

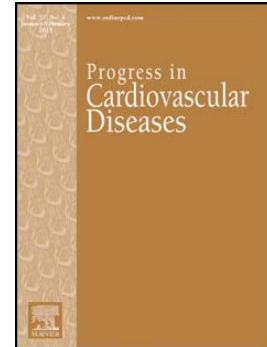
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**Overcoming Potential Threats to Scientific Advancements: Conflict of Interest, Ulterior Motives, False Innuendos and Harassment**

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## Introduction

Humanity faces great challenges to public health in the 21st century, including global epidemics of chronic diseases [i.e., noncommunicable diseases (NCDs)] such as obesity, cardiovascular disease, cancers, and type 2 diabetes, as well as environmental and social challenges. The possible solutions to these challenges are quite complex, since they entail many layers of science as well as many layers external to science (e.g., politics, policy, research funding, and public perception) to achieve beneficence. Such complex factors impact both the process of science itself and behaviors in the scientific community. The result being the creation of tensions, uncertainties and variances among the priorities and politics of research, which often erupts into less than ideal interpersonal dynamics among those studying these complex systems. These potential threats to scientific advancement can only be overcome by a joint commitment of the scientific community.

Research on NCDs includes many relevant dimensions. One prominent facet relates to the multifactorial nature of NCD research. Foundational factors include determining how lifestyle habits, such as nutrition, physical activity, sleep patterns, and other variables, affect human health through basic and clinical science. Among the ultimate research objectives is to translate these data into evidence-based individual and population-level strategies of healthfulness and wellbeing.

There is a robust body of science in this area clearly indicating that lifestyle is an important driver for NCD risk. Clearly, considerable evidence demonstrates that leading a 'healthy' lifestyle significantly diminishes NCD risk (i.e., primary prevention), and for persons with documented NCDs, improving healthy lifestyle

characteristics significantly improves health outcomes (1). With respect to future research needs in this area, we are now to the point of needing to examine complex interactions that integrate information from genetic and molecular modulators to population and policy levels. More precisely determining the complex individualized links between lifestyle and NCDs, and developing best practices to increase the broad population level adoption of a healthy lifestyle, is one of the most important scientific endeavors currently before us. This includes better help to individuals to change lifestyle and more effective-evidence-based policies to influence population lifestyles.

The scientific method is oftentimes slow and iterative, requiring objective consideration of issues that are frequently complicated with political and emotional intricacies. The news cycle, on the other hand, demands immediate translation into conclusive statements, such that interim reports can be inaccurately represented as final solutions and complex issues can be represented in overly simplistic or distorted forms. These media representations seek to highlight victims and perpetrators and often include anecdote-driven commentary that is far removed from the scientific evidence at hand. Information derived from this flawed process is widely used by the public and politicians to construct and implement public health policy (2). Unfortunately, substantiated scientific principles often take a back seat to politically motivated agendas, personal opinion, and *ad hominem* attacks upon scientists trying to return us to rational dialogue and accurate data translation.

The acquisition of beneficial new knowledge is difficult, and it is even more challenging in an environment of incivility. Abusive name-calling and bullying can become a regular part of the life of a scientist, all the more so since the advent of the internet and social media. Moreover, the likelihood of communicative discord

increases according to the potential impact of a scientist's work. Such *ad hominem* attacks neither aim nor succeed at advancing science, and can have adverse consequences on a personal level and for science in general.

### **Politics and Bullying in Science**

Science becomes most-dramatically politicized and de-constructed with personal (*ad hominem*) attacks; a retreat into dehumanizing tactics. The current and very public turmoil over the report of the 2015 U.S. Dietary Guidelines Advisory Committee and skewed discussion on the 'real' cause of obesity, which incorrectly pits physical activity *versus* diet, epitomizes such liabilities (3). Members of the scientific community are stringently vetted and required to transparently disclose any potential conflicts of interest.

Bullying and harassment is a form of dehumanizing psychological abuse with the potential for deleterious personal and scientific corollaries. Some studies have demonstrated that harassment may lead to heightened sadness and anger, as well as a reduction in self-esteem and feelings of control. The distress is significant; humiliation at work may lead to suicide, post-traumatic stress, depression, burnout, heart attack, stroke, family breakdown, and numerous related negative health outcomes (4).

Despite existing anti-bullying policies and labor laws protecting against workplace harassment, this particular type of harassment (scientific bullying) in the public and scientific domains often goes unpunished, with perpetrators invariably revered by those sharing their opinions (both inside and outside academia), and victimized targets often paying a heavy price. Bullying behavior is aggressive and negative, especially when carried out repeatedly and purposefully. Bullying can take many forms, from subtle to heinous attacks: anonymous phone calls,

derogatory emails to employers and colleagues, denial of contractual rights to protected time for research, appropriation of data and emails, intimidation, and attacks from associates to social media disparagement, or combinations thereof. A study of > 22,000 university staff showed that one-third of academics reported being bullied, publicly humiliated, excluded, intimidated and/or discriminated against (5).

