

If it's broken, let's fix it: overcoming the top 5 adverse personnel situations for students and Early Career Researchers in academia

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If it's broken, let's fix it: overcoming the top 5 adverse personnel situations for students and Early Career Researchers in academia

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Abstract

Academia is an extremely rewarding profession but is currently riddled with a number of well-known problems and adverse personnel situations that can affect the mental health and well-being of researchers worldwide. Students and Early Career Researchers are the easiest victims of such situations. Although there is growing concern among young scientists about solving these adverse situations, there are not many examples about how this could be achieved in practice. In this article we highlight the top five adverse personnel situations that a student or early career researcher may get trapped into and offer a number of avenues that can remedy the situation. We identify the need for a more humane, empathetic way of working in academia and call for scientists around the world to invest in the “making”, not the “breaking”, of tomorrow’s scientific generation.

Introduction

Academia can be an extremely exciting and rewarding profession, especially for those who love challenges, hard work and the thrill of new discoveries. There is nothing else quite like it, for those who are drawn to academia. If you are a PhD student or a young scientist fresh from your post graduate degrees, ready for new adventures, chances are that you have had to leave familiar grounds in search of a new position in a new locality, perhaps in a foreign country, and far away from friends and family in an alien environment, quite different from what you are used to. If you are one of the lucky ones like us in our current workplaces, you would find yourself welcomed, made to feel at home, settling down, and encouraged to get on with the exciting role you were hired to fulfil. But if you are unlucky, you may soon find yourself up against a hostile working atmosphere, caught up in a web of bullying, exploitation, exclusivity, rock-star mentality or discrimination (Figure 1), quite far away from your hopes and the promises you were given when you took up the position. This is the unfortunate dark side of the scientific world - so dark that poor mental health is not uncommon (Evans et al. 2018). However, if you are caught up in such a web, it is important not to be disheartened, to know that the behaviour you are facing is not the accepted norm, and that you have a number of avenues that can remedy the situation. Here, we provide an overview of the top five adverse personnel situations (Figure 1) that students and early career researchers (ECRs) can face in academia. We draw on examples we have observed as early career scientists ourselves, as well as on experiences of other colleagues. We also provide some suggestions to tackle such situations and call for scientists around the world to invest in the “making”, not the “breaking”, of tomorrow’s scientific generation. This investment will make academia a better place for both current and future generations. We accept that progress has been achieved in the last few decades on a number of fronts, but we still have a long way to go to achieve a harmonious and equitable workplace environment for ECRs.

Top 5 adverse personnel situations

1. Bullying

Academic bullying is a major and persistent problem in academia (Moss 2018; Else 2018a). Common bullying behaviours include unjustified verbal/written accusations, persistent criticisms; spreading rumours, slurs, or smears; pressuring to work beyond contractual obligations; or preventing junior scientists from carrying-out their legitimate research activities. Victims of bullying can suffer from panic attacks, sleepless nights, depression, other associated health problems, and even suicidal thoughts.

Example:

Based on ill-informed assumptions, a lab Principal Investigator (PI) once accused a post-doc of taking the data of others (without offering authorships to the data providers) and writing his/her own papers. The “mistake” of the post-doc was to be proactive. Prior to the accusation, the post-doc had discussed pooling his/her own data with those of a graduate student (in agreement with the student) to produce a combined manuscript with authorship to be provided to the student. The accusation from the PI came as a shock to the post-doc, who had informed the PI about her/his intentions in emails and through various verbal conversations. Within seconds, the post-doc was tagged as a data-thief. Following the false accusation, the post-doc had a mental health breakdown and started suffering from anxiety. Fortunately, a few colleagues from the same institute supported the post-doc. These colleagues saw the email evidence and understood the truth of the situation. They recommended the post-doc see a doctor to help with his/her recovery. Conversations with the PI to prove the post-doc’s innocence were not successful—despite having the email evidence—and the PI never admitted that they were wrong. This is an interesting example in that the problem was aggravated by a fellow ECR (the graduate student’s supervisor) not taking a stand to clear the air. Vega and Comer (2005), in their article on bullying in the workplace, rightly pointed out in that “Sticks and Stones may Break Your Bones, but Words can Break Your Spirit”. So, in this case, the post-doc left the position pre-maturely and since then has made sure that they do not make the same mistakes as their former PI, by making ill-informed assumptions, or accepting any one-sided story at face value. The advisor/PI takes care of the mental health of their students and other junior colleagues, turning one’s negative experience into a positive solution.

