# Research to Practice

# Seasonal Affective Disorder

by Steven D. Targum, MD; and Norman Rosenthal, MD

## INTRODUCTION

Many years ago, I was living in Sarasota, Florida, when my friend and colleague, Norman Rosenthal, asked me to participate in a research study assessing seasonal mood states in different geographical latitudes within the United States. Norman had chosen locations in New Hampshire, New York, Maryland, and Florida. Not surprisingly, the residents of sunny Florida fared much better that winter than the Northerners. Now, 20 years later, I am living in Boston, Massachusetts, and recognize seasonal affective disorder (SAD) wherever I go. Of course, SAD is not limited to the northern United States. In fact, while visiting a medical clinic in northern Sweden last year, I was shown the facility's "light" lounge, a room with eight colorful chaise lounges above which were bright lights, which were used for hourly group get-togethers during their very long winters.

SAD has been recognized and included in the diagnostic classification system of the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition* as major depressive disorder with seasonal pattern, and many clinicians are familiar with the symptoms. Winter blues, a less severe form of seasonal mood disorder, has also been described. I thought it would be of interest to the readership of *Psychiatry 2008* to revisit SAD with one of the original research contributors.

Norman E. Rosenthal, MD, retired from the National Institutes of Mental Health after a distinguished career researching cyclical mood patterns and is currently Clinical Professor of Psychiatry at Georgetown University Medical School and Medical Director of the Capital Clinical Research Associates, in Rockville, Maryland.

## WHAT ARE THE CLINICAL SYMPTOMS OF SEASONAL AFFECTIVE DISORDER?

**Dr. Rosenthal:** Every year, as the days become short and dark, people with SAD develop a predictable set of symptoms. They slow down and have a hard time waking up in the morning. Their energy level decreases, they tend to eat more, especially sweets and starches, and they gain weight. Their concentration suffers, and they withdraw from friends and family. As you can imagine, their work and relationships suffer, and they can become quite depressed. This symptom cluster often lasts for four or five months until the days become longer again. Since the syndrome is linked to a lack of light, people with SAD may become depressed during cloudy weather at any time of year, or if

they are confined to windowless offices or basement apartments.

In its full form, SAD affects productivity in work or school, may affect interpersonal relationships, and causes a marked loss of interest or pleasure in most activities. A milder form of seasonal disorder, the winter blues, yields similar symptoms of decreased energy and increased appetite and can also affect enthusiasm and productivity but to a lesser extent. For instance, people with SAD report sleeping an average of 2.5 hours more in winter than in the summer, whereas people with winter blues sleep 1.7 hours more (the general population sleeps 0.7 hours more in the winter).[1]

## HOW DID YOU BECOME INTERESTED IN SAD?

**Dr. Rosenthal:** When I came from South Africa, I started my residency in New York City during the summer. The days were long and my energy seemed boundless. After the shift in Daylight Savings Time, when it became dark earlier, I noticed in myself some of the symptoms described above. The same symptoms recurred winter after winter. I moved to Bethesda, Maryland to work at the National Institute of Mental Health (NIMH), where my colleagues, Drs. Thomas Wehr and Alfred Lewy, were studying cyclical mood disorders and the effects of bright light on melatonin. I encountered one patient with regular seasonal mood cycles and was determined to find others. A newspaper article written about the topic helped me to locate dozens of more patients with the problem, and a new psychiatric disorder was described.

## HOW MANY PEOPLE ARE AFFECTED BY SEASONAL MOOD CHANGES?

**Dr. Rosenthal:** Six percent of the US population, primarily in northern climates, is affected by SAD in its most marked form. Another 14 percent of the adult US population suffers from a lesser form of seasonal mood changes, known as winter blues.[1] Of course, seasonality affects people all over the world. The prevalence of SAD in Oslo, Norway, was reported as 14 percent in contrast to 4.7 percent in New York City.[1] In fact, someone may have winter blues while living in southern climates and convert to full blown SAD if he or she moves to a northern climate.

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## HOW IS SAD DIFFERENT FROM MAJOR DEPRESSIVE DISORDER OR MILD DEPRESSION?

