUD). At least 25%–50% of patients with BD attempt suicide at least once (Jamison, 2000). Compared to other psychiatric disorders, BD has the highest rate of comorbid SUD with a lifetime diagnosis of SUD in approximately 60% of BD patients (Regier et al., 1990). Adding these and other factors that are more highly associated with BD compared to unipolar disorder to the scale may result in a more efficient screen for BD.

One limitation is that the presence of delusions or psychotic symptoms (item D) was not included in the self-report questionnaire. To explore the model performance without item D, we reran the analyses and recalculated the sensitivities and specificities at each cut point. Overall, the results were comparable (AUC = 0.867 with 95% CI (0.774–0.940)). A score of six or more generated a sensitivity of 0.893 and a specificity of 0.648 for a diagnosis of BD. With a score of seven or more, the sensitivity and specificity were 0.750 and 0.815, respectively. The use of the colloquial term “poop out” in the WHIPLASHED self-report questionnaire is an additional limitation of this study as colloquial language may be unfamiliar to patients of different ethnic groups and thus cause confusion when completing the questionnaire.

This is the first study to investigate the validity of the WHIPLASHED as a measure for differentiating bipolar from unipolar depression in women. Differentiating BD from unipolar depression is necessary to help reduce the delay to effective treatment, decrease hospitalization, and to aid in the identification of women with BD. Although WHIPL-ASHED was intended to be clinician-administered, we have shown that it is an efficient screen as a self-report measure. The pilot study has promising results that may not be generalizable since the sample was relatively small and composed of female patients at a single treatment center, which warrants replication using a larger and more inclusive sample.

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References

- Akiskal HS, 1996 The prevalent clinical spectrum of bipolar disorders: beyond DSM IV. *J. Clin. Psychopharmacol* 16, 4S–14S. [PubMed: 8707999]
- Altshuler LL, Kupka RW, Hellemann G, Frye MA, Sugar CA, McElroy SL, Nolen WA, Grunze H, Leverich GS, Keck PE, Zermeno M, Post RM, Suppes T, 2010 Gender and depressive symptoms in 711 patients with bipolar disorder evaluated prospectively in the Stanley Foundation bipolar treatment outcome network. *Am. J. Psychiatry* 167, 708–715. [PubMed: 20231325]
- Baldessarini RJ, Pompili M, Tondo L, 2006 Suicide in bipolar disorder: risks and management. *CNS Spectr* 11, 465–471. [PubMed: 16816785]