Causes and consequences of bullying

A potential reason for academic bullying is a desire to exercise power over others. A presiding or prevalent view that has evolved in some academic milieu is that you only exist if you have a big voice and power over others. Whether a PI is powerful or not is often related to his/her success in procuring grants, being part of big collaborative networks, and having their ideas and advice heard with respect. Although many of these points are essential to run a functioning group, the true power of a scientist should not be defined solely by the above factors, but also by whether they are contributing to positive changes in society through the quality of the science they do, and whether they are nurturing the next generation of scientists by maintaining a healthy lab culture (Maestre 2018).

Unfortunately, many academic groups foster a culture where being a bully can be selected for. Some PIs provide a poor example, conveying the message, perhaps non-verbally: “If you want to be

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3 93 successful, you must become like me". Those ECRs following this inferred or subliminal suggestion will

4 94 ultimately become the next - generation of academic bullies.

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7 96 **Solutions to bullying**

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9 97 Fear is one of the chief reasons many bullying cases are not reported. To solve this persistent problem,

10 98 we need to adopt strategies such as:

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12 99 1. **Assess the work ethics of the laboratory prior to accepting your position:** The best way to

13 100 stop a problem is by avoiding it in the first place. Bullies can be stopped in their tracks if bright

14 101 young scientists refuse to work with them. When looking around for placements, it is important

15 102 for a student or an ECR to assess potential employers not only on the quality of their

16 103 publications, but also on the reputation of their laboratory as providing a nurturing, supportive

17 104 workplace. Students and ECRs can also check the institutions track record in dealing with

18 105 bullying.

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21 107 2. **Informal resolution:** Informal resolution may be a potential solution but such information may

22 108 not always be readily available, and with many bullies, their public mask may be quite different

23 109 from their private face and they are often manipulative by nature. So, if you do find yourself

24 109 bullied, see if a frank and cordial conversation with the bully would stop the problem, if necessary,

25 110 with the help of a third person like a friend or colleague (who need not be from the same

26 111 institution), who knows you well, and can speak on your behalf. Make sure you create a paper

27 112 trail of e-mails as much as possible. After the meeting write a summary of what was discussed

28 113 and e-mail it to the PI to sign off on. You need to make sure the third person is cc'd on this e-

29 114 mail chain. You would be giving the bully the benefit of the doubt, in case, the root cause was

30 115 any misunderstanding or poor communication. This is a good initial course of action, but it may

31 116 not be successful, and further steps will be necessary.

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33 117 3. **Formal complaint channels:** If clearing the air does not solve the problem, the next step would

34 118 be to take a more formal stand against bullying – make yourself heard, do not suffer silently.

35 119 Often PIs themselves have a line-manager, and departments often have dedicated staff who

36 120 are available to open up these proceedings. Also try to reach the top by writing the Dean of the

37 121 University or the Director of the research institute. The academic environment is so competitive

38 122 that finding a replacement for a "bully" is easy and this fact should act as a threat to the bully of

39 123 losing his/her job. Some institutions already have explicit policies against bullying (Duffy 2009),

40 124 and are known to take legal actions against bullies. These formal channels (like HR) of

41 125 communication help students and ECRs by providing them assurance and guidance regarding

42 126 how to seek support from unbiased parties and deal with bullies.

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44 128 4. **Institutional Policy:** Addressing the problem more generally, it has to be accepted that the

45 129 onus should not be only on the ECR to put an end to bullying. An institutional position against

46 129 bullying must be unequivocal and clear cut, and policy documents should be openly available,

47 130 and all staff should be made aware of the institutional position for e.g. anti-bullying policy on the

48 131 websites with a code of conduct. Would-be bullies should at the very least know that such

49 132 behaviour will not be tolerated in their workplace.

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51 134 5. **Periodic institutional assessments:** Many research institutes and universities are periodically

52 134 evaluated by external groups, but this evaluation often focuses on their scientific performance.

53 135 The time is right to widen this evaluation to incorporate the mental health status of students and

54 136 ECRs, as well as other members of staff. We argue that a holistic productivity and happiness

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factor should decide the ranking and future funding allotted to academic institutions. National funding bodies could make funding dependent on this performance. Some funding institutions, such as the UK's Wellcome Trust, have already taken strong action in this direction, including "un-funding" PIs in response to clear evidence of bullying (Else 2018b). Another example includes the UK's Leverhulme Trust that has withdrawn a research grant from a prominent scientist who had breached the anti-harassment rules (Else 2018b). Fear of losing funding could help promote a culture change towards supporting students and ECRs.

