

Submission to the Productivity Commission's inquiry into the effect of mental health by the EMCR Forum of the Australian Academy of Science & the Australian Brain Alliance EMCR Network

Executive summary

This submission has been prepared by the Australian Academy of Science's Early- and Mid-Career Researcher (EMCR) Forum in collaboration with the Australian Brain Alliance EMCR Network.

Our submission refers to the mental health of EMCRs in the science, technology, engineering and maths (STEM) sector, mainly in the academic environment: universities, research institutions and Publicly Funded Research Agencies (PFRAs). We define an EMCR as an individual with a postgraduate degree (typically a PhD) who has been working in the STEM sector for less than 15 years excluding career interruptions.

The submission focuses on the identified issues that come under "mentally healthy workplaces" (Issue Paper pages 28-30). To prepare our submission, we conducted a survey of EMCRs in Australia to inform our findings and recommendations. The main topics covered in this submission are:

- mental health in the workplace; and
- prevention and early intervention.

Main findings

The STEM sector's productivity and long-term sustainability is under serious threat from overwork (more than 38 hours a week), job insecurity, and ineffective organisational responses to the causes of poor mental health. A review of the mental health of the STEM workforce in Australia is urgently needed. While some previous work has investigated the mental health of tertiary students¹, a detailed analysis of the academic workforce, which includes EMCRs, has not been performed. Here, we present the thoughts, experience and suggestions from EMCRs in Australia and make the following recommendations.

We recommend:

1. Establish a national program to assess the mental health of workers in the academic STEM sector, not only the students. The assessment should make appropriate reference of the different career stages: early-career, mid-career and senior academics.
2. Establish support systems such as a national taskforce to educate employers on how to support productivity while managing the health risks associated with overwork.
3. Normalise discussions about mental health to reduce stigma. While our submission focuses on EMCRs, the academic sector in general tends to stigmatise those with mental health issues.

4. Create realistic expectations and reasonable workloads in the STEM academic sector.

About the Early- and Mid-Career Researcher Forum of the Australian Academy of Science and the Australian Brain Alliance EMCR Network

The Australian Academy of Science [Early-and Mid-Career Researcher Forum](#) (The EMCR Forum) is the national voice of Australia's emerging scientists, representing researchers who are up to 15 years post-PhD or other research higher degree, irrespective of their professional appointment. The EMCR Forum comprises over 4,800 individuals employed in science, technology, engineering and mathematics (STEM) with research positions in academia, industry and government.

The EMCR Forum's mission is to serve Australia's early- and mid-career researchers (EMCRs), championing improvement in the national research environment through advocacy. We focus on sustainable and transparent career structures, inclusive and equitable environments, stable funding policies, career development opportunities, and raising awareness of the issues faced by EMCRs in science. The mental health of our members is of vital importance and has become a priority for us.

For this submission the EMCR Forum has partnered with the [Australian Brain Alliance \(ABA\) EMCR Network](#). The ABA EMCR Network specifically supports EMCRs whose research focus is on brain science. Their vision is to shape the future of Australian brain science by supporting the next generation of leaders.

About this submission and context

This submission draws on the experiences and suggestions of our membership and relevant scientific research. To inform this submission we ran a survey from the 20th of March to the 3rd of April 2019 and received 112 responses from EMCRs in Australia. Details of the survey questions and a summary of the answers can be found at the end of this document.

The majority of survey responses referred to and were relevant to the academic environment. While EMCRs are employed across a variety of organisations in academia, industry and government, this submission will focus primarily on EMCRs in academia. The following provides background and context to the working environment for EMCRs in academia in Australia.

EMCR positions within the academic workforce include positions at universities, research institutions or in PFRA's. Becoming an EMCR usually follows completion of a higher research degree such as a PhD - a long-term individual research project that usually takes three to four years full time to complete. Following completion of a PhD, the typical career progression of an EMCR involves a series of short term contracts (known as postdoctoral positions) of 1-3 years each, under the management of a senior researcher. During these postdoctoral appointments an EMCR builds experience and works towards establishing themselves as an independent senior researcher. Mobility in this time period is highly regarded, and it is common for EMCRs to change institutions from contract to contract and to spend one or more postdoctoral appointments overseas. Most contracts rely on grant- or institution-based funding which is awarded either to the EMCR themselves or the senior researcher employing them.

