

Introduction to the Ethics Case Study: Under Pressure

Pressure surrounds all of us in scientific settings. Depending on our respective roles within hierarchies in the laboratory, clinic, and other research groups, those pressures can come from different sources: Principal Investigators (PI) or group leaders; peers whom we compete with; journal editors and reviewers; our families and those who support us during what can be a long training/career trajectory; time itself in regards to the time limits of position appointments; and of course, ourselves. The nature of a career in research is that the output or “rewards” that we receive in the short term may not be proportional to the degree of effort we put in, which can be vexing for those whose career success is dependent on high-quality publications. Those in training positions may be particularly vulnerable to feeling pressure, even when those in supervisory roles do not consciously exert it. Trainees often feel that they must rely on positive opinions from supervisors to translate into glowing letters of recommendation that may be seen as required for successful career advancement. As a result, trainees may unduly focus on maintaining their supervisors’ positive opinion of their performance, generating self-imposed pressure with potentially harmful outcomes.

The effects of being constantly surrounded by the many pressures to perform can manifest themselves in myriad ways. Comparison and competition with those in similar career stages lead to complex interpersonal dynamics in research groups. The research group leader must balance the needs and goals of all their group members along with their own position’s requirements and pressures — achieving tenure, receiving continued positive scientific reviews, and maintaining one’s own scientific reputation both within our institutes and in the broader scientific community. Yet, it is critical that the group leader not exert pressure on research group members resulting from unrealistic expectations inconsistent with the career goals of the research staff.

This year’s case study explores the potential impact of several of these pressures in our research settings — its various sources and effects on group members, as well as the consequences when pressure is implied or direct, and when gaps in communication cause those in supervisory positions to send unclear messages about expectations. It is critical to consider this as we perform our research in a group, being aware of the competing needs and pressures of those around us as we work together on the common goal of pursuing scientific truth.

Under Pressure

As you go through the case, keep in mind that some key details are intentionally missing or left vague in order to encourage everyone to think through how the scenario might play out differently depending on some of the further case details you might want to consider.

Dr. Sam Best is a post-doctoral fellow who has worked in Dr. Taylor Jones's lab for almost 5 years. Best is now working on a project investigating how cells respond to a particular stimulant. Dr. Jones is a Tenure-Track Investigator coming up for tenure consideration within the year, who established the cell stimulation response system upon arrival at NIH, but Best later modified and perfected it. Best reported the development of the system and proof-of-principle data in two peer-reviewed publications, including one as first author. Their new research showed that the cellular response to the stimulant Invigorin was initially low but then steadily increased over time, accompanied by expression of a particular protein within a subset of the cells. Best found that adding specific chemicals inhibiting expression of that protein eliminated the cellular response. Best and Jones conclude that the protein mediates the effect and that they have uncovered a novel mechanism by which cells respond to this class of stimulants.

They draft the manuscript and send it to a high-impact journal. Dr. Jones believes their findings represent a major advance that could increase the likelihood of achieving tenure. The journal responds that while reviewers believed the work is exciting and potentially impactful, they want more direct evidence to prove the model through additional experiments, implying that the paper will be accepted if the new experimental data support the model.

1. Is publication in a 'high-impact' journal important for career success? Should it be?
2. What kind of message do reviewers send when they ask for evidence to 'prove' a model? What are the pitfalls of trying to 'prove' a hypothesis?

Meanwhile, Dr. Best is reaching the end of their NIH appointment and begins a geographically restricted job search in an effort to join their partner, who had moved for a job months earlier. Luckily, Best receives an interview invitation from Innovative Pharma, a prestigious company in the targeted area. Best also makes the short list of applicants for a position at World's Fabulous Research Institute, which provides opportunities for exciting scientific collaborations. The institute position is a dream job but requires preparing for a research proposal and an in-person interview within the next few weeks. Because the institute job is the first choice, Best delays the pharmaceutical company interview process until hearing from the research institute, even though the company position has a higher salary and is an excellent backup option.