6. **Stop fuelling the bullies:** While forming consortiums for research grant applications, an editorial board or scientific organising committee of international/national conferences/workshops/meetings or selecting invited/keynote speakers in a conference session there is a general tendency of inviting famous scientists to join such consortiums/meetings. This selection is often based on their CV. We suggest that a proper background check with younger colleagues/collaborators must be made before inviting scientists. If we as individuals or a learned society end up unknowingly inviting bullies, this leads to fuelling the career development of a bully. A proper background check will require more work rather than just checking the academic profile of a scientist, but the end result will be beneficial for the next generation – a bully being informally "boycotted" will lose their power eventually and will be more alert before verbally abusing the next student or ECR.

2. Discrimination

Discrimination in academia can be based on age; physical and mental disability; physical appearance; gender identity; marriage or civil partnership status; pregnancy, maternity or paternity; race, nationality, religion and belief; sexual orientation or socio-economic background, among other factors (Gibney 2014). A common expression of discrimination include providing career opportunities to some while denying them to others on the aforementioned bases—irrespective of the individual's achievements or potential.

Example: During the interview stage for a post-doc position, a candidate made it clear to the PI that although they would be hired for working on a particular project, they would like to apply for other grants as PI and undertake other valid career development activities, such as developing collaborations, but of course, without detriment to the work they were hired to do. The candidate was offered the job. Prior to taking up this position, the candidate was the PI of their own grants and fellowships, had completed work on parallel projects, enjoyed substantial academic freedom and had their own strong international network of collaborators. So, their capability to work on additional projects was well demonstrated. No objections were raised to these points during the interview by the PI. However, after taking up the position, they was continuously discouraged from applying for grants and other career-development activities such as associate editor positions. The PI seemed not to like them networking (also an element of career development) and once angrily told the newly hired postdoc that they knew so many people and that they were practising politics by networking.

The post-doc was very dis-heartened and upset about being persistently discouraged from executing career development activities. The post-doc explained to the PI that they only worked with people with whom they had good working relationships, and that their networking was not motivated by a desire to play politics, but only to find suitable collaborators. However, that fell on deaf ears. Conversations that the post-doc initiated a number of times about the beneficial aspects of networking for their career

development were unsuccessful. The post-doc was reprimanded as though they were a child. Furthermore, the post-doc was told to focus on a single project: the one they had been hired for by the PI. While this situation was occurring, the post-doc noticed that another ECR in the same lab with similar achievements in their CV—but who was a native of the country and was good at flattering the boss—was continuously encouraged to apply for grants. After becoming aware of the discrimination, the post-doc tried to maintain as much distance as possible from the PI and moved on to a position at a different institute, which offered the freedom to establish themselves and "spread their academic wings". Since then, the post-doc has been careful not to inflict the same behaviour on their own students and encourages them to work on different projects in the lab and participate in activities that are beneficial to their career development. Note that this example highlights two problems: the first one of poor pastoral care – not looking out for the career development of the ECR – compounded by discrimination.

Causes and consequences of discrimination

Discrimination practiced by lab PIs can be triggered by three main factors: nepotism, fear and who is engaging in sweet-talk with the boss. Just like in Hollywood, nepotism also exists in academia (Allesina 2011). We have experience of group leaders who support the career development of ECRs from their own country more than those of their international counterparts.

Lack of self-confidence in a PI sometimes culminates in fear that someone with different personality traits can become 'better' or as 'good' as themselves. Group leaders with such feelings tend to believe that people with different personalities must be controlled to ensure they never become as good or better than themselves. This relates back to a concept that has unfortunately evolved in academia: you must be the best and stay at the top always. Indeed, the limited funding available for employment and research in the current academic system creates strong competition among scientists and fuels imposter syndrome (Bothello and Roulet 2019, Petersen et al. 2012). Keeping your job, receiving funds for your research and maintaining a functioning lab become very closely tied to being the best, however that might be defined. In addition to producing numerous high-impact publications, being the best is also a state of mind in which arrogance and superiority dominate, likely as self-protection against imposter syndrome. In such settings, anybody can become the enemy, particularly those with different personality traits, background, such as minorities, though not exclusively. Minorities may already be more vulnerable to discrimination by society at large and be an easy target for boosting one's self-confidence at the expense of another.