In the academic environment, EMCRs are expected to undertake a number of different activities including conducting research and publishing the results, applying for and securing research grants

to support their current and/or future employment, teaching coursework, supervising postgraduate students, participating in outreach programs, and contributing to the scientific community via service on committees and societies. Despite this varied activity, progression and success in the academic sphere is still primarily dependent on the production of high-quality, peer-reviewed publications. Therefore, EMCRs (and others in the academic landscape) face a hyper-competitive environment with a so-called “publish or perish” culture, suggesting that they must publish well and often in order to succeed, juxtaposed with a myriad of other responsibilities also required of them despite little evident reward for completing these other responsibilities.

EMCRs and their mental health in the STEM sector

Mental health among EMCRs has been identified as a topic of vital importance among our members and has become a priority for the EMCR Forum. The hyper-competitive environment that is typical of science is, for many, becoming an unhealthy mental landscape.

Our membership is diverse in terms of gender, cultural background, ethnicity, and research field but every member has completed multiple years of post-tertiary education and training. The scientific method dictates that progress is made in research by continual hypothesizing and testing of theories, many of which will turn out to be incorrect. Therefore, while a PhD in STEM is highly respected by the general public, there is a significant amount of failure associated with unsuccessful experiments and trouble-shooting of both equipment and hypotheses. Beginning with a PhD, STEM researchers can face years of challenging work where they are often characterised as failing. The PhD process in its entirety can be an isolating and lonely experience and several studies have reported higher incidence of poor mental health among graduate students (PhD and master students), as an example up to 46% graduate students in the biosciences report poor mental health²³, about three times higher than the general population⁴.

The hyper-competitive environment that is typical of STEM in academia can also breed an unproductive and unhealthy mental landscape for EMCRs. This not only affects the EMCRs themselves but also has broader implications across the sector. EMCRs are uniquely positioned in the academic workforce: their workload is often split between teaching, mentoring, and supervisory roles towards undergraduate and postgraduate students, and enabling research outputs both in their own right and contributing to that of their senior researcher. In other words, the poor mental health of EMCRs has the potential to affect the whole sector by impacting those coming through the education system as well as reducing the productivity of research outputs. EMCRs are the backbone of STEM research and the whole sector will benefit from approaches to improve their mental health.

The consequences of poor mental health among academic staff is crippling to all EMCRs directly experiencing mental health concerns and to the community around them⁵. While the mental health of Australian tertiary students has been investigated¹, there is a significant lack of reporting on the mental health of academics, particularly EMCRs. In 2003, Winefield and Jarret⁶ investigated work-related stress in Australian university staff, and identified that a higher proportion of those experiencing stress were academic staff. Similarly, a more recent survey of academics in the UK found that 43% suffer from distress and low mental health wellbeing⁷. There seems to be a shift in the UK, however, and new initiatives such as Student Minds⁸ are emerging. This initiative supported

training programs for university staff, and helped universities establish a strategic response plan to address mental health concerns.

Responses to our survey indicate that counselling sessions and wellness programs are strategies being applied in Australian academic settings, with several universities providing support for those experiencing poor mental health. Nonetheless, poor mental health among academics remains high, not only due to workplace culture, but also due to the stigma associated with speaking about personal mental health issues⁹. Furthermore, we are not aware of any studies on the impact of poor mental health among EMCRs nor has there been an assessment of the impact of mental health on the productivity of EMCRs, particularly in the Australian context.

Issues affecting the mental health of EMCRs in their workplace

Studies across the world have highlighted poor mental health among academics^{7, 9, 10, 11, 12}. In the survey of EMCRs undertaken here 91% reported that mental health issues affected their productivity at work. Respondents reported that the main issues contributing to their poor mental health were high workload, poor job security, poor environment, and inadequate support. The factors in the academic workplace environment which contribute to the first three issues are discussed below. The final issue, inadequate support, is discussed in the next section.

The academic workplace is a hyper-competitive environment¹³ with a low hiring rate of new academics due to an ageing workforce. This is compounded by an increase in the number of PhD graduates in recent years, and the fact that many PhD students are inadequately prepared or made aware of career options outside academia, creating greater competition for academic positions¹⁴. For STEM researchers, the Annual Performance Reviews are complex: they are judged not only on the size of outputs (number of publications, dollars in research funding) but also assessed on the quality of these efforts (quality of journal, prestige of funding body), and some of these factors are beyond a researcher's individual control. The expectations are often unreasonable or unrealistic. Unlike most other sectors in the economy, these key performance indicators (KPIs) can be a moving target and as competition is ingrained, being just 'good enough' is not acceptable for securing a job. In response, the workload of EMCRs (and others in the academic sector) is very high in an attempt to be competitive. As a result, 75% of EMCRs in Australia work more than 41 hours a week, including 20% which work more than 50 hours a week¹⁵. This results in 39% of the research conducted in Australia by EMCRs being contributed for free as unpaid overtime. These high workload demands can lead to burnout and an unhealthy work-life balance that affects not only productivity in the workplace but also limits the involvement of EMCRs in their broader community.

