

[Databases selected:](#) Multiple databases...

THE WALL STREET JOURNAL.

Does Bran Make the Man? What Statistics Really Tell Us

Melinda Beck. *Wall Street Journal*. (Eastern edition). New York, N.Y.: Jan 27, 2009. pg. D.1

Abstract (Summary)

The probability of getting all spades in a given bridge hand is infinitesimally small, but in all the bridge games all over the world, somebody might, says Stan Young, assistant director of the National Institute of Statistical Sciences in Research Triangle Park, N.C. He obtained the study data, re-analyzed it and wrote a commentary in the journal's current issue saying the cereal finding was pure chance.

Full Text (679 words)

(c) 2009 Dow Jones & Company, Inc. Reproduced with permission of copyright owner. Further reproduction or distribution is prohibited without permission.

Can eating breakfast cereal determine the sex of your baby?

A debate over that question in a British scientific journal shows why some observational studies should be taken with a big shaker of salt.

The original study, "You Are What Your Mother Eats," in the journal *Proceedings of the Royal Society B*, made headlines around the world last April. Researchers at Exeter and Oxford universities asked 740 pregnant women to record what they ate during pregnancy and just before. Not surprisingly, their diets during pregnancy had no correlation with their babies' gender.

But 56% of women who consumed the most calories before conception gave birth to boys, compared with 45% of those who consumed the least. Of 132 individual foods tracked, breakfast cereal was the most significantly linked with baby boys.

How could that be? The authors said animal studies also found male offspring are more common in times of plenty; they speculated that higher glucose levels in mothers may favor the survival of male embryos, which are slightly heavier than females.

Baloney, said some U.S. statisticians, who suspected the finding was simply a false association that can occur by chance in a large set of data.

"Think of it this way: The probability of getting all spades in a given bridge hand is infinitesimally small, but in all the bridge games all over the world, somebody might," says Stan Young, assistant director of the National Institute of Statistical Sciences in Research Triangle Park, N.C. He obtained the study data, re-analyzed it and wrote a commentary in the journal's current issue saying the cereal finding was pure chance.

The study's authors wrote a rebuttal disputing Dr. Young's analysis and standing by their findings.

Behind the cereal squabble lies a deep divide between statisticians and epidemiologists about the nature of chance in observational studies in which researchers track peoples' habits and look for associations with their health but don't intervene at all.

Statisticians say random associations are rampant in such studies, which is why so many have contradictory findings. To prove the point, researchers in Ontario studied the astrological signs of hospital patients and found that Sagittarians are susceptible to fractures, Pisces are prone to heart failure, and so on. The links met the traditional mathematical standard for "statistical significance" but were completely random, and disappeared when the study was repeated with a different sample.

Some statisticians argue for a tougher standard of proof when researchers are fishing in large data sets. One method, a Bonferroni adjustment, requires dividing the usual mathematical formula by the number of variables; if 100 foods are studied, the link must be 100 times as strong as usual to be considered significant. Otherwise, statisticians say only strict clinical trials with a control group and a test group and one variable can truly prove a cause-and-effect association.

Epidemiologists argue that a Bonferroni adjustment throws out many legitimate findings, and that it's irrelevant how many other factors are studied simultaneously. They also note that controlled clinical trials are costly, time-consuming and sometimes unethical. The link between smoking and cancer, for example, was seen in many observational studies, but forcing subjects to smoke for years to prove it would be untenable.

In the cereal study, Dr. Young argues that the data collected on the mothers' diets at mid-pregnancy should be factored into the adjustment for statistical significance, and that when it is, the significance of breakfast cereal vanished. "If you can pick and choose your data after the fact, you can make them look however you want," he says.

"There's no way that the mother's diet in mid-pregnancy would affect the gender of her infant," counters Fiona Mathews, the lead author and a lecturer in mammalian biology at Exeter, who says that data was included only for comparison.

So does breakfast cereal affect a baby's gender? Don't paint the nursery yet. A good rule of thumb is to wait and see if an observation association pops up again when the study is repeated, something Dr. Mathews says she plans to do.

Email healthjournal@wsj.com.

Credit: By Melinda Beck

Indexing (document details)

Subjects: Studies, Clinical trials, Heart failure

Author(s): Melinda Beck

Document types: News

Column Name: *HEALTH JOURNAL*

Publication title: Wall Street Journal. (Eastern edition). New York, N.Y.: Jan 27, 2009. pg. D.1

Source type: Newspaper

ISSN: 00999660

ProQuest document ID: 1633432611

Text Word Count 679

Document URL: <http://proquest.umi.com.www.lib.ncsu.edu:2048/pqdweb?did=1633432611&sid=1&Fmt=3&clientId=15092&RQT=309&VName=PQD>

Copyright © 2009 ProQuest LLC. All rights reserved.

