

Messages with no comparison

From: [Key Concepts for assessing claims about treatment effects and making well-informed treatment choices \(Version 2022\)](#)

1.1e Do not assume that comparisons are not needed.

Explanation

Unless a treatment is compared to something else, it is not possible to know what would happen without the treatment. This makes it difficult to attribute [outcomes](#) to the treatment. Whenever comparative terms are used to describe a treatment – for example, “faster relief” or “better” – ask “compared to what?”. Sometimes people argue that a fair treatment comparison is impossible because the treatment is ‘holistic’, ‘individualised’, or ‘complex’. However, as with any other treatment, claims about the effects of such treatments depend on the results of comparing them with one or more alternatives. How trustworthy those claims are depends on how fair the comparisons are.

For example, a television commentator in the U.S. reported that “Between late-December of 2020 and last month [April 2021], a total of 3,362 people apparently died after getting the Covid vaccine in the United States.” He exclaimed: “That is an average of roughly 30 people every day,” and he went on to suggest that the vaccine was killing people [[Qiu 2021](#)]. There are many problems with that claim, including the lack of a comparison – how many similar people who had not been vaccinated died or would have been expected to die? Given that over 250 million doses of Covid-19 vaccines had been administered at that time [[CDC 2021](#)], and that old people and others with a high chance of dying were prioritised for vaccination, it would be surprising if some of those people did not die after receiving the vaccine. That does not mean the vaccine caused them to die. The U.S. Centers for Disease Control and Prevention (CDC) reported that there were 17 reported deaths per million vaccinated people (up to May 17, 2021) [[CDC 2021](#)]. The proportion of Americans who died from any cause in 2019 was 8,697 per million [[CDC 2020](#)]. That corresponds to an average of 7,821 people dying every day. Most of them probably drank some water before dying. So, you could say that 1000s of Americans apparently died every day after drinking water. That does not mean that drinking water caused them to die.

Basis for this concept

Descriptive studies, such as case reports and case series, do not include a comparison group. They can provide clues about causation that warrant further investigation, but they rarely provide a reliable basis for drawing conclusions about treatment effects [[Dalziel 2005 \(SR\)](#), [Grimes 2002](#)].

Even when people make a claim about the effects of a treatment without saying what it has been compared with, there is nevertheless an implied comparison; there is an assumption about what would have happened without the treatment. Often, the implied comparison is how things were before the treatment. For example, people were alive before being vaccinated and dead after being vaccinated. The problem with such before-after comparisons is that we can only rarely be certain about what would have happened without the treatment [[Glasziou 2007](#)]. Before-after studies are simple, easy to conduct, and common, but there is a high risk that they will suggest treatment effects that differ from actual effects [[Ho 2018 \(SR\)](#)]. One type of before-after study uses “historical controls”. These studies compare people who received a new treatment with people treated in the past. In comparing the results of studies using historical controls to the results of studies using

random controls ([randomized trials](#)) of the same treatments, 44 of 56 historical control studies (79%) found the treatment of interest better than the comparison treatment, but only 10 of 50 randomized trials (20%) yielded similar findings [[Sacks 1982 \(SR\)](#)].

Implications

Always ask which comparisons provide the basis for claims about the effects of treatments. Claims that are not based on fair comparisons are not reliable.

References

Systematic reviews

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