Dr. Jones really wants to complete the reviewers' suggested experiments quickly and publish the study because it would increase the potential of achieving tenure, but Dr. Best is concerned about not being able to finish the work while applying for the institute position. Best relays these concerns to Jones and suggests that they ask Dr. Kai Ettero-Sanson, a new post-doctoral fellow that Best trained over the past year, to conduct the experiments, saying Ettero-Sanson would be eager to work on the project. However, Jones asserts that Ettero-Sanson needs more experience because the system is 'finicky' and implies that Ettero-

Sanson has lesser lab skills because of training outside the United States. Jones tells Best not to worry because even if neither position comes through, more offers will come, and compliments Best again for being “very gifted at the bench,” a comment Jones has made many times. Jones adds that Best will be able to stay at NIH for an additional sixth year without a problem and that having a first-author paper in the *Journal of Fantastic Results* will greatly improve job prospects.

3. Is it fair to ask Dr. Ettero-Sanson to become involved with the project at this point? What are the advantages/disadvantages of having another researcher perform these experiments?
4. Is the advice from Dr. Jones about Dr. Best’s job search reasonable? What would prompt Jones to offer this advice?
5. How should a lab handle systems that tend to be ‘finicky’; i.e., a system that is reliable but requires extremely strict adherence to the protocol?
6. Do you think Dr. Jones has a bias against Dr. Ettero-Sanson? How could a bias (or the perception of one) affect lab relationships, pressure, and career development?

Dr. Best reluctantly agrees to ask the institute to postpone the in-person visit and convinces Dr. Jones to allow Dr. Ettero-Sanson to help with the experiments. It takes weeks for Best and Ettero-Sanson to finish their work, but the results are confusing and in one case, contradictory to what they predicted. Best shows the data to Jones, who concludes that the results must be incorrect and that perhaps Ettero-Sanson had misread reagent bottles or protocols. Jones suggests that Best repeat the experiments, but Best reminds Jones that the institute has been trying repeatedly to schedule the on-site interview ASAP. Jones then asks: “Do you think this institute position is a good fit for you? I say this because it is a very competitive environment, and I’ve found that success in places like that depend on one’s ability to think broadly and develop novel and creative ideas.” Dr. Best is troubled by these remarks because they imply that Best might not succeed as an independent scientist. It reminded Best of a previous comment by Dr. Jones that fellows who received PhDs from “certain types of universities” are typically better suited for non-academic positions. Best also realizes that aside from repeated compliments on technical skills, Jones has never commented on Best’s potential to be a PI/group leader or suggested additional training or experience that would help with achieving a leadership position. Best is now worried about the recommendation letter that Jones had written, what had been communicated privately to professional colleagues, and whether successfully completing revisions of the paper would affect future letters.

7. Are Dr. Best’s concerns legitimate? How could Dr. Best address them?
8. How might mentoring/communicating be improved in this interaction?
9. What do you think Dr. Jones meant when referring to ‘certain types of places’? Do PIs/group leaders have preconceived ideas about particular schools and career paths? How do these ideas affect trainees?
10. What should take place during a conversation in which a trainee asks their PI/group leader for a letter of recommendation? What is the role of the PI/group leader in that conversation?

Dr. Best works day and night, mostly alone in the lab, repeating the experiments and finishes them faster than any of the previous experiments. This time, the data trended as expected. Dr. Jones is happy and immediately encourages Best to write up the results without Dr. Ettero-Sanson as a co-author and to resubmit the paper, commenting how this will help both of their careers. Best is relieved. While both potential job opportunities had granted interview delays, they were clear that no further delays would be acceptable.

11. Is it proper to remove Dr. Ettero-Sanson as an author? How and when should Dr. Jones have communicated how authorship on this paper would be decided?
12. Is running experiments 'day and night' appropriate in this case? What issues can arise from this behavior?

