**Original: https://sudaca.pe/noticia/opinion/causalidad-y-casualidad**

**Google Translate**

**Causality and Chance**

Mr. Jones, an adult male, loves his partner very much, but does not feel ready to have children. For that reason, one fine day he decided to take a contraceptive pill. After several weeks of having regular sex with his partner, Mr. Jones took a pregnancy test, and to his satisfaction it came back negative: "The pill is working perfectly," he thought proudly.

What is the problem with Mr. Jones's reasoning? He believes that since he took the pill before getting a negative test, taking the pill is the cause of the negative test. But, of course, having taken the pill has nothing to do with not having gotten pregnant. This example serves to illustrate a fairly common type of faulty reasoning: believing that since A happened before B, then A is the cause of B.

In the coming months, when mass vaccination begins in Peru, many people who would have died anyway will die within a week of being vaccinated. When this happens, I'm afraid we're going to have a lot of Mr. Joneses.

Let's consider the deaths in Peru in a normal year, pre-pandemic. Making a very general analysis, in Peru in recent years an average of 2,000 people have died each week, of which 40% have died at home. We know that about 50% of the people who die in a year are over 65 years old. Let's say the proportions hold, and therefore some 400 people over the age of 65 die at home each week. In deaths at home, the death certificate is usually issued by doctors contacted by the funeral homes themselves, most of whom are not very rigorous in their diagnosis. According to a MINSA source, "these doctors make any diagnosis, including death without care, death from unknown causes or cardiac arrest, that is, diagnoses with [inadequate] codes." In other words, historically, hundreds of older adults have died weekly in Peru without a clear cause.

Once essential workers have been vaccinated, the government plans to vaccinate the population most vulnerable to Covid-19, those over 65. It is practically a statistical certainty that there are going to be older adults who die in the same week after receiving the vaccine, dozens perhaps, without the cause of death being correctly identified. A well-organized anti-vaccine campaign, based on misinformation, will find fertile soil to spread fear and feed suspicions. Let us not be surprised to see viral stories on the Internet highlighting some of these particular cases.

What can we do? Don't make Mr. Jones's mistake: just because A happened before B doesn't automatically mean that A was the cause of B. Just keeping this in mind is going to lower the level of sensationalism that a story of vaccines and death can generate. Jones could have recognized his mistake if he had been aware of the basic facts of human biology that explain his non-pregnancy. In the case of vaccines, we must also be aware of the pertinent basic facts: no vaccine, including the Sinopharm that is applied in Peru, has produced death as a side effect in any of the reported studies. Will we Peruvians have a cool head not to be persuaded?

[Notes: The example of Mr. Jones was first proposed by the American philosopher Wesley Salmon. The idea of ​​analyzing the relationship between average deaths and vaccination was taken from an article by Justin Fendos, in The National Interest magazine.]

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