We recommend **creating realistic expectations and reasonable workloads in the STEM academic sector**.

Job security is also notoriously poor amongst STEM academics. The current model of employment of EMCRs favours fixed term or casual contracts over continuing positions, especially for research-focused scientists. It is common for EMCRs to have short (1-3 year) fix-term contracts and move between institutions/employers, as being mobile is often viewed favourably in STEM and seen to enhance a researcher's academic profile. As a consequence, EMCRs often find themselves in short-term contracts or having to secure their own salary funds through hyper-competitive grants, such as fellowships, which in 2018 had a success rates below 20%. A large amount of an EMCR's time is invested in applying for these grants. This situation not only increases the workload of an individual

in an unproductive and unsustainable manner, but combined with the previously described pressures and challenges, has a compounding negative effect on an individual's mental health.

Toxic work environments are common in STEM in Australia with bullying and sexual harassment in the workplace having an impact on mental well-being. Of those who responded to the survey, 15% attributed a toxic work environment and bullying to the stress and anxiety they were experiencing. A survey of Australian STEM professionals in 2019 found that half of the female respondents and one in ten males had experienced sexual harassment¹⁶. Of women bullied in STEM workplaces 25% responded by leaving the workplace¹⁷ demonstrating that these issues result in a loss of talent and productivity from the STEM workplace.

Many EMCRs also suffer from the so-called "imposter syndrome", where they falsely feel incompetent and mis-attribute their achievements to external circumstances rather than their abilities^{18,19}. This phenomenon severely impacts the mental health of EMCRs and is compounded by the anxiety, fear, and stress of the thought of being found a fraud by their peers.

Ultimately, some researchers leave science to avoid or manage the consequences of poor mental health. As a result, the entire sector is affected by a loss of valuable experience and knowledge. The high monetary loss associated with EMCRs leaving the workforce has not been professionally calculated but a STEM researcher requiring - at a minimum - a three year science PhD equates to more than \$185,000 in stipend and university/tuition fees. These positions are usually funded through the government's Research Training Program scheme (Department of Education and Training)²⁰.

An EMCR's poor mental health will not only negatively impact the individual, but also decreases the standard of teaching and research, impacting the future of Australia's science endeavours. The result is an overall reduction in the productivity and quality of tertiary education, which affects the quality of graduates and the future productivity of the Australian society.

We recommend the establishment of a national program to assess the mental health of workers in the academic sector, not only the students. The assessment should make appropriate reference of the different career stages: early-career, mid-career and senior academics.

Establishing a mentally-healthy workplace - current programs and initiatives

The fourth factor identified by EMCRs in contributing to their poor mental health outcomes was inadequate support from their workplaces. In this section we discuss the current programs and initiatives available to EMCRs in their workplaces.

Although many EMCRs who responded to the survey were unaware of research or evidence based programs (71%) targeted at assessing mental health, many indicated that academic workplaces ran programs targeted at improving the mental health of employees. Of programs identified many were national mental health programs which were not specific to the workplace, such as 'R U OK Day' or HeadsUp from BeyondBlue. However, seven respondents did identify mental health 'first aid' programs offered at their workplace or employee assistance programs. Our survey was not able to ascertain the extent of availability of these programs across academic workplaces in Australia, but it does indicate the awareness of such programs.

Organisations seemed to be aware of the need for enabling good mental health practices and have introduced mindfulness or general well-being programs, provide counselling and access to the employer assistance program. However, the effectiveness of these programs varied with the organisation. For example, some of those who responded said that counselling sessions were limited or difficult to access, while others had better access to counselling.

Our survey results suggested some simple actions could assist with early intervention and prevention at the organisational level. These included improving mental health literacy among EMCRs, their supervisors and management, providing physical spaces in the workplace for self-care practices, and more visual, accessible ways of seeking support. About 20% of the suggestions made by EMCRs were aimed at addressing workplace culture, including the need for a greater understanding regarding mental health among supervisors and peers, more open discussion around the subject, and a change in mindset regarding workloads. Larger structural changes were also suggested such as the modification of the current funding system.

