NEWS

Statistics experts urge scientists to rethink the p-value

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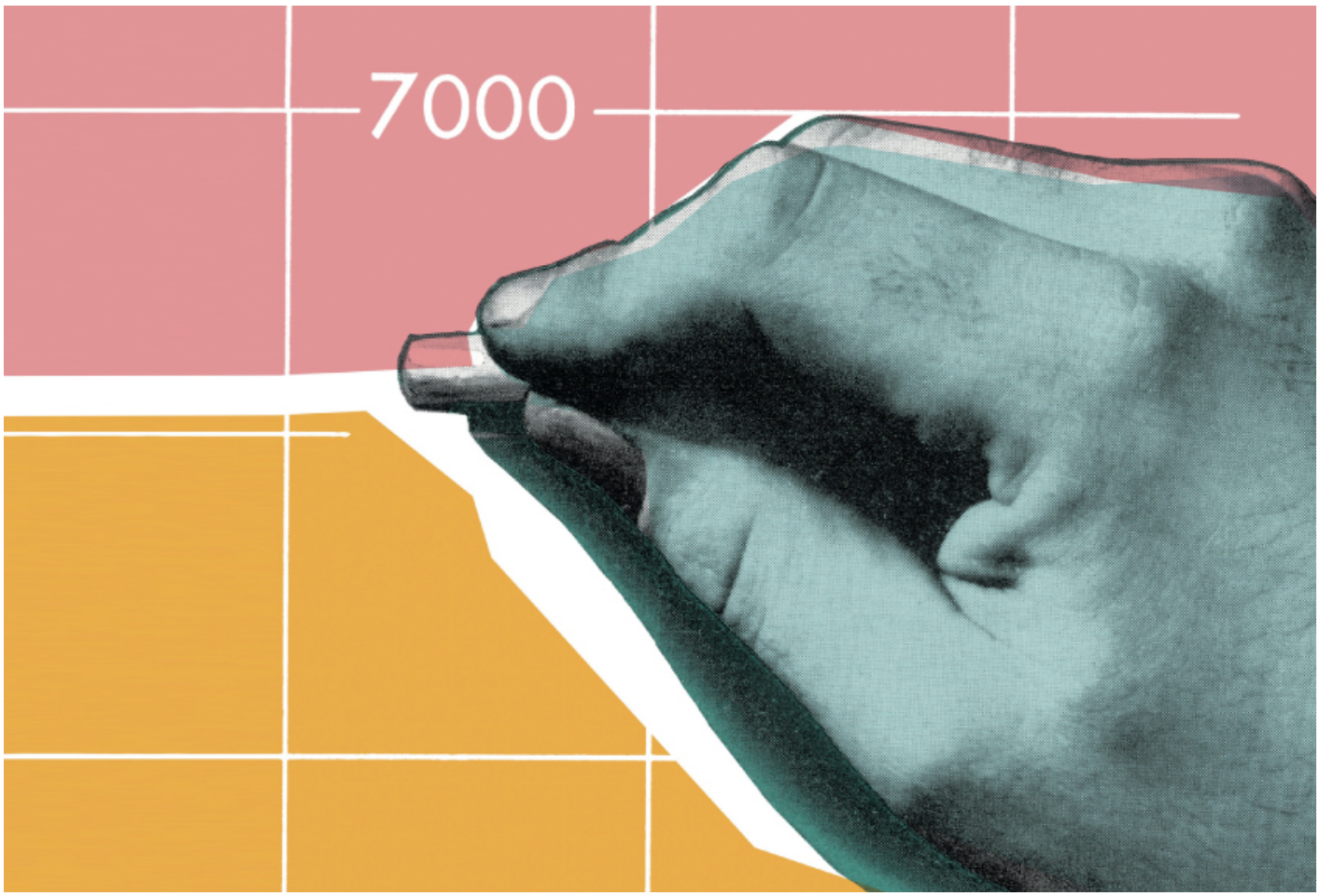

In 2015, science journalist John Bohannon fooled countless people into believing chocolate helps with weight loss. But **as he later revealed**, Bohannon and his collaborators had deliberately set up the study to yield spurious correlations, which they marketed to reporters seeking splashy

headlines.

Although the **hoax was controversial**, as it included real volunteers and spread disinformation to prove its point, it revealed several lessons on shoddy research practices. In particular, Bohannon's team showed how easy it is to draw big claims from weak evidence. To do this, they tried to measure whether several factors — including weight, cholesterol, sleep quality, blood protein levels and more — change as a result of eating a chocolate bar every day. They studied only 15 people. But as **Bohannon noted**, one of science's dirty secrets is that measuring many variables in a small number of participants makes it easier to find correlations that exist purely by chance.

Although Bohannon's study was designed to deliberately surface findings that don't exist, some scientists have been exploiting this loophole more subtly to pump out flashy findings. Now, the American Statistical Association (ASA) is looking to tackle the problem head-on, asking

researchers to revamp how they use common statistical methods.

For decades, researchers have used a statistical measure called the p-value — a widely debated statistic **that even scientists find difficult to define** — that is often a requirement for publication in academic journals. In many fields, experimental results that yield a p-value of less than 0.05 (p