

# Seasonal Affective Disorder

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Seasonal affective disorder is a combination of biologic and mood disturbances with a seasonal pattern, typically occurring in the autumn and winter with remission in the spring or summer. In a given year, about 5 percent of the U.S. population experiences seasonal affective disorder, with symptoms present for about 40 percent of the year. Although the condition is seasonally limited, patients may have significant impairment from the associated depressive symptoms. Treatment can improve these symptoms and also may be used as prophylaxis before the subsequent autumn and winter seasons. Light therapy is generally well tolerated, with most patients experiencing clinical improvement within one to two weeks after the start of treatment. To avoid relapse, light therapy should continue through the end of the winter season until spontaneous remission of symptoms in the spring or summer. Pharmacotherapy with antidepressants and cognitive behavior therapy are also appropriate treatment options and have been shown to be as effective as light therapy. Because of the comparable effectiveness of treatment options, first-line management should be guided by patient preference. (*Am Fam Physician*. 2012;86(11):1037-1041. Copyright © 2012 American Academy of Family Physicians.)

► **Patient information:**  
A handout on this topic is available at <http://familydoctor.org/familydoctor/en/diseases-conditions/seasonal-affective-disorder.html>.

Seasonal affective disorder (SAD) is a combination of biologic and mood disturbances with a seasonal pattern. It typically occurs in the autumn and winter with remission in the spring or summer, but it may also occur at other times of the year.<sup>1</sup>

## Incidence

Community-based studies estimate that the prevalence of SAD approaches 10 percent in northern latitudes.<sup>1</sup> With strict application of criteria from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision (DSM-IV-TR),<sup>2</sup> the prevalence of SAD is approximately 1 to 2 percent in the United States and approximately 2 percent in Canada. In a given year, about 5 percent of the U.S. population experiences SAD, with symptoms lasting approximately 40 percent of the year.<sup>3</sup>

Because of its recurrence and duration, SAD is considered a serious mental health problem.<sup>3</sup> The symptoms can have a substantial impact on patients' families and employment. SAD tends to be predominant in women, particularly during childbearing years, with a reported female-to-male ratio of 4:1.<sup>4</sup> Rates of SAD have been shown to decline among older persons, with older

men and women equally susceptible.<sup>1</sup> Older children also are susceptible to SAD.

In a large study examining parents' and children's report of seasonal depression in children six to 18 years of age, there was no compelling evidence showing seasonally tied symptoms of depression in children six to 15 years of age.<sup>5</sup> However, parents in this study rated the degree of depression as significantly more severe in 16- to 18-year-olds than in six- to 15-year-olds, although only when they were assessed in autumn and winter. The level of depression in patients 16 to 18 years of age was found to be more severe in autumn and winter than in spring and summer.<sup>5</sup>

## Etiology and Pathophysiology

There may be several biologic mechanisms underlying SAD,<sup>3</sup> including circadian phase delay or advance (the phase shift hypothesis), which tends to appear as the chief cause in the literature. Additional contributing mechanisms may include retinal sensitivity to light, neurotransmitter dysfunction, genetic variations affecting circadian rhythms, and serotonin levels. Researchers propose that the syndrome is best viewed as a complex disorder resulting from a combination of factors.<sup>6,7</sup>

**SORT: KEY RECOMMENDATIONS FOR PRACTICE**

<i>Clinical recommendation</i>	<i>Evidence rating</i>	<i>References</i>
Light therapy is effective for treating SAD; clinical improvement is usually observed one to two weeks after the start of treatment.	B	10, 13
Antidepressant medications can be used for the treatment of SAD; selective serotonin reuptake inhibitors are the most proven class of antidepressants.	B	13, 18-22
Cognitive behavior therapy tailored for SAD is an acceptable treatment option and may have prophylactic benefits for subsequent years.	B	24-26

SAD = seasonal affective disorder.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to <http://www.aafp.org/afpsort.xml>.

Physicians must also consider the presence of psychological mechanisms, such as vulnerability to stress, when treating patients with SAD.<sup>2</sup> Other risk factors include living in northern latitudes, and having a first-degree relative who has manifested symptoms of depression.<sup>1,6</sup>

**Typical Presentation**

Patients with SAD typically present with symptoms consistent with some form of depression. When depression is suspected,

the physician should consider SAD if there is a history of a seasonal pattern to the depression and if it aligns with the current season. Often-noted concomitants of SAD not considered to be specific criteria for other depressive disorders are carbohydrate craving and hyperphagia, with resulting weight gain. However, the presence of these symptoms is not diagnostic for SAD; seasonality is required, with other symptoms of clinical depression.