We posit that prevention requires an overall change of both the current research environment and culture, as well as employer-provided resources, initiatives and policies. In a hyper-competitive environment such as academia, disclosing one's mental health concerns can be seen as a sign of weakness. Initiatives seeking a change of attitude in the STEM workforce are needed. An example of such an initiative is Kindness in Science movement which began in New Zealand in 2017²¹. The EMCR Forum have promoted this initiative in Australia²² and encourage the uptake by workplaces that employ EMCRs as well as professional science societies and associations which have the opportunity to show leadership in this space to influence the broader scientific culture.

We recommend the **establishment of support systems such as a national taskforce to educate employers on how to support productivity while managing the health risks associated with overwork**. This should be underpinned by research to determine the extent, type, and effectiveness of programs available to EMCRs and others in the academic sector to prevent and address poor mental health.

Gaps in current programs and support available

Based on the survey it is clear that many Australian academic workplaces are starting to address the mental health and well-being of their staff (both academic and general) through various strategies. However, there still seems to be a lack of awareness amongst EMCRs regarding these programs, one in four EMCRs who responded to the survey were not aware of the resources available to them at an organisational level. More effort needs to be directed into promoting these programs. Current efforts are more organisation driven, with some organisations offering more support to their workforce than others. As such a more generalised approach may benefit the whole sector. This is particularly relevant for EMCRs due to their high mobility, therefore preventive or corrective measures provided to an EMCR by one employer will benefit the subsequent employers and therefore the entire sector. However, the effectiveness of organisational specific programs are yet to be proven and more work needs to be done to determine where resources should be placed if a national approach was to be taken.

The stigma along with a lack of awareness amongst supervisors about addressing mental health issues is still prevalent in the science sector. This needs to be addressed to build a more positive and open environment where mental health can be discussed.

We recommend **normalisation of discussions about mental health to reduce stigma. While our submission focuses on EMCRs, the academic sector in general stigmatised those with mental health issues.**

Promotion in the STEM academic sector is based primarily on research output meaning that the selection of people for management positions is often not based on their management skills. Therefore, many people who manage EMCRs and other staff lack skills to manage situations in which employees are at risk, such as poor mental health. Furthermore, underqualified managers may be actively contributing to the poor mental health of their staff due to their lack of management skills. Employing organisations have a responsibility to provide adequate training to management level staff and to appropriately mandate or incentivise this training to ensure that all management staff take it up and all employees benefit from it.

One of the most important gaps addressing the issue of EMCRs mental health is the fact that a baseline has not been established. A similar lack of quantitative evidence in the area of gender equity was addressed through the SAGE Athena SWAN initiative²³. This initiative was implemented to assess and support higher education and research sector to engage in best practice equity programs. The SAGE initiative raised the awareness of gender equity and diversity issues in STEM sector as well as within the broader community.

Appendix: Outcomes of the survey to EMCR Forum members

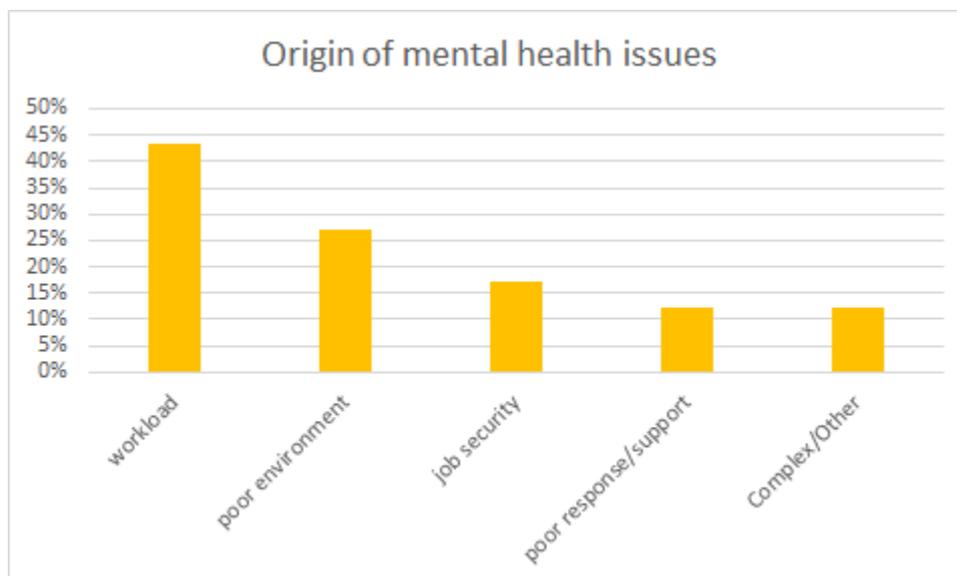
To prepare this submission, the EMCR Forum and ABA EMCR Network conducted a survey among its members. Five questions were posed, each targeting a different aspects of the Terms of Reference (with a focus on “questions on mentally healthy workplaces” of the issue paper) deemed to be of most relevance to EMCRs.