- Bauer M, Crits-Christof P, Ball W, Dewees E, McAllister T, Alahi P, Cacciola J, Whybrow P, 1991 Independent assessment of manic and depressive symptoms by self-rating scale. Characteristics and implications for the study of mania. *Arch. Gen. Psychiatry* 48, 807–812. [PubMed: 1929771]
- Bernstein DP, Fink L, Handelsman L, Foote J, Lovejoy M, Wenzel K, Sapareto E, Ruggiero J, 1994 Initial reliability and validity of a new retrospective measure of child abuse and neglect. *Am. J. Psychiatry* 151, 1132–1136. [PubMed: 8037246]
- Boyd RC, Le HN, Somberg R, 2005 Review of screening instruments for postpartum depression. *Arch. Womens Ment. Health* 8, 141–153. [PubMed: 16133785]
- Clark CT, Sit DK, Driscoll K, Eng HF, Confer AL, Luther JF, Wisniewski SR, Wisner KL, 2015 Does screening with the MDQ and EPDS improve identification of bipolar disorder in an obstetrical sample? *Depress. Anxiety* 32, 518–526. [PubMed: 26059839]
- Cox JL, Holden JM, Sagovsky R, 1987 Detection of postnatal depression. Development of the 10 item Edinburgh Postnatal Depression Scale. *Br. J. Psychiatry* 150, 782–786. [PubMed: 3651732]
- Freeman MP, Smith KW, Freeman SA, McElroy SL, Kmetz GE, Wright R, Keck PE Jr., 2002 The impact of reproductive events on the course of bipolar disorder in women. *J. Clin. Psychiatry* 63, 284–287. [PubMed: 12004800]
- Ghaemi SN, Rosenquist KJ, Ko JY, Baldassano CF, Kontos NJ, Baldessarini RJ, 2004 Antidepressant treatment in bipolar versus unipolar depression. *Am. J. Psychiatry* 161, 163–165. [PubMed: 14702267]
- Hirschfeld RM, Williams JB, Spitzer RL, Calabrese JR, Flynn L, Keck PE Jr., Lewis L, McElroy SL, Post RM, Rapport DJ, Russell JM, Sachs GS, Zajecka J, 2000 Development and validation of a screening instrument for bipolar spectrum disorder: the mood disorder questionnaire. *Am. J. Psychiatry* 157, 1873–1875. [PubMed: 11058490]
- Hirschfeld RM, Lewis L, Vornik LA, 2003 Perceptions and impact of bipolar disorder: how far have we really come? Results of the national depressive and manic-depressive association 2000 survey of individuals with bipolar disorder. *J. Clin. Psychiatry* 64, 161–174. [PubMed: 12633125]
- Lish JD, Dime-Meenan S, Whybrow PC, Price RA, Hirschfeld RM, 1994 The National Depressive and Manic-Depressive Association (DMDA) survey of bipolar members. *J. Affect. Disord* 31, 281–294. [PubMed: 7989643]
- Jamison KR, 2000 Suicide and bipolar disorder. *J. Clin. Psychiatry* 61, 47–51.
- Merikangas KR, Akiskal HS, Angst J, Greenberg PE, Hirschfeld RM, Petukhova M, Kessler RC, 2007 Lifetime and 12 month prevalence of bipolar spectrum disorder in the national comorbidity survey replication. *Arch. Gen. Psychiatry* 64, 543–552. [PubMed: 17485606]
- Merrill L, Mittal L, Nicoloro J, Caiozzo C, Maciejewski PK, Miller LJ, 2015 Screening for bipolar disorder during pregnancy. *Arch. Womens Ment. Health* 18, 579–583. [PubMed: 25968603]
- Oquendo MA, Baca-Garcia E, Kartachov A, Khait V, Campbell CE, Richards M, Sakeim HA, Prudic J, Mann JJ, 2003 A computer algorithm for calculating the adequacy of antidepressant treatment in unipolar and bipolar depression. *J. Clin. Psychiatry* 64, 825–833. [PubMed: 12934985]
- Peele PB, Xu Y, Kupfer DJ, 2003 Insurance expenditures on bipolar disorder: clinical and parity implications. *Am. J. Psychiatry* 160, 1286–1290. [PubMed: 12832243]
- Pies RW, 2007 Is it bipolar depression? ‘WHIPLASHED’ aids diagnosis. *Current Psychiatry* 6 (March), 80–81.
- Posner K, Brown GK, Stanley B, Brent DA, Yershova KV, Oquendo MA, Currier GW, Melvin GA, Greenhill L, Shen S, Mann JJ, 2011 The Columbia-Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am. J. Psychiatry* 168, 1266–1277. [PubMed: 22193671]
- Regier DA, Farmer ME, Rae DS, Locke BZ, Keith SJ, Judd LL, Goodwin FK, 1990 Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) study. *JAMA* 264, 2511–2518. [PubMed: 2232018]
- Rhodes AM, Segre LS, 2013 Perinatal depression: a review of US legislation and law. *Arch. Womens Ment. Health* 16, 259–270. [PubMed: 23740222]
- Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH, 1996 The Inventory of Depressive Symptomatology (IDS): psychometric properties. *Psychol. Med* 26, 477–486. [PubMed: 8733206]

- Sharma V, Xie B, 2011 Screening for postpartum bipolar disorder: validation of the Mood Disorder Questionnaire. *J. Affect. Disord* 131, 408–411. [PubMed: 21185082]
- Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC, 1998 The mini-international neuropsychiatric interview (M.I.N.I.): the development and validation of a structured psychiatric interview for DSM-IV and ICD-10. *J. Clin. Psychiatry* 59, 22–33.
- Sidebottom AC, Harrison PA, Godecker A, Kim H, 2012 Validation of the Patient Health Questionnaire (PHQ)-9 for prenatal depression screening. *Arch. Womens Ment. Health* 15, 367–374. [PubMed: 22983357]
- Sit D, 2004 Women and bipolar disorder across the life span. *J Am. Med. Womens Assoc* 59, 91–100.
- Spitzer RL, Kroenke K, Williams JB, Lowe B, 2006 A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch. Intern. Med* 166, 1092–1097. [PubMed: 16717171]
- Swets JA, 1988 Measuring the accuracy of diagnostic systems. *Science* 240, 1285–1293. [PubMed: 3287615]
- Viguera AC, Baldessarini RJ, Tondo L, 2001 Response to Lithium maintenance treatment in bipolar disorders: comparison of women and men. *Bipolar disord* 3, 245–252. [PubMed: 11903207]
- Viguera AC, Tondo L, Koukopoulos AE, Reginaldi D, Lepri B, Baldessarini RJ, 2011 Episodes of mood disorders in 2,252 pregnancies and postpartum periods. *Am. J. Psychiatry* 168, 1179–1185. [PubMed: 21799064]

Fig. 1. Receiver operating characteristic (ROC) curve to determine optimum cutoffs on WHIPLASHED for identification of BD.

Table 1

WHIPLASHED mnemonic and self-report questions.

