

Psychopathology of Seasonal Affective Disorder Patients in Comparison With Major Depression Patients Who Have Attempted Suicide

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Background: Few studies have compared the psychopathology of patients with seasonal and nonseasonal mood disorders.

Method: We compared the psychopathology of a consecutively referred sample of seasonal affective disorder (SAD) outpatients (N = 87) with that of hospitalized suicide attempters who had nonseasonal major depression (N = 65) by using the Comprehensive Psychopathological Rating Scale (CPRS). Diagnoses were made according to DSM-III-R criteria. Data were gathered from October 1992 to April 1996.

Results: There were no significant differences in the CPRS total scores of all of the observed items or of the depression subscale items between the groups. The SAD sample had significantly ($p < .05$) higher scores on 18 reported non-psychotic items than the non-SAD suicide attempters. Eleven CPRS items were independently associated with SAD in a backward logistic regression analysis: the reported items were hostile feelings, indecision (negatively), lassitude, failing memory, increased sleep, muscular tension, loss of sensation or movement, and disrupted thoughts, and the observed items were perplexity, slowness of movement (negatively), and agitation.

Conclusion: As compared with non-SAD suicide attempters with major depression, SAD patients have an abundant symptomatology, reflected especially by scores on self-reported items.

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The typical symptom profile of patients suffering from seasonal affective disorder (SAD)¹ has been well described.^{2–5} SAD is a recurring major depressive disorder (MDD) with a specific seasonal onset. Its diagnostic criteria differ from those of nonseasonal MDD regarding the specifiers describing course of recurrent episodes according to the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV).⁶ Yet, the clinical presentations of these subtypes of MDD are often markedly different. In most studies, SAD patients more often than other depressed patients present with atypical neurovegetative symptoms (also known as reversed vegetative symptoms) such as increased sleep, appetite increase, carbohydrate craving, and weight gain.^{7–10} SAD patients have shown significantly better response to treatment than those with nonseasonal MDD, raising the possibility that the cognitive deficits in SAD patients are milder than in those with nonseasonal MDD.^{11–13} Suicidality in SAD patients seems to be a rare phenomenon.¹⁴ Despite these major disparities, there are only a few studies primarily comparing the psychopathology of SAD patients with that of nonseasonal MDD patients,^{7–10,15–18} and we could identify only 1 study comparing SAD patients with depressed suicidal patients.¹⁹

Most of the published studies of SAD so far have used rating scales that are not yet available in validated and

authorized Swedish versions. We could find only 1 previously published study⁹ in which the psychopathology of both major depressive subtypes was studied by using the Comprehensive Psychopathological Rating Scale (CPRS),²⁰ a scale that was developed in Sweden. In that study, the SAD patients were compared with patients with nonseasonal major depression and had significantly lower scores on the CPRS items measuring reported sadness and suicidal thoughts and observed apparent sadness and slowness of movement, as well as lower total CPRS scores. In a previous study from our research group,¹⁹ SAD patients were found to have a significantly different temperament profile than matched healthy controls. The temperament profile of SAD patients was not significantly different from that of matched suicide attempters with nonseasonal major depression, except for less trait anxiety in SAD patients. In a more recent study conducted by us,²¹ the severity of depression of SAD patients did not differ from that of the matched non-SAD suicide attempters.

The purpose of the present study was to compare the psychopathology of SAD patients with that of non-SAD patients who have attempted suicide. To ensure optimal conformity between the samples, only patients with unipolar depression were studied. On the basis of the available literature, we hypothesized that the SAD group would have lower scores on the CPRS than the non-SAD attempter group, especially since the CPRS has only 1 measure of SAD-specific symptoms (increased sleep).

METHOD

The study was performed at the Psychiatric Clinic, Lund University Hospital, Lund, Sweden, between October 1992 and April 1996. The participating subjects were recruited from the Light Therapy Unit and the specialized ward for mood disorders and suicidal behavior, which at that time were the only facilities of their kind in southern Sweden. They had a catchment area population of about 250,000.

The Medical Ethics Committee of the Lund University Medical Faculty approved the study procedures.

Subjects

SAD group. The recruitment procedure has been previously described by us.¹⁹ All of the consecutive patients referred to the Light Therapy Unit of the Department of Psychiatry during the autumn and winter seasons (September to February) of the study period were evaluated by the first or third author in a semistructured interview and were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders*, Third Edition, Revised (DSM-III-R).²² A total of 161 patients out of the 377 referrals were evaluated to have a lifetime diagnosis of SAD (recurrent major depression with a seasonal pattern). These patients were then asked to take part in the study.

