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Scientific Myths That Are Too Good to Die

By GINA KOLATA

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EVERYONE has heard about the LSD-soaked stickers given away to schoolchildren. The stamp-size tabs are reportedly decorated with blue stars or pictures of Superman, butterflies or clowns.

Or how about the story of the child who is dying of cancer and wants postcards sent to him? Or how about Neiman Marcus's \$250 cookie recipe?

They are all urban myths, of course, stories that refuse to die no matter how many times they are roundly debunked.

Science is different, right? Study results become part of the annals, authenticated by weighty papers and validated by panels of experts. This is the usual route to credibility. Then there are the myths.

Take the "Hawthorne effect," which is much embraced in social psychology. It refers to a study from 1927 to 1933 of factory workers at Western Electric's Hawthorne Plant in Illinois. It showed that regardless of the changes made in working conditions -- more breaks, longer breaks or fewer and shorter ones -- productivity increased. These changes apparently had nothing to do with the workers' responses. The workers, or so the story goes, produced more because they saw themselves as special, participants in an experiment, and their inter-relationships improved.

Sounds very compelling. "The results of this experiment, or rather the human relations interpretation offered by the researchers who summarized the results, soon became gospel for introductory textbooks in both psychology and management science," said Dr. Lee Ross, a psychology professor at Stanford University.

But only five workers took part in the study, Dr. Ross said, and two were replaced partway through for gross insubordination and low output.

A psychology professor at the University of Michigan, Dr. Richard Nisbett calls the Hawthorne effect "a glorified anecdote."

"Once you've got the anecdote," he said, "you can throw away the data."

Myths happen in medicine, too. Dr. Robert Buckman, a cancer specialist at the University of Toronto, discovered an urban legend when he tracked the story of a spectacular cancer treatment to its source.

Dr. Buckman first heard the story on June 25, 1990, in Toronto in a lecture given by Dr. Bernard Siegel, a doctor who has written popular books on the power of the mind over cancer. Dr. Siegel told of two oncologists chatting about a study they were participating in to test a combination of four chemotherapy drugs, which had the initials EPHO.

One doctor's patients were doing spectacularly well; three quarters of them were responding to the drugs. But only a quarter of the other doctor's patients were improving. Then the first doctor explained that he had simply rearranged the letters of the drugs so they spelled HOPE.

Dr. Siegel's audience was overwhelmed. "If hope did that, then it was the most powerful anti-cancer agent the world had ever known," Dr. Buckman said.

Still, he was skeptical. He knew by the initials of the drugs that the treatment must be for small-cell lung cancer, which is very difficult to treat. Why had he not heard of the study before?

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Dr. Buckman asked Dr. Siegel for his source, which turned out to a book by Norman Cousins, who had referred to an article published in a 1988 Western Journal of Medicine. Dr. Buckman telephoned the writer, a cancer specialist in La Jolla, Calif.

The doctor told Dr. Buckman that he had had invented the story. It was a parable meant to tell doctors that there was more to treating cancer than merely doling out drugs, he said.

Are scientists as credulous as the parents who worried about the LSD stickers? Perhaps urban legends take hold, Dr. Ross said, because "sometimes a story deserves to be true."

Scientists may be no different from lay people when it comes a message that strikes a chord in them. The Hawthorne effect had an enormous appeal for many social psychologists, Dr. Ross said.

"The study became a symbol initially for arguing that change itself is good or that anything you do produces positive effects," he said. Then it was interpreted to mean that people who take part in experiments behave differently simply because they are taking part in an experiment, he added. That, too, appealed to many researchers. "A lot of us kind of believe that subjective factors matter a lot in medicine," Dr. Ross said. "We want there to be demonstrations that make that point. And so we may ignore flaws and deficiencies in a study if it is saying something we believe to be important."

Then, if some naysayer takes note of the paucity or absence of data, Dr. Ross said, "it's like seeing a magician's trick and then having the magician tell how he did it."

Photo: Hawking Victorian nostrums on a London street. (Corbis)

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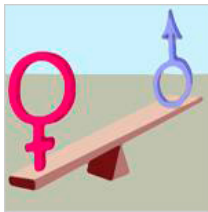


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