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SAD: a Sign of the Sunless Season Article #1260

by Ned Rozell

This column is provided as a public service by the Geophysical Institute, University of Alaska Fairbanks, in cooperation with the UAF research community. [Ned Rozell](#), is a science writer at the institute.

Over the southern horizon, the sun traces a weak, shallow arc that shrinks each winter day. The inevitable tilt of the earth once again plunges Alaska into winter and causes many Alaskans to feel melancholy, as if the sun is a loved one saying goodbye for the winter.

Seasonal Affective Disorder, also known by the fitting acronym SAD, is a real hazard of living far from the equator. Our wild fluctuations of daylight in the Interior--from almost 22 hours at summer solstice to under four hours at winter solstice--can have an unpleasant effect on the human brain.

John Booker, a medical and public health researcher at the University of Alaska Anchorage's Circumpolar Health Institute, said humans have biological rhythms that correspond to the amount of light that reaches the brain. Some researchers say a lack of daylight such as that experienced in an Alaska winter affects the production of the hormone melatonin, which has been called "the hormone of darkness" because it is normally secreted at night.

A surplus supply of melatonin, which is produced in the brain's pineal gland, can affect a person in several ways. Symptoms of SAD include irritability, a desire to sleep longer, a craving for carbohydrates, and weight gain.

In 1992, Booker and Dr. Carla Hellekson published a study in the *American Journal of Psychiatry* comparing Fairbanks residents to those from cities at different latitudes from as far south as Sarasota, Florida. Their results support the widely believed hypothesis that the more extreme the latitude, the more people suffer from SAD.

In sunny Sarasota, only 4 percent of those surveyed were diagnosed with SAD or at least showed symptoms of SAD. As degrees of latitude increased, so did the prevalence of SAD and SAD symptoms. About 17 percent of the residents of Montgomery County, Maryland, and those surveyed in New York City showed SAD symptoms. Twenty percent of those responding to a mail survey in Nashua, New Hampshire, were affected. In Fairbanks, where the researchers interviewed about 300 people who had lived there for more than three years, 28 percent were diagnosed with either SAD or SAD symptoms.

In fact, the 1992 study found that SAD may affect one of four people in Fairbanks. Researchers suspect that hormonal differences between women and men may make women more susceptible to SAD. The study showed that three women to every two men reported symptoms. Age also appears to be a factor. Researchers found that both men and women under 40 suffered more from SAD than those over 40. Consequently, the group at greatest risk to SAD appears to be women under 40, Booker said.

Booker said that while the results may be skewed by the possibility that women are more likely to report emotional problems than men, the fact that women suffer from SAD more than men has been confirmed in many studies.

Luckily, SAD is a treatable illness with either phototherapy--exposure to a bank of high-intensity lights--or anti-depressant medication. But the majority of people who suffer from SAD don't seek treatment. That's the scary part, Booker said.

He believes the symptoms of SAD make northerners potentially dangerous human beings. According to Booker, some studies suggest that people are more likely to have motor vehicle accidents or fights at home in the darkness of winter. Other research indicates that lack of sunlight may cause some people to consume more alcohol or use more cocaine than they normally would.

"These are public health ramifications we have to pay attention to," Booker said.

In a recently completed study, Booker surveyed medication errors made by nursing staff at Anchorage-area hospitals for five years. He found nurses were twice as likely to make mistakes when issuing medication to patients in February, a month when SAD has a firm hold over its victims, as opposed to November.

"We're not just talking about recognizing that (SAD) affects people, but that it affects how people perform," Booker said.

Health Index

Main Index

[\[Health and Medicine Index\]](#) [\[Main Index\]](#)