Eighteen patients refused to participate and 22 patients were excluded, as they were not undoubtedly unipolar and/or their seasonal pattern was not clearly of the autumn/winter type. Thus, a total of 121 patients out of the original 377 were diagnosed as having lifetime winter SAD with an ongoing major depressive episode. The self-rated Beck Depression Inventory (BDI)²³ was used to screen for the severity of the current depressive episode. Patients who had a total score of at least 15 on the BDI were rated with the Structured Interview Guide for the Hamilton Depression Rating Scale-Seasonal Affective Disorders Version (SIGH-SAD).²⁴ Because an authorized translation into Swedish was not available, an ad hoc translation was used. Thirty-four patients with winter SAD were excluded because their depression ratings according to the SIGH-SAD were low (total score < 20). Thus, a final sample of 87 patients (69 women and 18 men; age range, 19–76 years) constituted the SAD sample in the present study.

The sample was thoroughly physically examined and screened with laboratory tests to exclude any current physical illness or substance misuse and then was rated by the first or the third author on the full 65-item CPRS. These patients also completed the self-rated Seasonal Pattern Assessment Questionnaire (SPAQ),¹ which provided us with some additional information about the SAD patients' perception of seasonal changes in mood, social activity, energy level, sleep length, appetite, and weight.

Thirty-nine (44.8%) of the 87 patients in the study sample taking antidepressant drugs had a stable dose for several weeks and were asked not to make any changes during the investigation and the subsequent trial with light therapy. When the patients taking a medication were compared with those who were not, no significant differences were found regarding gender, age, or CPRS ratings. To identify selection bias, the basic demographic data (age, gender, marital status, and educational level) and the Global Seasonality Scores (GSS, derived from the SPAQ) of the study sample were compared with those of the patients who either refused to participate or were excluded from the analysis. There were no significant differences between these groups.

Non-SAD suicide attempters. The CPRS ratings of 65 patients (26 men, 39 women; age range, 19–79 years) with a DSM-III-R diagnosis of unipolar major depression without seasonal pattern were obtained from the database of the Suicide Research Center, Department of Psychiatry, Lund University Hospital. These patients were treated as inpatients on a specialized ward for mood disorders and suicidal behavior after a recent suicide attempt. They were first encountered in a consulting setup at the emergency unit or the medical intensive care unit after a suicide attempt. A suicide attempt was defined according to the consensus from the report "Suicide Prevention in the Seventies."²⁵ Patients in this group were evaluated by a

team consisting of a psychiatrist and a social worker and then admitted at the specialized ward of the Affective Disorders and Suicide Prevention section. Only about 50% of all of the initial referrals were determined to be "serious enough" on the basis of clinical judgment to warrant an admission to the specialized ward.²⁶ After referral to the psychiatry department, these patients were reevaluated by 1 or 2 senior psychiatrists. Patients who gave informed consent were included in 1 or more of the ongoing research activities. Psychotropic medication, except for occasional doses of benzodiazepines, was discontinued for a mean of 2 weeks until the study evaluations, which included negative assessment of plasma levels of antidepressants and neuroleptics. All patients were physically examined and screened with laboratory tests in a similar way as described for the SAD patients. The participating patients were rated on the 65-item CPRS by senior psychiatrists. The patients were recruited throughout the year: autumn (27.7%), winter (26.2%), spring (38.5%), and summer (7.7%). There were no significant seasonal variations of CPRS ratings (total, reported, or observed).

Assessment Instruments

Comprehensive Psychopathological Rating Scale.

The CPRS²⁰ is a 65-item rating scale measuring a broad spectrum of psychiatric symptoms. It has well-defined scale steps. All of the items in the original version are scored from 0 (absent) to 3 (maximum), and the interval between the steps is 0.5. The scale contains 40 reported items and 25 observed items. The psychometric properties of the CPRS have been well studied and found to be reliable and valid.²⁷⁻³⁴ The rating is based on a flexible interview and encourages clinicians to initiate the interview with open and general questions and then let patients describe the condition in their own words. The rater can then ask more specific questions to clarify the reported variables. The full version of the CPRS also enables observation and rating of slightly increased mood but falls short of assessing reversed vegetative symptoms except increased sleep. This scale also lacks items that could rate mood reactivity and rejection sensitivity, symptoms that are stipulated by the DSM-IV as core symptoms of atypical depression.