Dr. Ettero-Sanson learns of the new results and is skeptical. A meticulous experimentalist, Ettero-Sanson does not believe the new results could differ so substantially from the data obtained together with Best. After learning about the change in authorship, Ettero-Sanson tries to move on but cannot and decides to investigate further. One day, after everyone has left the lab, Ettero-Sanson looks through Dr. Best's lab notebooks and electronic files and uses the Excel data to try to replicate the results, without realizing that doing so would destroy the integrity of the spreadsheet. From the analysis, Ettero-Sanson concludes that Best ran the most recent experiment multiple times but presented only results from the three best experiments to Dr. Jones.

13. Is Dr. Ettero-Sanson justified to suspect Dr. Best's results? If so, what should Dr. Ettero-Sanson do?
14. Why is the integrity of primary data so important? How can the integrity of computer files be maintained?
15. Is it ever ok to look through a colleague's notebook and data files?
16. How should primary and analyzed data be stored?
17. Is it acceptable to present data selectively? Under what conditions, if ever, can specific data sets be removed from an analysis?

Dr. Ettero-Sanson is worried about the consequences of coming forward and questioning the experimental results, but out of great concern, speaks with Dr. Jones about the possible misconduct. Jones brushes off the concerns, saying that Ettero-Sanson must be mistaken and implies that Ettero-Sanson misunderstood Best's lab notebook and files, perhaps because of language issues. Jones begrudgingly agrees to a formal meeting to discuss the issue further but neglects to schedule one. Ignored and upset, Ettero-Sanson contacts the NIH Agency Intramural Research Integrity Officer (AIRIO). A preliminary assessment indicates that a misconduct inquiry is warranted.

18. How should Dr. Jones respond to Dr. Ettero-Sanson's concerns?
19. What type of signals is Dr. Jones sending to Dr. Ettero-Sanson by bringing up 'language issues' and by not scheduling the meeting?
20. What role does trust play in mentor-mentee relationships? How do you think the outcomes would differ if Dr. Jones trusted Dr. Ettero-Sanson more and Dr. Best less?

During the misconduct inquiry, Dr. Jones worries that rumors will spread, required external reference letters will be tainted, and the tenure committee will not recommend promotion. Jones blames Dr. Ettero-Sanson for the entire situation and begins to wonder if another lab would be a better fit. Dr. Ettero-Sanson worries that relationships within the lab are irreparably harmed. Dr. Best is extremely distressed and concerned about reputational damage. Unable to concentrate on the job proposal, Best withdraws from consideration for the institute position, but does interview with the pharmaceutical company as the inquiry progresses.

The inquiry ends and concludes that no further investigation is practical because Dr. Ettero-Sanson's handling of the original Excel file compromised its integrity. The pharmaceutical company selects a different candidate, and when Best asks for feedback, the recruiter responds that Best seemed distracted during the interview.

21. Do you see ineffective communication taking place in this case? If so, where and how might better communication from the PI/group leader to either trainee have changed the outcomes?
22. What choices could have been made differently that would have led to positive outcomes for everyone in this case?
23. Have you ever encountered or heard about any other situations related to the themes of this case study?
24. What types of services are available to the various parties involved here to get help dealing with high levels of stress?

Tell Us What You Think

The NIH Committee on Scientific Conduct and Ethics (CSCE) welcomes your voluntary, anonymous feedback on any aspect of the 2021 ethics case study. To provide feedback, please scan the QR code (a quick response code that can be read by cell phone cameras) or click the link below – each will take you to the same anonymous survey. Please provide feedback by December 31, 2021. All comments will be aggregated to generate a summary document for review. Any personal identifiers provided in the responses (e.g., names, position titles/types, etc.) will be removed prior to sharing the results outside the CSCE.



Open your cell phone camera application and focus on the QRC above, and you will be directed to Survey Monkey to leave anonymous feedback. You may choose to identify your IC and or Laboratory/Branch, if relevant to your feedback, but please do not identify any person by name or position (names will be redacted).

You may also access the survey by clicking on this URL:
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