A total of 112 responses were received. Below, we summarise the major themes that emerged from the responses with respect to questions associated with “mentally healthy workplaces” as stated in the Issue paper.

Q1: Have you experienced a situation where mental health affected your work-related productivity or employment?

91% of the respondents reported that mental health issues have affected their work-related productivity. Over 60% of the responses mentioned feelings of depression, anxiety and stress. Fourteen responses explicitly stated bullying, eleven commented on job insecurity and three mentioned carer responsibilities. One in five respondents complained about burnout and excessive workload. Respondents reported that high workload, poor environment, job security, and inadequate responses or support were the major causes of poor mental health affecting work-related productivity.

Figure: Origin of mental health issues. Proportion of responses that implicitly identified the cause of mental health issues that has affected their productivity (total number of response = 81). As single response can identify more than one issue. The category ‘Complex/other’ includes carer responsibilities, family and other’s health, prior cause, and resilience.



Q2: Are you aware of any research, data/evidence, pilot programs etc. that attempt to address issues related to a mentally healthy science workplace? Please provide a link if available?

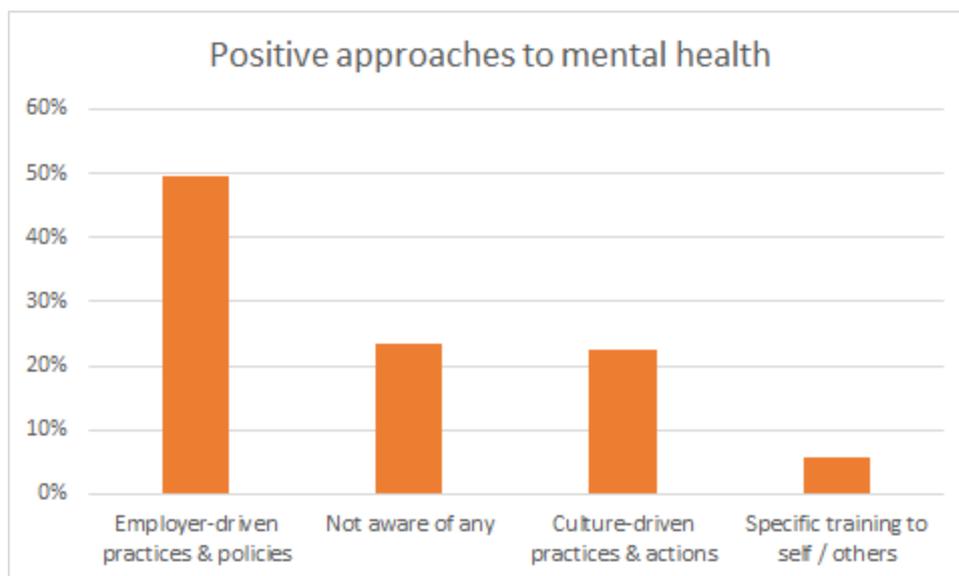
The general awareness of research, data/evidence aimed at addressing mental health in the science workplace is extremely low and the most likely reason for this is simply, that no such evidence

exists. Over 71% (67 out of 94) of the respondents indicated that they are not aware of any programs that were targeted at assessing mental health issues in the workplace. Two respondents mentioned mental health ‘first aid’ programs offered at their workplace and just five mentioned the Employee Assistance Program, which typically comprises a fixed number of visits to an employer specified counsellor/psychologist.

Some respondents identified national programs such as ‘R U OK day’ or HeadsUp from BeyondBlue, but there was nothing specific for the EMCR or science sector. Some respondents mentioned that some universities have introduced “wellness” programs such as mindfulness, yoga, etc. However these are not targeted mental wellness programs, rather they were part of general health and wellness initiatives that are increasingly popular at workplaces.

Q3: If applicable, briefly describe any effective practices/interventions for supporting mental health in a scientific workplace that you have experience or are aware of.