Montgomery-Asberg Depression Rating Scale. The Montgomery-Asberg Depression Rating Scale (MADRS) subscale³⁵ was retrieved from the CPRS. The MADRS measures depressive symptoms and is sensitive to changes in the clinical state of mood of depressed patients. It has been tested for reliability and validity.^{29,33,36,37} Especially in Europe, it has been widely used in research on depressive disorders.

Statistics

The chi-square test (categorical variables), the Mann-Whitney U test, and the independent-samples t test (con-

tinuous variables) were used for comparison of SAD patients and non-SAD suicide attempters. The total scores for the full 65-item CPRS and total scores for the subscales were separately analyzed in a general linear model adjusting for gender. The items on the CPRS that showed significant differences between the SAD group and the non-SAD attempter group were dichotomized into 2 categories (< 1.0 and ≥ 1.0) and entered into the subsequent stepwise backward logistic regression analysis. The p value for removal from the model was .10. Tolerance for each independent variable was calculated as a test for collinearity. Tolerances below 0.2 were considered to indicate collinearity problems.³⁸ To facilitate a comparison of the effect size for the various items, the difference between the groups was standardized by dividing the differences in the means by the standard deviations for the particular items. For the purpose of this study, differences of $> 0.5 < 1.0$ standard deviation were regarded as moderate, while differences of ≥ 1 standard deviation were regarded as large. SPSS, version 11.0 (Chicago, Ill.), was used for the calculations.³⁹

RESULTS

The mean \pm SD total scores on the BDI and SIGH-SAD for the SAD group were 25.3 ± 8.4 and 33.4 ± 9.9 , respectively, while the total score on the SIGH-SAD items measuring atypical neurovegetative symptoms was 12.0 ± 5.6 . The SAD group had a mean GSS value of 13.0 ± 5.6 . The SPAQ ratings of the SAD group further demonstrated perceived seasonal variations in sleep length (reduced/increased: 22%/72%), social activity (92%), mood (96%), weight (82%), appetite (reduced/increased: 43%/43%), carbohydrate craving (80%), and energy level (100%).

Age, gender, and CPRS scores of both groups are presented in Table 1. There was no significant difference in age between the groups. The proportion of women was higher in the SAD group (79% vs. 60%, $p = .01$).

The SAD group had significantly higher total CPRS scores. There were no significant differences between the groups in the total scores on the observed items or in the total MADRS scores. The significant differences described above retained their significance after adjustments for gender in a general linear model.

Of the individual MADRS items, mean scores were significantly higher in the SAD group versus the non-SAD attempter group for reported sadness (1.7 ± 0.7 vs. 1.4 ± 0.9 ; $p < .04$; effect size = 0.37), inability to feel (1.6 ± 0.9 vs. 1.2 ± 0.9 ; $p < .02$; effect size = 0.41), lassitude (1.7 ± 0.7 vs. 1.3 ± 0.9 ; $p < .01$; effect size = 0.49), and concentration difficulties (1.7 ± 0.7 vs. 1.2 ± 0.7 ; $p < .01$; effect size = 0.62).

There were highly significant differences between the groups on 14 of the reported items and 5 of the observed

Table 1. Age, Gender, and CPRS Scores of the SAD Group and the Non-SAD Suicide Attempt Group^a

Characteristic	SAD (N = 87)	Non-SAD Suicide Attempt (N = 65)	p Value
Age, y	44.9 ± 12.9	45.0 ± 14.7	.93
Sex			
N, male/female	18/69	26/39	.010
%, male/female	21/79	40/60	
CPRS			
Total score	33.7 ± 10.4	22.7 ± 9.6	.00
All observed items	4.0 ± 3.5	3.4 ± 2.4	.59
All reported items	29.6 ± 8.2	19.3 ± 8.2	.00
MADRS subscale	13.2 ± 4.8	11.4 ± 5.5	.05
Items not included in MADRS	20.4 ± 7.1	11.3 ± 5.1	.00

^aValues expressed as mean ± SD unless otherwise noted.

The Mann-Whitney U test was used for the comparisons.