Solutions to discrimination

1. **Raise your voice:** Ending discrimination in academia, or in society, has to be a constant commitment. First, victims of discrimination should raise their voices and shed light on abuse, inequality and injustice. It is not an easy process so the victim should get help from trustworthy friends and colleagues to support them in the process.

2. **Don't be complicit:** It is also important for witnesses to discrimination to speak up, rather than leave it to the abused to fight their battle on their own. Those who are discriminated against should feel supported. As in the case of bullying, fear is the main reason why acts of discrimination are not reported.

3. **Don't be afraid:** Fear is one of the main reasons why one puts up with discrimination. But things are changing, thanks to newly created groups such as 'Black in (STEM Education, Chem, Genetics, Math, etc)', 500 Women in Sciences, and 500 Queer Scientists, which provide support to minorities, thus creating a sense of belonging in academia and eliminating fear.

4. **Collaborate and not compete:** The whole academic system must evolve toward less competition and more collaboration, acknowledging the enormous advantages of combining the expertise, experience and knowledge of different and diverse minds. The concept of academic merit should also be reframed to also embrace the importance of well-being in the lab (Maestre 2019) as well as good practices and integrity in the sciences (Horbach & Halffman 2017).

3. Exploitation: Some PIs treat their ECRs as "lemons" to be squeezed (e.g., for papers) and then discarded. Of course, all ECRs are eager to work hard and maximise their academic outputs to better their careers. But the "lemon" syndrome occurs when the ECRs do not get the full credit for their work; when the pressure becomes excessive to produce more papers, at the expense of the career development of the ECR. ECRs are too often systematically robbed of means of academic production (for example when they are assigned a preponderance of thankless jobs not aligned with their talents or capabilities) and of the means necessary to thrive in the academic world (Vargo 2017). We have often heard examples where certain research group leaders or lab PIs exploited junior scientists for the PI's own professional development. Exploitation may take various forms, including using the ECR/student to establish new collaborations, or using their ideas and expertise to bring in new grants, or publishing papers based on the outputs of the young scientists without giving due credit to them. Unfortunately, we are aware of a few PIs who treat students and ECRs as paper-producing machines without being interested in their overall development as well-rounded scientists.

Example: A PI took credit for ideas that one post-doc in their group had developed prior to even joining that lab. When the postdoc first joined the lab, they wanted to show her collaborative spirit, and shared with the PI a few of their on-going manuscripts and ideas for grant proposals. Unfortunately, the PI ended up taking credit for the ideas, presenting them as their own in grant proposals, and even asking to become senior author in papers that had been developed at the postdoc's previous institution. The postdoc gave in to those demands due to lack of knowledge on what was "acceptable academic behavior".

A few years later, the former post-doc realized that that was not acceptable behavior, and initiated conversations with the (by then ex-) PI on how to provide proper credit. However, these were not successful, partly because they still depended on the PI for letters of recommendations. Instead, the post-doc has put as much distance between this PI and themselves as possible. This ECR now takes it upon themselves to not do the same thing to people in their group, and has gone on to include named postdocs in their group as co-PIs in grant proposals.

Causes and consequences of exploitation

A general concept in academia is one should stay innovative forever. 'Novel' and 'innovative' are the words expected in every project proposal and job application. This leads to scientists stealing ideas or results of others' work in the hope that it would help them to appear innovative forever. ECRs and students are particularly vulnerable to this type of intellectual theft. Strategies for exploitation may include bullying and discrimination to ensure the dominance of the PI over the team, and to sustain

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3 274 his/her publication record and funding. The consequence for ECRs is the lack of opportunity to develop
4 275 his/her own ideas to their full potential and to earn full credit for them.
5 276 Ideas in the mind of an ECR can be self-exploited and developed to reach their full potential
6 277 collaboration with other scientists, but could be stolen by someone else. This pushes bullying and
7 278 discrimination to ensure dominance over lab members (see above) and collect ideas for self, as well as
8 279 to be lead author on publications. Collaboration should welcome opportunity to expand and strengthen
9 280 initial ideas through discussion with others. However, in case of collaborations, the ECR should be
10 281 given due credit via proper well-documented agreement.
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15 283 **Solutions to exploitation:**

