

Brain & Body

Does Weather Really Affect our Mood?

by Rich Maloof interviews Dr. Kalayjian

Ask a child to draw two pictures of himself — one on a rainy day and a second in the sunshine — and you pretty much know what to expect. As blue raindrops fall from the top of the page, the stick figure behind the window is frowning. When a yellow sun beams from the corner, the stick man elates, smiling, with his scrawny arms in the air and colorful flowers at his feet. Even his stick dog wears a grin.

That rain is gloom and sunshine happiness is metaphorical. It's poetic rather than scientific, though it rings true because we humans are inherently sympathetic to our environment. But we are not its victims. Barring a mood disorder, our emotions are not casualties of the weather. The rain can be guilty by association, but not causation.

Why? Because we are free to make choices that better or worsen our disposition.

Temperament vs. Temperature

Since the early 1970s, around the time B.J. Thomas sang “Raindrops Keep Fallin’ on My Head,” researchers have sought to confirm a relationship between weather and temperament. Predictably, the lion’s share of studies correlates a low mood — episodic depression, lack of vigor — with high humidity and limited exposure to sunshine. Spirits tend to rise with increased time in the sun and higher barometric pressure.

For anyone who has been, well, *alive*, these conclusions come as no surprise. What they teach, however, is that our moods are indeed affected by the weather — but not governed by it.

Most recently, in October of 2008, a group of European researchers examined the impact of six different daily weather factors — temperature, wind, sunlight, precipitation, air pressure, and photoperiod (length of day) — on over 1200 participants from Germany, most of them women. Contrary to most prior research, the study’s central conclusion was that the average effect of “good” weather on positive mood was minimal. Windy, cool, and darker days seemed to have a slight negative effect on mood, with many subjects reporting that they felt tired or sluggish.

Though the study is ambitious and offers a new perspective on weather/mood research, it strains to draw a consensus. With subjects journaling a range of responses, the researchers determined in the end that “people differ in their sensitivity to daily weather changes.”

<http://www.ncbi.nlm.nih.gov/pubmed/18837616>

[http://www.larspenke.eu/pdfs/Denissen_Butalid_Penke_van_Aken_2008 -
Weather_and_mood.pdf](http://www.larspenke.eu/pdfs/Denissen_Butalid_Penke_van_Aken_2008_-_Weather_and_mood.pdf)

Sunny day, dreaming the clouds away

Some people's emotions are simply more vulnerable to weather changes than others. If a season is a prolonged string of like-weathered days, it's only logical that someone prone to low mood on dark, cold days will experience a depressive winter, and this is the basis of Seasonal Affective Disorder (SAD).

However, most people are no more emotionally powerless against the weather than they are unable to put on a hat.

Ani Kalayjian, Ed.D., R.N., professor of psychology at Fordham University in New York, advises that we "can and should take proactive steps to strengthen the system" against weather-driven mood changes.

"We encourage people to take charge of their feelings," says Dr. Kalayjian. Her self-help recommendations for SAD sufferers are applicable to anyone who wants to put a little sunshine in their step. "Do things that make you feel good like listening to uplifting music or reading a good novel. Look at pictures from a vacation — and if you can, take a vacation to a warm place." All the tried-and-true methods of mood improvement and stress management apply as well, including regular exercise, moderation of alcohol intake, and meditation.

"Feelings are transient; we can change them, transform them into positive," concludes Dr. Kalayjian. You may not be able to will the sun to break through overcast skies, but you can empower yourself to break through an emotional cloud, she said.

Hormonal ebb and flow

In terms of psychology, grey skies fall into a grey area. Physiologically, though, we do reckon with weather conditions — sunlight, in particular — in direct and measurable ways.

For instance, we know sunlight is a source of Vitamin D₃. When ultraviolet-B (UVB) rays are absorbed by human skin, our bodies synthesize the UVB into D₃ and use it to maintain levels of calcium and phosphorus in the blood.¹ It's not unlike the way plants use sunlight energy to create glucose and oxygen in photosynthesis.

Research on SAD has been focused on the brain's response to darkness and light, as the condition has been linked to the shortened daylight hours of winter. When our eyes detect darkness, a small gland in the brain called the pineal (pronounced PIE-ne-al) release melatonin, which establishes sleep cycles. When we detect light, melatonin production subsides and its cheerier hormonal sibling, serotonin, takes over to promote wakefulness and mood elevation. (The word *serotonin* is rooted in *serum* + *tonic*, so it's like an elixir for happiness. *Melatonin* is the *mel* or "black" tonic, for darkness.)

“We tell people to take advantage of the sunny days,” says Dr. Kalayjian. “Leave the computers and the indoor games and get out there in the sun. That’s when they can recharge their batteries — recharge their serotonin — and maintain higher mood.”

It’s been estimated that Westerners spend an average of 93 percent of their time indoors. Yes, most of us would rather spend that meager 7 percent reclining in warm, dry sunshine rather than huddling against a bitter, wet wind. We bloom in the sunshine. A day of rain can potentially soak your plans and therefore dampen your mood. But don’t forget what B.J. sang: *That doesn’t mean my eyes will soon be turning red / Cryin’s not for me....Because I’m free.*

[footnote]

¹ Inconveniently, UV exposure also causes skin cancer, so you need to use sunscreen. But sunscreen inhibits UVB absorption, so a well-lathered body can’t make the D₃. Thank goodness for supplements.

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