Mnemonic	Pies Criteria	Self-report Questions
W	“Worse or wired” when taking antidepressants	Have you ever felt worse or wired (i.e. antsy, agitated) when taking an antidepressant medication? Have you had 2 or more unsuccessful antidepressant trials? Have you ever experienced “poop out,” where an antidepressant that was convincingly effective for at least a month lost efficacy?
H₁	Hypomania, hyperthermic temperament or mood swings	Have you ever experienced mania/hypomania while taking an antidepressant?
I	Irritable, hostile or mixed features during periods of depression	Have you ever experienced periods of intense optimism, increased energy, reduced need for sleep, extroversion, or overconfidence?
P	Psychomotor retardation or agitation	Do you experience irritability during periods of depression? Do you ever have a sense that you are mentally or physically very slowed down? Feeling restless: I’m often fidgety, wring my hands, or need to shift how I am sitting I have impulses to move about and am quite restless At times, I am unable to stay seated and need to pace around
L	Loaded family history of affective illness	Is there any history of depression in your family? Is there any history of bipolar disorder in your family?
A	Abrupt onset and/or termination of depressive episodes, brief depressive episodes, or brief burst of increased energy or subthreshold hypomanic symptoms immediately preceding the onset of depression	Do your depressive episodes start or stop abruptly? Do you experience an increase in energy prior to depression onset that then stops suddenly?
S	Seasonal or postpartum pattern of depression	Did you experience any mood episodes during your pregnancy? Did you experience any mood episodes postpartum? Do you notice that your moods are impacted by seasons (i.e. more depressed in fall/winter and/or more energetic in spring)?
H₂	Hyperphagia and/or hypersomnia	Do you have periods of excessive hunger and/or excessive sleepiness?
E	Early age at depression onset	Did your mood symptoms begin before the age of 21?
D	Delusions, hallucinations or other psychotic features	Psychotic symptoms endorsed from the MINI

Table 2Characteristics of study participants ($N = 82$).

Characteristics	All ($N = 82$)	Unipolar ($N = 54$)	Bipolar ($N = 28$)	<i>p</i> -value
Age, mean (SD)	36.8 (10.1)	37.6 (10.2)	35.3 (10.1)	0.335
Race, N (%)				0.345
White	55 (67.1%)	39 (72.2%)	16 (57.1%)	
Black	12 (14.6%)	7 (13.0%)	5 (17.9%)	
Other	15 (18.3%)	8 (14.8%)	7 (25.0%)	
Employed, N (%)	56 (68.3%)	38 (70.4%)	18 (64.3%)	0.756
Marital Status, N (%)				0.534
Married	47 (57.3%)	33 (61.1%)	14 (50.0%)	
Single	18 (22.0%)	10 (18.5%)	8 (28.6%)	
Other	17 (20.7%)	11 (20.4%)	6 (21.4%)	

Table 3

Sensitivity and specificity of WHIPLASHED as a screening tool for BD across different thresholds.

Cutoff	3	4	5	6	7	8	9
Cases identified (N)	74	69	53	38	26	10	3
Sensitivity	1	0.964	0.964	0.893	0.679	0.321	0.107
Specificity	0.148	0.222	0.519	0.759	0.87	0.982	1

Table 4

Frequency (%) of individual symptoms and composite WHIPLASHED.

Composite Characteristic	Unipolar N = 54	Bipolar N = 28	p-value	Individual Items	Unipolar N = 54	Bipolar N = 28	p-value
W	25 (46.30)	20 (71.43)	0.053	worse/wired on an antidepressant	18 (33.33)	12 (42.86)	0.544
				failed antidepressant trial	13 (24.07)	12 (42.86)	0.134
				antidepressant "poop out"	12 (22.22)	11 (39.29)	0.170
				antidepressant-induced mania	2 (3.70)	11 (39.29)	<0.001
H₁	5 (9.26)	20 (71.43)	<0.001	history of hypomanic symptoms	5 (9.26)	20 (71.43)	<0.001
I	41 (75.93)	24 (85.71)	0.453	irritability	41 (75.93)	24 (85.71)	0.453
P	41 (75.93)	27 (96.43)	0.042	psychomotor retardation	29 (53.70)	24 (85.71)	0.009
				psychomotor agitation	10 (52.63)	12 (80.00)	0.195
L	46 (85.19)	26 (92.86)	0.515	family history of depression	45 (83.33)	24 (88.89)	0.740
				family history of BD	15 (27.78)	18 (66.67)	0.002
A	10 (18.52)	17 (60.71)	<0.001	abrupt start/stop of depression	9 (16.67)	11 (39.29)	0.047
				energy burst prior to depression	3 (5.56)	12 (42.86)	<0.001
S	30 (55.56)	22 (78.57)	0.070	perinatal mood symptoms	10 (52.63)	12 (80.0)	0.195
				postpartum mood symptoms	11 (57.89)	11 (73.33)	0.566
				seasonal mood symptoms	27 (50.00)	18 (64.29)	0.318
H₂	23 (42.59)	22 (78.57)	0.004	atypical depressive symptoms	23 (42.59)	22 (78.57)	0.004
E	34 (62.96)	20 (71.43)	0.602	early age of depression onset	34 (62.96)	20 (71.43)	0.602
D	1 (1.85)	5 (17.86)	0.028	psychotic symptoms	1 (1.85)	5 (17.86)	0.028