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17 284 1. **Written records:** It is always helpful, not only in the case of exploitation, to keep written
18 285 records of meetings, especially of important ones, so that there would be no confusion
19 286 afterwards about who said what. If important ideas were discussed at a meeting, it would be a
20 287 good idea to write down the gist of the discussion and send it by e-mail to all parties at the
21 288 meeting, as an aide memoire (non-confrontational). If you had brought specific ideas to the
22 289 meeting, make that clear. If you received good ideas to help with your work, acknowledge it. If
23 290 you make a habit of doing this, then, down the line, if you feel exploited, you will at least have
24 291 the written, shared records to back up your arguments. Having written documents may even
25 292 discourage would-be exploiters. Also, more senior scientists should take a stand and support
26 293 the young scientists whenever they get exploited.
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29 294 2. **Re-evaluation:** The value of exchanging ideas and collaboration should be
30 295 acknowledged more by scientists, universities and academia, than it is at present. It requires
31 296 reviewing current ideas and concepts of academic achievement, particularly regarding
32 297 indicators of success (e.g., h-index and number of publications) and creating new indices
33 298 based on collaboration within one's team, involvement of students in own research, and
34 299 collaboration/mentorship beyond one's own team or institution. Innovation is also quite
35 300 subjective and the criteria used to determine novelty in project proposal and job applications
36 301 requires some revaluation.
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39 302 3. **Equitable partnership:** In the current system of hiring graduate students and ECRs that
40 303 is becoming more and more prevalent, all the steps of a thesis or project work are prescribed
41 304 and approved for funding before the appropriate person is hired for the task. It leaves little
42 305 room for the incumbent to inject his/her own ideas into the thesis or project, or to show
43 306 originality or innovation. For the intellectual development of students and ECRs, it would be
44 307 better if the system were more flexible, whenever possible, allowing for the junior members to
45 308 participate more in the design and planning of research activities. The thesis/project plan
46 309 could make clear the intellectual inputs from all contributing parties. This would make for a
47 310 more equitable partnership, with open acknowledgement from the outset that the student or
48 311 ECRs had an intellectual investment in the partnership, which would then be less vulnerable to
49 312 exploitation.
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53 314 4. **Exclusivity in research:** Exclusivity in research is another major problem that ECRs face.
54 315 Exclusivity can include (i) stopping other researchers in one's lab from working on grant applications on
55 316 the same research topic, subject area or model plant/animal organism as the PI, so as to not lose
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control over the research; (ii) not inviting junior scientists to be co-PI in the PI's grant applications, and instead working exclusively with senior scientists.

Example: A postdoc worked in a lab where tasks of the group, including lectures and contributing ideas to grant proposals, were discussed collaboratively. The PI always expressed enthusiasm for involving students and ECRs in these tasks. However, when the time came to involving students and ECRs, the PI would change his/her mind—deciding to do the task independently without acknowledging the contribution of students and ECRs.

Causes and consequences of exclusivity

This 'exclusivity-behaviour' by PIs can be hard to combat, as excluding junior members from activities such as proposal writing is often justified on the grounds of 'not wanting to add to their work load'. While this sounds reasonable, it often masks a desire by the PI to maintain control. Furthermore, mentoring junior scientists to take part in essential academic activities like teaching and grant writing requires an initial time investment from the PI. It may also remove some of their time-flexibility—junior scientists cannot be involved 12 hours before a grant deadline for example—and detract from the sense of intellectual freedom that the PI enjoys. However, such mentoring and skills-building pays dividends in the long run, as junior scientists are better able to contribute more productively to the research team in the future—freeing time for the PI to focus on tasks they enjoy. This 'exclusivity-behaviour' means that students and ECRs miss opportunities to build their CV and develop important skills—ultimately making them less competitive for fellowships and future jobs. It also means that the PI has less time to devote to other activities, ultimately decreasing the productivity of the lab group.

Solutions to end exclusivity

Mentoring: There's no getting around the time-requirements involved in initially mentoring students and ECRs in essential skills like teaching and grant-writing. However, the burden of the skills-building does not need to fall solely on the PI. Universities often offer courses in these skills, and support can be provided by other senior members of the group (e.g., ECRs who have been with the group longer), and resources can be developed within the lab that can be used for new lab members. As PIs gain trust in the developing skills of their students and ECRs—they are better placed to understand the benefits of relaxing 'control' over all group activities, and instead enjoy the benefits that such delegation brings. Furthermore, if the lab leader treats her/his junior colleagues well, they are making an investment—those same junior colleagues will reward them by involving them in their future grant applications and papers. Mentoring can also be made explicit in the PI's job description and it is important for management to get feedback from students and postdocs on how much mentoring and in what forms they each get.