Abbreviations: CPRS = Comprehensive Psychopathological Rating Scale, MADRS = Montgomery-Asberg Depression Rating Scale, SAD = seasonal affective disorder.

items of the CPRS that are not included in the MADRS. Of the reported items, ratings were significantly higher in the SAD group versus the non-SAD attempter group for the items rating irritability (hostile feelings) (1.4 ± 0.9 vs. 0.5 ± 0.7 ; $p < .01$; effect size = 0.96), worrying over trifles (1.5 ± 0.9 vs. 1.0 ± 0.9 ; $p < .01$; effect size = 0.63), compulsive thoughts (0.6 ± 0.8 vs. 0.2 ± 0.5 ; $p < .01$; effect size = 0.54), indecision (1.4 ± 0.9 vs. 1.1 ± 0.8 ; $p < .01$; effect size = 0.44), fatigability (1.8 ± 0.8 vs. 1.0 ± 0.8 ; $p < .01$; effect size = 0.92), failing memory (1.3 ± 0.9 vs. 0.6 ± 0.7 ; $p < .01$; effect size = 0.84), increased sleep (1.3 ± 1.1 vs. 0.1 ± 0.3 ; $p < .01$; effect size = 1.17), reduced sexual interest (1.7 ± 1.1 vs. 1.2 ± 1.2 ; $p < .01$; effect size = 0.48), autonomic disturbances (1.1 ± 0.9 vs. 0.6 ± 0.7 ; $p < .01$; effect size = 0.55), aches and pains (1.1 ± 0.9 vs. 0.5 ± 0.6 ; $p < .01$; effect size = 0.77), muscular tension (1.4 ± 0.9 vs. 0.7 ± 0.8 ; $p < .01$; effect size = 0.71), loss of sensation or movements (0.4 ± 0.6 vs. 0.2 ± 0.6 ; $p < .01$; effect size = 0.26), depersonalization (0.3 ± 0.6 vs. 0.1 ± 0.2 ; $p < .01$; effect size = 0.49), and disrupted thoughts (0.6 ± 0.8 vs. 0.3 ± 0.2 ; $p < .01$; effect size = 0.86). The SAD group had significantly higher ratings on observed perplexity (0.4 ± 0.7 vs. 0.1 ± 0.3 ; $p < .01$; effect size = 0.55) and agitation (0.4 ± 0.6 vs. 0.1 ± 0.3 ; $p < .01$; effect size = 0.56), while the ratings for the SAD group were significantly lower on observed lack of appropriate emotion (0.0 ± 0.2 vs. 0.1 ± 0.3 ; $p < .03$; effect size = 0.26), perseveration (0.0 ± 0.0 vs. 0.2 ± 0.4 ; $p < .01$; effect size = 0.61), and slowness of movement (0.4 ± 0.6 vs. 0.5 ± 0.6 ; $p < .02$; effect size = 0.24).

Multivariate Analysis

The results from a stepwise backward logistic regression are presented in Table 2. Eleven CPRS items remained independently associated with SAD when age,

Table 2. Multivariate Analysis (backward stepwise logistic regression)^a

Variable in the Equation at the Final Step	p Value	Odds Ratio	95.0% CI
Gender (male vs. female)	.00	0.07	0.02 to 0.25
Hostile feelings	.00	20.00	3.23 to 111.00
Indecision	.06	0.22	0.04 to 1.08
Lassitude	.06	4.55	0.92 to 25.00
Failing memory	.05	4.55	0.97 to 20.00
Increased sleep	.00	125.00	14.29 to 1000.00
Muscular tension	.10	3.45	0.79 to 14.29
Loss of sensation or movements	.04	12.50	1.15 to 142.86
Disrupted thoughts	.01	50.00	2.63 to 1000.00
Perplexity	.02	25.00	1.67 to 333.33
Slowness of movement	.00	0.004	0.0003 to 0.07
Agitation	.00	23.26	2.78 to 200.00

^aGender and all of the CPRS items showing a significant difference between the SAD group and the non-SAD suicide attempter group were entered in the first step with non-SAD (vs. SAD) as the dependent variable. Age and the following items were removed: sadness, inability to feel, worrying over trifles, compulsive thoughts, fatigability, concentration difficulties, reduced sexual interest, autonomic disturbances, aches and pains, depersonalization, lack of appropriate emotion, and perseveration.

Abbreviations: CPRS = Comprehensive Psychopathological Rating Scale, SAD = seasonal affective disorder.

gender, and the CPRS items (dichotomized) that showed a significant difference between the SAD and the non-SAD attempter groups were entered in the model. The tolerance was assessed in order to estimate collinearity between the variables in the final model. Tolerance was 0.66 for disrupted thoughts, 0.71 for perplexity, and between 0.78 and 0.91 for all other variables. The model could correctly identify 95.4% of the SAD cases and 85.2% of the non-SAD suicide attempter cases.

DISCUSSION

The major finding of this study was that, contrary to our hypothesis, SAD outpatients had multiple symptoms and a more severe psychopathology than inpatients with nonseasonal major depression who had attempted suicide.

