World Nutrition 2021;12(1):17-19

Editorial

Can we attain the ideal of objectivity in the field of public health nutrition?

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In the field of public health nutrition, we depend, more than most scientific fields, on translational, implementation, and even action research. Yet we are rightly expected to ascend the slippery slopes to the pinnacle of scientific objectivity. We fail constantly, at least partially.

In my career, I have seen two major mechanisms involved in that failure. The first is caused by the phenomenon known in social psychology as cognitive dissonance. Just like for everyone else, once we scientists commit to a theory; once we go on record as a supporter; it is extremely challenging to admit, especially publicly, that we were wrong. Of course, at a purely intellectual level everyone trained in science knows that we never attain Truth with a capital T; the scientific method simply helps us achieve ever closer approximations to it. Kuhn (Kuhn, 2012) showed how science progresses, not by a jolly group of researchers who continually build on each other's findings, but by younger scientists constantly attacking and undermining theories on which senior scientists have built a career--and which the latter then tend to defend with all the credibility and power at their disposal. We all gradually and perhaps often subconsciously tend to buy into certain evidence-based beliefs and resist releasing them as that evidence base is undermined and even disproven.

The second mechanism in our failure to be objective is the one I want to focus on here. Early in my graduate student years at Cornell (circa 1975), I witnessed a couple examples of this in brown bag lunch seminars with the faculty at which each student had to present each semester. We were to critique an important paper from the recent nutrition literature. One presented some of Trowell's work (Trowell, 1972) following up on Dennis Burkett's rather activist writings of the 1800s on dietary fiber. Though she was positive toward the methods he used, all this talk of fiber was quickly dispatched by faculty pointing out, perhaps correctly, that the research base for these findings was (at that time) weak and inadequate. I noticed, to my youthful horror, that they tended to be eating baloney on white bread while making these points. Just because fiber was not yet proven to be important did not mean its importance had been disproven! And indeed, within a decade or so, the importance of dietary fiber became an accepted part of mainstream nutrition messages.

Similar ridicule was heaped on Yudkin's book (Yudkin, 1972) about the wide-ranging health impacts of sugar. A work of activism also, it too was not considered by the faculty to have an adequate evidence base and thus fully dismissed. Whereas the bread industry did not fight the fiber story (it could, after all, adapt its product according to demand), the sugar industry conducted a war against science mirroring that of the tobacco industry, funding a new building for the nutrition department at Harvard, as well as a

series of studies designed to show the harmlessness and even benefits of dietary sugar. An industry representative was allowed to hand a packet of such studies to each delegate entering the first International Conference on Nutrition in 1992. The draft Declaration and the Plan of Action did not even mention the word sugar. (I got the Swedish delegation to complain and in the end a sentence was added using the technical term "disaccharide"--less likely to affect public opinion.) Industry efforts thus added to the objectivity phenomenon involved, perhaps delaying the research needed to further understanding of the issues Yudkin wrote about by decades instead of years—but certainly delaying widespread knowledge and action against excessive dietary sugar. When WHO recommended no more than 10% of calories come from sugar, the US industry demanded Congress end its funding of WHO (Boseley, 2003).

Even more radical censorship of scientific research and the advancement of scientific knowledge takes place when activism is more extreme. Again, when I was a young grad student, the late Professor Michael Latham's advanced international nutrition class was in the form of student debates on hot topics of the time. Mine was the pro/con debate on protein unleashed by McLaren's attack on it in Lancet as a "fiasco" (Mclaren, 1974). The other student on my team had just transferred from MIT, major supporters of the theory that protein deficiency was a major cause of malnutrition. His comment after reading the materials I gave him: "They didn't bring up any of this at MIT."

For the final class debate, Dr. Latham asked who was willing to debate him on water fluoridation. I agreed to take on that hopeless task. Talking to several other faculty, I found one who gave me a PhD thesis from Stanford that documented the unscientific way progress took place in fluoridating water in the US. Another gave me an idea on how to proceed when he told me he had himself done basic research on the impact of excess fluoride on the bones of dogs but was unable to get it published because it might be misused by the anti-fluoridation lobby. At the start of my input to the debate, I handed the audience members scurrilous leaflets claiming that fluoridated water caused cancer and was a Communist plot. "Ted has finally gone over the edge," was whispered around the table. My point was that when a scientific issue becomes this political, this infected, objective scientific progress slows down or even comes to an end. (Both Michael and I were in favor of water fluoridation but the class consensus was that there should be ongoing monitoring to lower levels if adverse effects began to show up.)

This editorial was a very roundabout way to introduce the topic of a paper in this issue of World Nutrition. Public health nutritionists have paid little attention to the maintenance of the acid-base balance in the body. We correctly learn in basic physiology courses that homeostasis is maintained through various mechanisms, and thus do not recognize it as something important outside particular clinical settings. However, temporary pH imbalances not only occur at cellular level and in the circulatory system, but are routine. Could the diet have an impact on these, explaining some of its connections to non-communicable diseases?

I agreed to coauthor this paper with chemist Dr. Hassan Bahrami after comments from reviewers and from me caused him to produce a seventh version of his manuscript. Together we have worked through several more. This is indeed one of those issues that has been by-passed because of premature activism and due to its dangerous misuse in the natural healing community by people who misunderstand it. Coming from outside the field of nutrition, Hassan was curious about whether there might be some truth to one of the underlying theories in the natural foods movement. Are certain foods healthful or harmful based on whether the waste products they generate are acid-forming or alkaline-forming during

respiration and other metabolic functions at the cellular level? We explore these questions in a paper which presents some of the theory and the results of a first experiment, which Hassan--as scientists have historically done for centuries—conducted only on himself. See what you think.

References

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