Figure: Positive approaches to mental health. Proportion of responses of practises to improve and/or address mental health issues in the scientific workplace (total number of response = 89). One response can identify more than one practice.



A majority of those who responded to this question were aware of programs that were being implemented or could be implemented to improve the mental well-being of EMCRs (77%). No comments were made about their effectiveness. The reason for high levels of stress and anxiety experienced by EMCRs was attributed to workplace practises and culture. Particularly, due to challenges arising from publications and securing fellowships and grants, the instability associated with short-term contracts, demanding work schedules and workplace bullying and harassment.

Counselling, flexible working hours, supervisor and peer support, mindfulness programs as well as mentoring were considered helpful in tackling mental health issues. Most of these were programs and policies that have been or need to be implemented by the employer. About 20% of the suggestions made by EMCRs were aimed at addressing workplace culture, including the need for a greater understanding regarding mental health among supervisors and peers, more open discussion around the subject, and a change in mindset regarding workloads.

Many organisations seemed to be aware of the need for enabling good mental health practices and have introduced mindfulness programs, provide counselling and access to the employer assistance program. However, the reported effectiveness of these programs varied between organisations. For example, some of those who responded said that counselling sessions were limited or difficult to access, while others had better access to counselling.

Q4: Do you have any ideas, or can you provide, examples of practical ways workplaces could support the mental health of EMCRs?

Respondents' suggestions to improve the STEM workplace require a change of workplace culture. Answers represented four groups:

- **Setting realistic workload and expectations:** EMCRs often take on responsibilities beyond their job descriptions. It is recommended that workplaces regularly check the workloads of EMCRs and set realistic and specific expectations. Working overtime should not be "glorified", it should be discouraged.
- **Reduce stigma and raise awareness about mental wellbeing:** Having regular discussions on the topic of mental health in the workplace would be helpful. Bullying and harassment need to be recognized as serious issues and effectively addressed, regardless of the "power" or "status" of the offenders. It should be acknowledged that not all staff can function in open-plan offices, transparent meeting rooms or constant open-door policies. Workplaces should provide staff their own space for quiet thinking and privacy to support productivity. Providing private meditating rooms can be an option.
- **Employers should provide targeted training and support:** The workplace should provide professional training, such as Mental Health First Aid courses, on how to recognise and respond to mental health issues and extend this to EMCRs. Such training is especially important for senior supervisors and managers, because they directly interact with EMCRs in a supervisory manner. The workplace should provide mental health support with privacy.
- **Enhance job security and diverse career pathways for EMCRs:** Short-term and casual contracts have become the norm in the academic sector, particularly for EMCRs. While it may be inevitable that some research positions are only for a short term (for example positions funded through an external project), the workplace can enhance the job security for EMCRs by providing training and resources that enable diverse career pathways for researchers. For example, the workplace should encourage and facilitate EMCRs to engage with the industry, and provide relevant training to enhance their skills in communication.

Q5: As an EMCR, do you have any other comments regarding the inquiry into the economic impacts of mental ill-health?

A total of 62 respondents commented on the direct and indirect costs of mental ill-health. Their responses fell into two categories: i) those related to the cost of poor mental health of EMCRs and ii) those that describe the economic factors that contribute to the development of poor mental health among EMCRs.

Similar to other industries, poor mental health among EMCRs manifest as lower productivity at work and increased absenteeism. Many EMCRs find their positions funded through government schemes and therefore one may conclude that their burnout and time off due to stress is a cost to

the taxpayer. The lost investment from the education and training of EMCRs is a cost for the individual, the taxpayer, and the future of science in Australia. Respondents also identified extensive personal costs associated with the management and recovery of mental ill-health, including the cost of seeking psychological and pharmaceutical treatments. Many EMCRs consider pursuing careers outside of traditional academia as a failure, despite the fact there are many more PhD graduates than faculty positions, and this has been the trend for years. This is an area that the EMCR Forum is working on, by highlighting the rewarding opportunities that non-academic workplaces can bring. Many respondents identified a need to change current culture to support the training of PhDs for “alternate” careers in government/industry/innovation, noting that this would require significant investment at the organisational and government level.

A lack of financial support for research funding and employment was identified as a major contributor to the toxic academic working culture. The “publish or perish” mentality results in EMCRs over working to remain competitive, leading to burnout, dissatisfaction, and mental ill-health. It was frequently suggested by respondents that if there was more financial investment into EMCRs, the incidence of mental ill-health would decline.

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