**Diagnosis**

If SAD is suspected, a full evaluation using current DSM-IV-TR depression criteria is needed. A number of instruments can be used to screen for depression and determine its severity. These instruments can be used instead of, or in addition to, a clinical interview. Two of the most commonly used tools are the Beck Depression Inventory and the Hamilton Rating Scale for Depression.

Evaluation for comorbid psychological problems is important. Because there may be a seasonal component in bipolar or cyclothymic disorders, it is important to determine the presence of a cyclical pathology in addition to symptoms of major depressive disorder. Treatment considerations for these conditions vary.

**DIAGNOSTIC CRITERIA**

Diagnostic criteria for SAD are listed in Table 1.<sup>2</sup> As of yet, there are no significant changes to the criteria in the upcoming edition of DSM-V.<sup>8</sup>

**Table 1. Diagnostic Criteria for Seasonal Affective Disorder**

- Seasonal affective disorder is currently classified under major depressive disorder, recurrent, as well as bipolar I or II disorder.
- The disorder is assigned a seasonal pattern specifier if there is a regular recurrence of the major depressive episode at a particular time of year.
- Psychosocial stressors associated with a particular season resulting in a major depressive episode do not qualify for the seasonal pattern specifier.
- Full remission, or a change from major depression to mania or hypomania, must also occur at a particular time of year.
- To demonstrate the temporal seasonal relationship, two major depressive episodes must have occurred in the past two years.
- Nonseasonal major depressive episodes must not have occurred during the same period of time.
- Seasonally related major depressive episodes must outnumber the nonseasonal major depressive episodes that may have occurred over a person's lifetime.

*Information from reference 2.*

## DIFFERENTIAL DIAGNOSIS

The differential diagnosis of SAD includes the following: major depressive disorder, bipolar I and II disorders that do not have a seasonal pattern, cyclothymic disorder, dysthymic disorder, premenstrual dysphoric disorder, chronic fatigue syndrome, hypothyroidism, and drug or alcohol abuse. There may be other, less likely pathologic causes of depression, which should be investigated after ruling out these diagnoses.<sup>9</sup>

## Treatment

Studies have shown that light therapy, pharmacotherapy, and cognitive behavior therapy (CBT) are appropriate options for treating SAD, but no treatment, or combination of treatments, has been found to be superior. For this reason, treatment choice should be guided by patient preference.

## LIGHT THERAPY

Many published studies on the effects of light therapy in persons with SAD do not meet recognized standards for rigorous clinical trial design because of inherent difficulties in creating an acceptable placebo. However, multiple systematic reviews and meta-analyses evaluating the available data support the use of light therapy as an effective treatment for SAD.<sup>6,10</sup>

Clinical practice guidelines have outlined the standard protocol for light therapy (Table 2).<sup>11</sup> Patients should be positioned about 12 to 18 inches from a white, fluorescent light source at a standard dosage of 10,000 lux for 30 minutes per day in the early morning. They must be awake with their eyes open, but are not required to look directly into the light (i.e., eating or reading during the treatment is acceptable as long as the light enters the pupil). Ultraviolet wavelengths have not shown statistically significant improvement of depressive symptoms and should be avoided because of the potentially harmful effects.<sup>12</sup>

Statistically significant clinical improvement has been observed after one to two weeks of light therapy, but when treatment is discontinued, most patients relapse after a similar period; therefore, treatment should

**Table 2. Light Therapy Guidelines for Seasonal Affective Disorder**

Patients should be positioned about 12 to 18 inches from a source of 10,000 lux of white, fluorescent light without ultraviolet wavelengths.
Therapy should last for 30 minutes daily in the early morning.
Eyes must be open, although it is not necessary to stare at the light.
After remission, dosing may be individualized for the rest of the winter season.
In subsequent years, treatment may begin in early autumn to avoid relapse.

