Bright Lights Dim Winter Depression

For the past 15 years, a small group of researchers has argued that people who sink into troughs of severe depression every winter can feel much better if they receive daily exposure to artificial bright light for at least a week. But many mental health clinicians have suspected that, instead, light therapy's reported effects reflect depressed volunteers' great expectations about the power of indoor illumination.

Two new studies, both published in the October ARCHIVES OF GENERAL PSYCHIATRY, counter this clinical skepticism with demonstrations that light therapy—especially if administered in the morning—dampens winter depression much more than placebo treatments do.

Biological mechanisms through which bright lights produce antidepressant relief remain poorly understood. A third study in the same issue suggests that morning doses of bright light work by moving up by an hour or two the nightly secretion of melatonin, a hormone involved in sleep regulation and daily biochemical rhythms (SN:10/17/98, p. 248).

"Light therapy should be considered a mainstream antidepressant [therapy]," remarks psychologist Anna Wirz-Justice of the Psychiatric University Clinic in Basel, Switzerland, in an accompanying comment. "Light is as effective as [antidepressant] drugs, perhaps more so."

Along with feelings of sadness, anxiety, and lethargy, winter depression also frequently includes difficulty awakening in the morning, daytime drowsiness, cravings for sweet or starchy foods, and big weight gains. An estimated 1 in 10 people in Alaska and other northern regions—and 1 in 100 people in Florida—experience this condition, which is also known as seasonal affective disorder (SAD; SN: 7/25/92, p. 62).

In one of the new studies, a team led by psychologist Michael Terman of Columbia University recruited 124 volunteers, ages 18 to 65, who exhibited SAD. Over 20 to 28 days, 85 participants received daily 30-minute exposures to bright light from a box mounted above the head. Some had light therapy in the morning, others in the evening, and some switched from one time to the other halfway through the trial.

The remaining volunteers sat for 30 minutes each morning in front of an apparatus called a negative-ion generator, which emitted either low or high densities of air ions. These treatments were intended to serve as placebos.

About 60 percent of those who received morning light therapy displayed marked improvement in SAD symptoms, compared with about 30 percent of those on the evening light regimen. Winter depression eased in only 5 percent of volunteers exposed to low-density ions.

Lessening of SAD also occurred in 40 percent of those exposed to high-density ions, a finding that needs to be explored further, the scientists say.

The second study, directed by psychologist Charmane I. Eastman of Rush-Presbyterian–St. Luke's Medical Center in Chicago, found that nearly 60 percent of volunteers diagnosed with winter depression greatly improved after 4 weeks of daily sessions of morning bright light lasting 90 minutes. The proportion of treatment responders reached only 44 percent for those given evening bright-light doses and 36 percent for volunteers whose daily regimen consisted of sitting in front of a negative-ion generator that made a soft hissing sound but, unknown to them, was not turned on.

Eastman's group studied a total of 96 people diagnosed with SAD.

A third study consisted of 51 people with winter depression and 49 individuals with no psychiatric disorders. Two weeks of 2-hour morning bright-light exposures reduced SAD symptoms much more than comparable evening light therapy did, report psychiatrist Alfred J. Lewy of the Oregon Health Sciences University in Portland and his coworkers. This study contained no placebo treatment.

Morning light therapy also advanced the onset of daily melatonin secretion by nearly 2 hours in the SAD patients, a process that may underlie its antidepressant effects, Lewy theorizes. Healthy participants exhibited no large changes in mood or melatonin secretion. —*B. Bower*

Bigger U.S. population uses less water

Despite a growing population, the United States is now saving 38 billion gallons of water a day—enough to fill Lake Erie in a decade—compared to the all-time-high consumption, almost 20 years ago.

Every 5 years, the U.S. Geological Survey compiles national water-use rates from millions of numbers supplied by state agencies. Statistics for 1995, released this month, show that a nation of 37 million more people managed with 10 percent less water than in 1980—a drop from 440 to 402 billion gallons a day.

"Now, there's a general awareness that water isn't an infinite resource," says Wayne B. Solley of the USGS Water Resources Division in Reston, Va., a coauthor of the current report. "We're not building new reservoirs every time we need water."

Current attitudes are also reflected in a lower per capita delivery of water to homes and industries by public supply companies, which served 84 percent of the population in 1995. This decrease is the first since reporting began in 1950. New requirements for water-efficient fixtures and low-flush toilets help conserve water on the home front, Solley says, and industries are recycling more water.

It's agriculture and power generation, however, that have the biggest effect on total use. Crops and electric power plants typically swallow up to 80 percent of the country's water.

More efficient irrigation is a major reason for the downward trend, says Robert R. Pierce of the USGS in Atlanta, another coauthor of the report. Older irrigation systems that spray water into the air, like a lawn sprinkler, waste the water through evaporation. Those systems reached their peak usage in the early 1980s, according to Karol Keppy, a project manager for the Conservation Technology Information Center in West Lafayette, Ind.

New techniques leave less water blowing in the wind. "Instead of spraying water out the top of the auger, they send a hose down to just 18 inches or so above the ground and trickle the water out there," says Keppy, whose nonprofit group promotes agricultural technologies to farmers. With an even more efficient technique, California and Florida farmers in 1995 watered nearly 1.3 million acres by delivering water directly to plant roots.

William Quinby, an economist at the U.S. Department of Agriculture, says the USGS estimates are improving over time, but he points out a problem with numbers being gathered only once every 5 years. "It's not especially reliable to look at short trends over two or three of these estimates because weather and farm policies can have such a large effect in given years," Quinby cautions.

With the last three reports all showing lower consumption than in 1980, Solley and Pierce are confident that water use is leveling off. "But that doesn't mean we'll always have quality water where we need it," Solley adds. "Traditional agricultural and municipal water users are finding increased competition from environmental groups who want to leave the water in the streams." —*S. Simpson*