

# Apply a critical eye to statistics in research

## Nicola Davies emphasises the importance of releasing your inner sceptic when it comes to research findings

Research statistics help us objectivise and explain the world around us, its phenomena, causes, effects, outcomes and trends. These are all important in nursing. Unfortunately, statistics can also be misused to distort and misrepresent reality. The main defence against unreliable research is critical thinking.

Most of us have read and perhaps even quoted those faulty statistical findings that circle around popular websites about the damage certain foods can do to our liver, heart or weight. This raises the question of whether we should believe all published data and advise patients to avoid a particular food.

Because the presentation of statistics can be easily manipulated, we need to look at



it critically. Few people have the necessary scientific training to examine statistical information accurately, yet political policies, advertising campaigns and news stories are riddled with this type of information.

It is not that researchers have malicious intent; rather, it usually comes down to prior probability distribution, a term referring to one's beliefs about a situation before evidence is taken into account and researchers' tendency to disregard data that disputes this.

It is a good idea to follow the example of philosopher René Descartes and hone our critical thinking with some Cartesian doubt, otherwise known as being sceptical about and doubting the validity of one's beliefs. Consider an example: a wound care products company issues a press release claiming that 80% of nurses

use its dressings. Would you use these dressings?

The argument for doing so might sound convincing, but let's look at the danger of relying solely on this statement.

For example, how many nurses were surveyed? If it was 50 nurses, would the same result be obtained with a group of, say, 1,000 nurses? But should the opinion of 50 nurses be dismissed?

Another consideration is that ten nurses do not use the dressing. Could there be disadvantages that remain unknown or undisclosed? Or is it merely that they are unfamiliar with this dressing?

Finally, consider the source and purpose of the information and its target audience. Was it provided by the NHS or the product company that stands to gain from one dressing being chosen over another? Is the information provided to expand understanding of an issue or convince nurses to use the dressing for financial reasons?

Motive is important when assessing the reliability of studies and can often be ascertained by identifying who funded the research.

So there are several dangers in taking information at face value. When presented with any kind of information by a third party, always apply a degree of Cartesian doubt and let your inner sceptic guide your thoughts **NS**

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### RESOURCES

**Assessing research quality**  
[tinyurl.com/researchconnections](http://tinyurl.com/researchconnections)  
**Influences on clinical decisions**  
[tinyurl.com/clindecinfluences](http://tinyurl.com/clindecinfluences)  
**RCN Research Society**  
[tinyurl.com/ResSocRCN](http://tinyurl.com/ResSocRCN)

### Assessing research validity

When deciding on the trustworthiness and reliability of any information, ask yourself these questions:

- ▶ Am I seeing the whole picture?
- ▶ Who constitutes the sample of research participants?
- ▶ Was any specific feature not mentioned that might affect the reported results?
- ▶ Do all participants come from the same region or share the same characteristics that could influence the final results?
- ▶ Which conditions are being assessed?
- ▶ Is the information provided from a reputable source?
- ▶ Is there an alternative agenda?
- ▶ Does the literature contradict or substantiate the research?