

Unconscious BIAS: we are more biased than we think!

Viés inconsciente: temos mais vieses do que imaginamos!

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Bias is a masculine noun originating in the French term *biais*, which means obliquely, sidelong or sideways. Also considered as distortion of the judgment of an observer because he is intimately involved with the object of his observation, or tendency to show prejudice against one group or preference over another, or inclination of a phenomenon more for one sense than for another; preference, favoritism. In a figurative sense it represents a distorted or prejudiced tendency or propensity to observe or act. To summarize: bias is, ie, no respect for the principle of impartiality. It is an automatic reaction to a stimulus that leads us to act in a non-rational way.

Most of the time we feel or adopt positions that we consider not biased. We even claim that we are or have become immune over the years. Little admit adopting mental processes that aim to neutralize our natural tendency to adopt behaviors/attitudes that seem to us more “natural” since they resemble what we consider “more correct.” However, the “right” is not always the ideal.

But how do we think? How do you develop the mental process of reasoning? Psychologist Daniel Kahneman portrays in his book “Fast and Slow: Two Ways of Thinking”, that we have two systems of thinking: one that is quick, intuitive

and impressionistic (System 1), and another that is slow, deliberate, and systematic (System 2). It is already known that the brain considers any situation different from our usual threat. System 1 is automatic and efficient, but in a hurry and prone to errors. It seeks to quickly identify patterns, a skill that has been central to human survival and evolution. But in doing so, it jumps to conclusions of causality based on inappropriate information, and attempts to interpret by creating narratives, sometimes flaws. System 2, on the other hand, seeks to test concepts and detect complexity and nuances. System 2 is slow, deliberative, logical and requires mental effort. Ideally, we should always, in an environment of uncertainty, analyze all available information based on statistical standards since intuition is fallible, but we know that we do not think in a habitual and usual way in this way.

Have you ever stopped to think how much you are influenced by an adverse outcome or a favorable interaction by friendly conversation or reading a positive conclusion from a clinical trial?

In 2018, at the American Heart Association congress, two research groups presented important information about the role of bias and spin (positive finding) in medical practice. The first group, Dr. Amarnath Annappureddy, described

the association of the industry and the choice of implantable device, while Dr. Muhammad Shahzeb Khan reported the prevalence of spin in publications in the area of cardiology.

Dr. Amarnath Annapureddy et al. reports that cardiologists in the United States are among the experts who received the largest industry funding based on the Sunshine Act. The Sunshine Act postulates that manufacturers of biological, medical, and medical drugs, devices and supplies disclose financial relationships for the purpose of transparency between service providers and product manufacturers. Despite this, little is known and publicized about industry funding and medical practice standards. The authors reported the association between payment from the pharmaceutical industry and the choice of implantable device. In a period of 24 months (2014 to 2015), 165,621 devices were implanted by 4,096 doctors who received \$22.8 million. Doctors receiving the highest payments from a particular manufacturer were more likely to implant devices manufactured by that manufacturer: Manufacturer A (OR, 11.7, 95% CI: 11.2-12.3), Manufacturer B (OR, 2.6, 95% CI: 2.6-2.7), Manufacturer C (OR, 2.9, 95% CI: 2.9-3.0), Manufacturer D (OR, 3.3, 95% CI: 3.2-3.4). A dose-response relationship adds confidence in the results: the higher the payment received from a particular manufacturer, the greater the likelihood that the physician will deploy a device of that company. Some companies seem to have higher returns because of their investments. For example, doctors who received more than \$10,000 were 6 times more likely to use this device than if they received less than \$100¹.

With the presented data we can infer a relation between the financial stimulus and preferential use of a certain device. Even more so when we remember that the most varied devices resemble their main features and functions. What about reading a clinical trial? We can state that the presentation of a result can also be subject to bias. We always hope to find a consistency between the data/results obtained and the form of presentation to the reader. When some inconsistency occurs, we call SPIN. That is, spin can be defined as language manipulation in order to draw attention to a particular result different from the one actually obtained. For example, the primary

end point is neutral, but the authors emphasize the positive result of the secondary end point or the positive outcome in certain subgroups in order to claim that the treatment is beneficial.

In order to evaluate the prevalence of spin in publications in the area of cardiology, Dr. Kan et al. identified, using MEDLINE database, randomized controlled trials with neutral results in 6 large journals (New England Journal of Medicine, The Lancet, JAMA, European Heart Journal, Circulation and Journal of the American College of Cardiology) from 2015 to 2017. They found 93 clinical trials with neutral results and reported spin in 53 (57%) throughout the text of the article and 62 (66.7%) in the abstract. The spin was also identified in the article title in 10 trials (10.8%). Dr. Kan points out that the reporting and interpretation of the findings are often inconsistent with actual results². That is, teaching is essential for the correct interpretation of results of clinical trials.

I conclude by suggesting the reading “The Art of Reading a Scientific Article”³, “stimulating reflective thinking, free of dogmas, full of questions and with few certainties.”

There is only one alternative left: to learn with each passing day use more SYSTEM 2!

Competing interests

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References

1. Annapureddy A, Minges KE, Henien S, Wang Y, Ross JS, Spatz ES et al. Su1304/1304 - Association between industry payments to physicians and device selection: a report from the NCDR ICD registry. [Internet]. 2018. Disponible em: <http://www.abstractsonline.com/pp8/#!/4682/presentation/49615>

2. Khan MS, Rehman KA, Riaz H, Lateef N, Khan SU, Siddiqi TJ et al. Sa1265/1265 - "Positive Spin" in cardiovascular research publications: how are trials without statistically significant primary outcomes presented? [Internet]. 2018. Disponível em: <http://www.abstractsonline.com/pp8/#!/4682/presentation/49527>

3. Correia L. A arte de ler um artigo científico. [Internet]. 2019. Disponível em: <https://medicinabaseadaemevidencias.blogspot.com/2019/01/a-arte-da-leitura-de-um-artigo.html>