*Information from reference 11.*

be continued until the time of usual spontaneous remission in the spring or summer.<sup>6,13</sup> After remission, patients can individualize their dosing by reducing daily exposure time or using the therapy on weekdays only, as long as they maintain control of symptoms. To avoid relapse in subsequent years, patients may start light therapy in the early autumn before the onset of symptoms.<sup>14</sup>

Light therapy is generally well tolerated. Adverse effects may include headache, eye strain, nausea, agitation, and blurred vision, but these are usually mild and transient.<sup>6,13,15</sup> There is no evidence that light therapy is associated with ocular or retinal damage.<sup>16</sup> Ophthalmologic examinations before starting light therapy and at regular follow-up intervals are recommended only for patients with preexisting retinal disease or systemic diseases involving the retina and for those taking photosensitizing medication.<sup>6</sup> Like antidepressants, light therapy may precipitate hypomanic or manic episodes in susceptible patients with bipolar disorder.<sup>17</sup>

Light therapy units may be purchased from online retailers, drugstores, and some hardware stores. Units range from \$180 to \$500, with most costing less than \$250. Reimbursement by health insurers is inconsistent; some companies may cover the cost if the physician provides a prescription or letter of necessity.

### PHARMACOTHERAPY

Results from most randomized controlled trials indicate that second-generation antidepressants (i.e., selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors) are superior to placebo in reducing depression scores and remission rates.<sup>6</sup> Selective serotonin reuptake inhibitors have the best evidence for effectiveness, with fluoxetine (Prozac; 20 mg per day) being the most investigated drug.<sup>13,18-22</sup> A 2011 Cochrane review, however, determined that the low overall quality of the studies precludes the ability to draw any conclusions about the use of second-generation antidepressants for the treatment of SAD.<sup>23</sup>

Some lifestyle adjustments may prevent symptoms of seasonal affective disorder, such as exercising and increasing light in the home.

### LIGHT THERAPY VERSUS PHARMACOTHERAPY

Few trials have compared the effectiveness of light therapy versus pharmacotherapy. One double-blind randomized controlled trial assigned 96 patients to one of two regimens: (1) eight weeks of 10,000 lux light therapy for 30 minutes daily as soon as possible after waking plus a placebo capsule, or (2) eight weeks of 20-mg fluoxetine per day plus 100 lux light therapy (placebo) for 30 minutes daily.<sup>13</sup> Clinical response and remission rates for the two groups were similar, but the group receiving light therapy at the higher dosage had an earlier response and slightly lower rate of adverse effects compared with the fluoxetine group. The authors concluded that light therapy and fluoxetine are comparably effective and well tolerated, and that other clinical factors, including patient preference, should guide the selection of treatment.

### COGNITIVE BEHAVIOR THERAPY

CBT is an empirically validated treatment for nonseasonal depression. One group of researchers developed and pilot tested a version of CBT tailored for patients with SAD that involved 90-minute sessions twice per week over a period of six weeks.<sup>24</sup> The small (n = 23) uncontrolled feasibility study found that standard light therapy, SAD-tailored CBT, and a combination of light therapy and CBT all led to comparable reductions

in depressive symptoms and good remission rates, both of which were statistically significant for all three groups. Combined treatment had the highest remission rate but was not statistically superior to the other treatments alone. The authors subsequently published a larger (n = 61) randomized controlled trial that also demonstrated statistically significant and similar improvements in depression severity in all three treatment groups, compared with the control group.<sup>25</sup> Treatment with CBT, with or without adjunct light therapy, was associated with a statistically significant reduction in recurrences of depression during the following winter compared with light therapy alone.<sup>26</sup> Additionally, persons in the CBT group, but not the combination group, demonstrated a statistically significant decrease in depression severity at one year compared with persons in the light therapy group, based on two depression severity scales.<sup>26</sup> The authors postulated that CBT for treating SAD may be prophylactic.

### Prevention

Because of its predictable pattern of recurrence, patients with SAD may begin light therapy in the early autumn before the onset of symptoms.<sup>21</sup> CBT may reduce the recurrence and severity of depressive symptoms.<sup>26</sup> One study showed that patients with a history of SAD who were randomized to take bupropion XL (Wellbutrin XL; 300 mg per day) starting in the early autumn had lower recurrence rates than those in the placebo group; however, results did not reach statistical significance because the recurrence rates were low overall, even in the placebo group.<sup>27</sup> Some experts recommend certain lifestyle adjustments to prevent SAD symptoms, including exercising more often, increasing light in the home, practicing relaxation and stress management techniques, spending more time outside, and visiting sunnier, warmer climates.<sup>28</sup>

**Data Sources:** A PubMed search was completed in Clinical Queries using the key term seasonal affective disorder. The search included meta-analyses, randomized controlled trials, clinical trials, and reviews. Also searched were the Agency for Healthcare Research and Quality evidence reports, Clinical Evidence, the Cochrane Database of Systematic Reviews, Essential Evidence Plus,

and the U.S. Preventive Services Task Force. Search date: November 4, 2011.

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Author disclosure: No relevant financial affiliations to disclose.

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