The substantially higher female representation in the SAD group was in accordance with several previous studies.^{4,5} The high scores of the SAD patients on the item measuring increased sleep were also as expected.²⁻⁵ However, increased sleep is the only straightforward SAD-specific symptom that could be measured by the CPRS. Hence, we could not assess all of the symptoms that SAD patients might have shown. Nonetheless, as the full 65-item version of the CPRS covers a very wide spectrum of psychopathology, we feel that the CPRS well met the demands of this study, i.e., to compare the psychopathology seen in SAD and suicide attempters with nonseasonal major depression.

The total score for the reported CPRS items was significantly higher in the SAD group, while there was no significant difference between groups on the total scores

of the MADRS, implying that the severity of depression was similar in both groups. The SAD patients had significantly higher scores with large differences (at least 1 standard deviation) on reported items measuring irritability ("hostile feelings"), fatigability, disruption of thoughts, and increased sleep and observed items measuring perplexity and agitation. In addition, the SAD group also had moderately higher ratings, with differences between 0.5 and 1 standard deviation, than the non-SAD suicide attempter group on reported items measuring worrying over trifles, compulsive thoughts, indecision, lassitude, concentration difficulties, failing memory, autonomic disturbances, aches and pains, muscular tension, reduced sexual interest, and depersonalization. The multivariate analysis, as presented in Table 2, revealed that female gender and 11 CPRS items independently distinguished SAD patients from non-SAD suicide attempters. When the information obtained from the self-rated SPAQ and the clinician-rated SIGH-SAD was merged with the findings from the CPRS ratings, it appeared that SAD patients showed both atypical neurovegetative and melancholic features. Furthermore, the symptom profile of these patients included considerable psychological distress and multiple physical symptoms, as well as a few neurasthenic symptoms. Hence, the psychopathology of SAD includes a wide range of symptoms, and the severity of the symptoms is often high.

It has been shown that SAD patients have higher rates of medical consultations than the "nonseasonal" patients⁴⁰ and that they have a very high consumption of health care resources.⁴¹ The abundant symptomatology of SAD patients as seen in the present study might underlie the fact that they are often incorrectly diagnosed⁴² and hence may not receive appropriate medical care.⁴³

A systematic overestimation of the symptomatology in the SAD group and/or a corresponding underestimation in the non-SAD suicide attempter group seems unlikely, as all psychiatrists who performed the CPRS ratings are well experienced in the fields of suicide prevention and depressive disorders, and CPRS ratings are well-established routines on our ward. Furthermore, the CPRS has been found to have excellent interrater reliability in a number of studies.^{27,28,30,34} The well-matching patient self-reports of the SAD group on the BDI (results not presented here) argue against such a systematic error or bias. Another Swedish study of SAD,⁴⁴ using the scores from an abbreviated CPRS version, showed similar results, which further negates the possibility of a systematic overestimation or underestimation in our groups. Our research group has, however, since the mid-1990s, been performing co-ratings to improve interrater agreement.

The non-SAD attempter group was rated after they had undergone a stay of about 2 weeks and drug washout on the specialized ward, and all of the patients had been evaluated as needing further inpatient treatment. The SAD group was rated at the time of their presentation at the spe-

cialized outpatient clinic, and all had been evaluated as needing treatment or a change in treatment for their current major depressive episode. Thus, both groups were suffering from major depression and differed concerning only seasonal pattern and suicidality. We cannot claim that the study groups are representative of all patients. However, there were no significant differences between the two groups in age, marital status, educational status, economic status, or severity of current depression as rated by the MADRS. The differences in sex and on some of the MADRS items were also taken into account in the multivariate analysis. It is therefore unlikely that any of these factors explain the results.

Although there are many studies showing seasonal variations in suicide attempts and completed suicides,⁴⁵⁻⁵² the available data on suicidal behavior of SAD patients are still very sparse. The SAD patients had nonsignificantly lower ratings on the CPRS item measuring suicidal ideation than the non-SAD suicide attempter group (0.9 ± 0.7 vs. 1.1 ± 0.9 ; $p < .10$; effect size = 0.47). It has been shown that seasonal course specifiers are not uncommon in patients who complete suicide.⁵³ One of our SAD patients has now died from suicide. Thus, we believe that suicidal ideation observed in SAD patients should be taken seriously and that more studies of the suicidal behavior of SAD patients should be undertaken.

CONCLUSION

As compared with non-SAD suicide attempters with major depression, SAD patients have an abundant symptomatology, reflected especially by scores on self-reported items.

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents has been presented in this article that is outside U.S. Food and Drug Administration–approved labeling.

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