

Stress May Take Two Paths in Depression

Psychiatrists have long distinguished between endogenous depressions, thought to reflect mainly biological influences, and reactive, or nonendogenous, depressions, pegged as the aftermath of particularly distressing life experiences. Yet researchers sometimes find that equally stressful events precede both types of depression, creating questions about the usefulness of these diagnoses.

Two new studies, both published in the July ARCHIVES OF GENERAL PSYCHIATRY, suggest a solution to this puzzle. Recent stressful incidents provoke a large majority of all initial bouts with depression, regardless of how those cases are diagnosed. However, depression typically waxes and wanes. For people experiencing its endogenous form, recurrences often appear with minimal environmental nudges, while people with reactive depression slide back into melancholy in response to highly stressful events.

Much previous research has concentrated on individuals who have experienced several periods of depression. This work may thus underestimate the role of stressful events in initiating endogenous depression, conclude George William Brown, a psychologist at the University of London, and his coworkers. Evidence corroborating that of Brown's team comes from a project directed by Ellen Frank, a psychologist at the University of Pittsburgh.

"These findings could mean that there are endogenous depressions that, once started, just keep perking along without significant environmental stress," holds Myrna M. Weissman, director of clinical and genetic epidemiology at the New York State Psychiatric Institute in New York City. "There may be a kindling process that occurs in endogenous depression."

Kindling refers to the tendency of some brain areas to react to repeated low-level electrical stimulation by progressively boosting electrical discharges and thus lowering seizure thresholds. Similarly, an initial bout of endogenous depression may somehow lessen substantially the amount of stress needed to produce a recurrence, Weissman suggests.

The British researchers studied 127 women hospitalized for their first episode of depression. Participants received diagnoses of either endogenous depression — which includes pervasive sadness and hopelessness, loss of interest in all activities, and physical symptoms such as weight loss and sleep problems — or reactive depression, which features a rock-bottom mood but usually no physical changes. Interviews with each woman probed for stressful events and difficulties over the past 6 months, which

interviewers and other team members rated for severity.

Volunteers underwent a second interview about 4 years later, when most had suffered a subsequent bout of depression.

Data were combined with those for two earlier groups of depressed patients studied in the same way, as well as for women in a London-area community sample who responded to life-stress interviews.

A total of 60 percent of first-time depressed patients in both endogenous and reactive groups reported a severely stressful experience in the preceding 6 months. But for those who suffered a subsequent depression, 70 percent of the reactive group had encountered severe stress shortly before their episode, compared to one-third of those in the endogenous group and in the community sample.

Frank's group, which administered the same interview to 70 women and 20 men

who had suffered numerous bouts of depression, finds a comparable excess of recent severe stress in reactive cases. Highly threatening events appear to lead to recurrences of reactive depression within several weeks, they contend. When people diagnosed with endogenous depression cited such experiences, they usually had occurred several months before.

Some overlap of symptoms occurs between endogenous and reactive depression, they note, which may partly explain why the groups do not differ even more on prior exposure to severe stress. Moreover, interviews probably missed some stressful events that promoted depression.

Brown's group theorizes that recurrences of endogenous depression may be provoked by threatening events that took place between 6 months and 1 year earlier.

— B. Bower

Exploiting El Niño to avert African famines

Like all farmers, maize growers in Zimbabwe must read the sky before planting. But instead of looking directly above their heads, southern African farmers should focus on weather in the Pacific Ocean, clear on the other side of the globe, according to the results of a new study.

A team of U.S. and Zimbabwean researchers detected a strong correlation between temperatures in the Pacific and maize growth in Zimbabwe since 1970. When the Pacific cooled, Zimbabwe received plentiful rains and farmers there reaped large maize harvests. When so-called El Niño warmings brewed in the tropical Pacific, maize crops in Zimbabwe suffered, report Mark A. Cane of the Lamont-Doherty Earth Observatory in Palisades, N.Y., and his colleagues.

The link can have disastrous consequences. During the 1991-1992 El Niño, southern Africa weathered its worst drought this century and cereal harvests throughout the region fell by half.

But the Pacific connection also offers potential benefits, because Cane and other atmospheric scientists are learning how to predict the arrival of El Niños more than a year in advance. By taking advantage of forecasts for the Pacific, farmers in Zimbabwe could try to predict the coming harvests before actually planting, Cane's group writes in the July 21 NATURE. If forecasts call for poor rains, maize growers can use drought-resistant varieties and governments can build up regional grain stocks.

"If we can tell in September, before the rains start, what the whole season will be like, this would be an enormous advance,"

says coauthor Roger W. Buckland of the Southern African Development Community's Food Security Technical and Administrative Unit in Harare, Zimbabwe.

In their study, the researchers demonstrate substantial skill at projecting maize yields, even a year in advance. Working with historical data, they made ocean forecasts and then predicted most peaks or troughs in national harvests. They will next assess how individual regions respond and will extend their work to other southern African nations.

The hope of forecasting African harvests a year in advance represents the payoff of a decade of research devoted to understanding El Niño. As climate experts studied the Pacific phenomenon, they realized that El Niño and its cool counterpart, La Niña, exert influences around the globe. Researchers have also developed sophisticated models to predict when Pacific conditions will change.

Australia, Peru, and other nations bordering the Pacific routinely use El Niño forecasts in agricultural projections. But Cane's study is the first to suggest extending the approach to Africa.

Climate and agricultural researchers must perform other studies to tell exactly how useful the technique will be, the researchers caution. While maize harvests showed a strong correlation to Pacific conditions, other crops did not.

Moreover, Cynthia Rosenzweig of NASA's Goddard Institute for Space Studies in New York City notes that Pacific predictions remain imperfect, which limits the accuracy of such crop forecasts.

— R. Monastersky