5. Rock-star mentality: The job of a scientist is to explore unknowns, improve fundamental knowledge and to apply knowledge to solve problems. Thus, to us, it seems a bit odd to try to achieve stardom in academia. Obviously, prestigious fellowships and awards/recognitions sweeten the deal in an otherwise stressful profession, but ultimately what motivates researchers is -or should be- curiosity, not wanting to become "rockstars". The higher the reputation of a scientist, the bigger the rewards that follow in the form of awards, grants, better positions and bigger research grants. Striving to become

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3 364 such a “rock star” of science sometimes distracts scientists from their true vocation. Such ambitions
4 365 might colour their attitude to their students and ECRs. It is such misguided, would-be “rock-stars” that
5 366 are the problem in our view, not the real ones. We don’t know many real rock stars of science
6 367 personally, but from what we have seen, heard and learned, many of them have the balance right,
7 368 between advancing their own careers and those of their fellow workers. But would-be rock star
8 369 mentality might lead to undue pressures on their students and ERCs, as illustrated with the example
10 370 below.

11 371
12 372 Example: At the beginning of their career, a post-doc was told by a PI to focus on publishing only in
13 373 high-ranking journals because those papers would be the only ones that would bring them recognition.
14 374 They were told that it was better to have a few papers in top ranked journals rather than many papers
15 375 in lower-ranked journals. This could have been sound advice to aim high, if the output from the
16 376 research warranted it. The journals have to be chosen to suit the type of work being reported. If not,
17 377 trying to squeeze research outputs into an ill-fitting mould can cause considerable angst. At the time of
18 378 paper writing, following this strategy led to reframing study findings in line with the then current trendy
19 379 topics, even though the experiment was not initially built to test hypotheses related to these topics. For
20 380 the post-doc, this strategy meant that results needed to fit the requirements of broad, high-rank
21 381 journals. The post-doc was told by the PI to let go of results that could not be published in high ranking
22 382 journals and instead focus on the most promising results. The post-doc disagreed with the PI but still
23 383 had to do what the PI had asked them to do. They reframed the study a few times, submitted the
24 384 manuscript to a few high ranked journals, and it was rejected each time. The post-doc finally submitted
25 385 the article to a lower-ranked journal and had to cut out the ill-fitting parts that the PI had asked them to
26 386 add as part of the strategy for making the article high impact. The post-doc never collaborated with this
27 387 PI again, and did not publish other data that they had collected during that postdoc. Let us make it clear
28 388 that the problem highlighted here is not that of aiming high Every ECR and student likes the idea of
29 389 publishing in well-read journals. Everyone also recognises that such journals have higher-than average
30 390 rejection rates, and one accepts that risk when submitting manuscripts. The trouble starts, however, if
31 391 the PI’s ambition clouds their judgement, and leads to poor advice to team members.

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36 392 **Causes and consequences of rock-star mentality**

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38 393 As well as missing the chance to share scientific knowledge, the downside of such a strategy could be
39 394 to push scientists to falsify results toward more innovative findings that could be more easily published
40 395 in high ranking journals. The recent Pruitt scandal suggests that this practice exists. As of today, eight
41 396 Pruitt-coauthored paper have been retracted from top-ranked journals and many others are being
42 397 scrutinized for data falsification (Pennisi 2020). Pruitt’s behavior had detrimental consequences for
43 398 science, by making an entire field of research suspect, creating mistrust in scientists and threatening
44 399 the career of his collaborators.

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46 400 In every discipline of science, there are a broad selection of journals to which one’s results could be
47 401 submitted for publication. They are designed to serve a variety of needs. They all have their value and
48 402 their purpose. Any effort to shoe-horn results into higher impact journals regardless of their suitability
49 403 for the journal could lead to much wasted effort and unpublished results that could hamper the career of
50 404 the junior staff.