### **Potential Impediments to Scientific Advancements**

The problem of implied conflict of interest, envy, ulterior motives, false innuendos and harassment in academia, particularly in the sciences, is larger than any individual offender. Apart from the potential psychological and health damages, bullying and harassment reduce productivity (4). *Ad hominem* attacks also provide a fallacy of relevance that undermines scientific progress.

Personal attacks work via the halo effect, a cognitive bias in which the perception of one trait is influenced by the perception of an unrelated trait, such as relating the private debt of a person to professional unreliability. Oftentimes, people tend to idealistically see others as all 'good' or all 'bad'; thus, if one can attribute a bad (if unrelated) trait to a scientist, this may invariably raise doubts about the quality of his/her work.

*Ad hominem* attacks often aim at rediminishing a scientists credibility or implying a conflict of interest that makes the scientists statements seem invalid. For example, there is a common – indeed, near universal – view that those who are linked with for-profit companies are heavily conflicted whereas those employed in public or academic institutions, generally speaking are not (6). People who work for public sector institutions regard themselves (and are often regarded) as being neutral and unbiased supporters and defenders of the public interest. There is,

however, a large literature by economists and political scientists known as ‘public choice theory’ that demolishes this pretension (7). Public institutions and the individuals who work for them are found to be self-interested, much like industries and their employees. Individuals working for public institutions with a certain culture know that their career prospects may be advantaged by being a part of that culture rather than iconoclasts.

Here and elsewhere, the bullying in science and academia threatens to undermine the integrity and advancement of the scientific process. Scientific data, decisions, and scientific arguments are available for public scrutiny. Scientists who disagree with elements of published data or recommendations should do so within the scientific process, citing alternative research, stating differing opinions about science and the decisions made, and avoiding abusive personal attacks. Importantly, the critics themselves should also be required to disclose financial and non-financial sources of potential bias (a practice that is rarely if ever followed, especially in the media). Industry links can lead to a strong bias and as others have noted, being a ‘public servant’, or an ‘international public servant’ or the employee of a university does not make one un-self-interested or un-conflicted (8).

Defamation by innuendo is a form of bullying with a perfect vehicle in the universally accessible megaphone of social and traditional media. The harms of such broadcasting are exacerbated when respected publications allocate their platforms indiscriminately, failing to screen for conflicts, ulterior motives, as well as for legitimate content / scientific expertise. Genuine experts debating content are intrinsic to the scientific method, while non-experts implying improprieties, merely

because they disagree with the findings, or have potential conflicts of interest themselves, are a hindrance to it.

### **The humanistic remedy**

As Edmund Burke stated, "All that is necessary for evil to succeed is that good men [or women] do nothing." Scientists and the public need to act boldly, speaking out against abuse and *ad hominem* attacks in science. This is a call to action for all who feel strongly that legitimate scientific process is being hijacked by purveyors of the *ad hominem*. Let us pledge, as Voltaire would have: "Even if I do not agree with your interpretation of the data, I'll defend to the death your right to discuss it without being attacked as a human being". Recently, The Obesity Society published a strong position, stating that "the *ad hominem* has no place in the scientific process" (9). Other organizations and periodicals including non-profits, governmental, media, academic institutions and peer-reviewed clinical publications should follow this lead in condemning such threats to valid scientific debate.

Silence can make bullying the norm; it implicitly validates the behavior. A scientist or researcher who is bullied (or sees other being bullied) will often remain silent, fearing that speaking out may incur additional abuse and/or negative media coverage. Staying silent often allows the bullying to continue and even escalate. Attacking the individual expressing a novel idea is neither constructive nor productive, and may substantively impede the free-thinking required to achieve scientific advancements.

Science has advanced tremendously since the early days of Greek science/philosophers, giving scientists an obligation to tread carefully in an increasingly complex environment to promote a productive and rational scientific debate for the common good. Disagreements about data and content should fill, as



they have, the halls of academia; details should be parsed, and varied interpretations debated and published. But allegations against scientists made by those uninterested in, or unqualified to assess content are malevolent and inefficient. We need to bring civility, decency and humanity back to science. We cannot let the health of the scientific method and its participants be imperiled by bullies and false agendas. The challenges the world faces are many, science and humanity have no time to waste. If we believe in this noble cause, we must proactively address this imperiling pattern of behavior, which should serve to accelerate beneficence in science.

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