**Dr. Rosenthal:** SAD is a form of major depressive disorder (MDD); in other words, patients with SAD can be just as depressed as patients with MDD and are often more so. The only distinction between these depressive disorders is the timing of the episodes, which occur during the short, dark days of winter in patients with SAD.

## DO YOU THINK THERE IS A GENETIC PREDISPOSITION FOR SAD?

**Dr. Rosenthal:** There certainly appears to be a genetic predisposition. SAD tends to run in families. Also, there are some genetic variants that appear to be associated with those who have SAD, but this does not explain the cause of SAD symptoms in most sufferers.

## ARE THERE BIOLOGICAL FINDINGS THAT SUPPORT THE DISTINCTION BETWEEN THESE MOOD DISORDERS?

**Dr. Rosenthal:** Actually, there are very few direct comparisons between SAD patients and those with other forms of MDD, so we do not know how they differ biologically. Clearly, serotonin and dopamine appear to be involved like other forms of depression. Patients with SAD appear to be particularly responsive to environmental light in contrast to other forms of depressive disorder. Beyond that, melatonin appears to

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be a key for SAD. Unlike healthy controls, the duration of nocturnal melatonin secretion expands during winter as compared with summer in patients with SAD.

## WHAT ARE THE TREATMENTS FOR SAD?

**Dr. Rosenthal:** Light therapy, psychotherapy, and medications are the main treatments for SAD. Also, stress management and exercise programs can be helpful. Although the first controlled studies of light therapy were conducted only 25 years ago, this treatment has subsequently become the mainstay of SAD therapy throughout the world. In fact, Dr. Targum, the light therapy room you observed in Sweden was one of over 80 in that country alone.

## REGARDING LIGHT THERAPY, HOW EFFECTIVE AND HOW SPECIFIC IS THE AMOUNT OF TREATMENT NEEDED?

**Dr. Rosenthal:** Sixty to 80 percent of SAD sufferers benefit from light therapy. The amount of light varies from person to person. The best light therapy units are about 1ft by 1.5ft in surface areas and use white fluorescent lights behind a plastic diffusing screen, which filter out ultraviolet rays. Mornings seem the best time for light therapy to work, although the treatments can be divided during the day. Most people respond to light therapy within 2 to 4 days of initiating treatment. Although the amount of time needed varies, most people need between 30 and 90 minutes (10,000lux) of light therapy per day.

## DO CLINICIANS NEED SPECIAL TRAINING TO DIAGNOSE OR PRESCRIBE TREATMENTS FOR SAD?

Training in SAD and its treatments should be part of all training programs. For those who missed out on this training, consult the professional literature. There are books available on the subject as well.[1]

## ARE THERE DIAGNOSTIC TOOLS FOR IDENTIFYING SAD THAT CAN BE USED IN A CLINICIAN'S OFFICE?

**Dr. Rosenthal:** I think that a good clinical interview is the best diagnostic tool. For more quantitative approaches, there is the Seasonal Pattern Assessment Questionnaire (SPAQ), which was developed specifically for SAD.[2]

## WHAT'S ON THE RESEARCH HORIZON FOR SAD?

**Dr. Rosenthal:** Basic science research into SAD is at a standstill right now. We are waiting for a new generation of researchers to explore the exciting possibilities characterized by this unique disorder. Interestingly, pharmaceutical companies have recognized the importance of SAD and have begun clinical trials with antidepressants. Three large studies encompassing over 1,000 patients revealed that Wellbutrin XL, if given before the onset of winter symptoms, may prevent an attack of SAD.

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## REFERENCES

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**FINANCIAL DISCLOSURES:** Dr. Targum has stock or stock options in BrainCells Inc. and Prana Biotechnology Ltd. In the past year, Dr. Targum has been a consultant to United BioSource Corporation, Dynogen, Epix, DOV Pharmaceuticals, Sepracor, NuPathe, and Memory Pharmaceuticals. Dr. Rosenthal is a consultant for GlaxoSmithKline and is the author of the book, *Winter Blues: Everything You Need to Know to Beat Seasonal Affective Disorder* (Guilford, 2006).

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