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53 405 **Solutions to rock-star mentality**

54 406 **Celebrate non-significant results:** Results that do not support the hypothesis, often called ‘
55 407 negative results’, are the nemeses of scientists because such results are practically

unpublishable, especially in top-ranked journals (Mehta 2019). The concept of negative results is however intrinsically wrong because results are never positive nor negative but rather validate (or refute) a hypothesis; both positive and negative results are valuable to improve scientific knowledge. As scientists, our task is to improve general or specialist knowledge, according to the goals that you set yourself. It would be a mistake to seek fame and fortune like a 'rock star', unless the circumstances warranted it! Scientific journals also have a responsibility in this and should promote all results rather than select for major breakthroughs only. We need to foster a culture where non-significant or less interesting results will be equally celebrated as much as significant results.

Conclusion:

It is crucial to remember that the success of students/ECRs is the greatest sign of success a group leader will ever achieve in academia. Thus, for a healthier research ambience, we must foster a research culture of humility over egotism, integrity over nepotism, and compassion over competition. It starts with each of us doing what we can to fix the academic system.

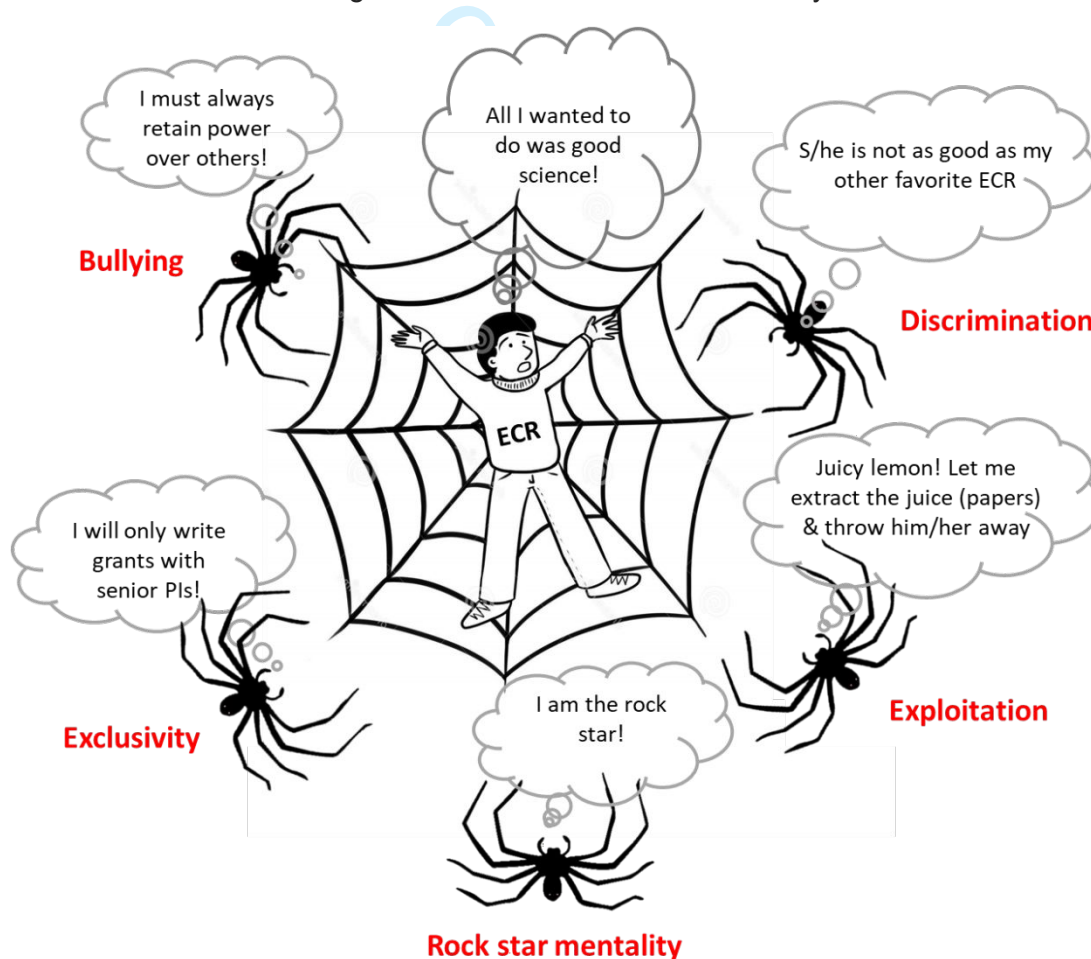


Figure 1. Top 5 adverse personnel situations faced by ECR's in academia

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Data Accessibility

The manuscript does not contain any data.

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