

# Researching the Researchers: Psychological Distress and Psychosocial Stressors According to Career Stage in Mental Health Researchers

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## Research Article

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# Abstract

## Background

Although there are many benefits and privileges associated with working in academia, this career path often involves a range of structural and organisational stressors that can be detrimental to wellbeing and increase susceptibility to mental ill health among academic staff and students. This exploratory study examines experiences of work-related stressors, psychological distress, and mental health diagnoses among mental health researchers. Differences in outcomes were compared across career stages including postgraduate students, research support staff, early-middle career researchers, and senior researchers.

## Methods

This international cross-sectional study involved 207 mental health researchers who were post-graduate students or employed in research institutes or university settings. Work-related psychosocial stressors were measured by the Copenhagen Psychosocial Questionnaire III (COPSOQ-III). Psychological distress was assessed using Depression-Anxiety-Stress Scale-21 (DASS-21). Thoughts of suicide was assessed using three questions adapted from the Patient Health Questionnaire-9 (PHQ-9). History of mental-health diagnoses was assessed through a custom questionnaire. Pearson's chi-square test of independence was used to compare mental health diagnoses and suicidal ideation across career stages (research support staff, students, early-middle career researchers, and senior researchers). Group comparisons of work-related psychosocial exposures and DASS-21 general distress and related sub-scores were conducted across career stages.

## Results

Differences in 'demands at work' and the 'work-life balance' domain were observed across career stages, with scores lowest among support staff ( $p=0.01$ ). In contrast, scores in 'social capital' and 'health and wellbeing domains' were highest among research support staff ( $P= 0.01$ ). Overall, 13.4% of respondents met the threshold for severe psychological distress, which was significantly higher in students compared to participants from other career stages ( $p=0.01$ ). Among the subgroup of participants who responded to the question on mental health diagnoses and suicidal ideation ( $n=152$ ), 54% reported a life-time mental health diagnosis and 23.7% reported suicidal ideation since academic career commencement.

## Conclusions

Despite working in the same environment, research support staff report experiencing significantly less psychosocial stressors compared to postgraduate students, early-middle career researchers and senior researchers. Future research that targets the modifiable stressors at each career stage could improve the overall mental health and wellbeing of mental health researchers.

# Introduction

The mental health of academic staff and students at higher education institutions (including universities) has become a prominent concern in the research community (1, 2). Although there are many benefits and privileges associated with working in academia including knowledge gain, personal fulfilment, flexibility, and comparatively high salaries at senior levels, this career path often involves a range of structural and organisational stressors that can compromise well-being and increase stress. Examples of academic-specific stressors include being regularly evaluated and 'benchmarked' based on output metrics, cyclical competition for funding (including salary support), job insecurity and uncertainty, and balancing multiple roles (teacher, mentor, researcher, writer, reviewer, manager, and administrator). These work commitments regularly interfere with personal life (3, 4).

In response to increased international scrutiny of the academic work culture, several reports have been produced (5–7). For example, a report published by Wellcome Trust in the United Kingdom (5) highlighted concerns about career uncertainty and longevity, including a culture of long working hours, and continually changing goalposts with overwhelming and unrealistic expectations on productivity. Furthermore, a third of participants (34%) described accessing support from a mental health professional for depression or anxiety since working in academia (5). This proportion was higher for females (38%) and non-binary respondents (66%), than males (25%). However, estimates of symptom prevalence and severity using clinical scales were not collected, and associations with modifiable work-related stressors require further investigation.

To date, much of what is known about the mental health and wellbeing of academics stems from studies conducted among graduate student populations. However, it is often unclear what proportion of these samples conduct research, with a more common focus involving applied study (e.g., medical training) that may not generalise to academics in research roles. Using the Generalized Anxiety Disorder Scale and Patient Health Questionnaire, Evans and colleagues (8) showed graduate research students were more than six times more likely to report experiencing anxiety or depression than the general population, with rates of 39% and 41% respectively scoring in the 'moderate' or 'severe' range. Furthermore, work-related factors such as poor work-life balance and poor mentoring relationships were revealed as being more common in those with a mental health disorder. Another study examined psychological distress using the General Health Questionnaire, as well as job satisfaction, in a large sample of Australian university staff and found that 43% of academic staff scored above the cut-off, indicating a possible mental health disorder (4). Together these findings suggest that the severity of mental health concerns among academics, relative to the general population, may be related to modifiable work-related stressors, but this has yet to be investigated across different career stages nor among mental health researchers specifically.

Though there is now a growing concern about the mental health of researchers, particularly in early stages of their careers, the majority of work to date has focussed on assessment of stress, environmental factors, or relied on non-clinical instruments to measure researchers' mental health (9). Consequently, the

burden of adverse mental health among mental health researchers has not been adequately studied, nor is it clear what modifiable work-related stressors affect mental health researchers at different stages of their career. Given the link between job stress on the prospective development of adverse mental health (e.g., depression and anxiety) and organisational productivity (e.g., sickness, absence rates, and workers compensation claims) (10), understanding the burden of adverse mental health, including suicidal ideation, and work-related stressors across different career stages has important implications for employees, as well as occupational health, safety regulators, insurers, unions and employers (11).

The current study was undertaken as part of the International Association for Suicide Prevention taskforce on emotional health and wellbeing. It is exploratory in nature, with the aim of investigating the work-related stressors experienced by mental health researchers, as well as the prevalence of adverse mental health and psychological distress in this population across career stages.

## **Material And Methods**

### ***Data and sampling***

This exploratory cross-sectional study used data from an online survey examining the association between work-related psychosocial stressors and general distress in an international sample of mental health researchers. The study was approved by the University of Melbourne Human Research Ethics Committee (ID 1954670). All methods were performed in accordance with the relevant guidelines and regulations and all participants provided informed consent. The survey was available between 28 October 2019 to 1 March 2020. Participants were recruited via a number of targeted strategies including the email distribution lists of universities and mental health organisations, together with advertisements on the social media platform, Twitter.

Eligible participants included those who were: (1) employed (full time, part time or casually) by a university or research institution (including research assistants, project managers, lecturers, and other academic staff), or; (2) enrolled as a postgraduate student (full-time or part-time Master's or PhD candidate), and; (3) the person's main field of research related to mental health (e.g., psychology, psychiatry, social work). The survey was formatted so that participants could not complete the survey more than once. Participation was anonymous and participants were not provided any incentive for taking part in the research.

A total of 357 participants provided consent, of whom 207 completed both the Copenhagen Psychosocial Questionnaire III (COPSOQ-III) and the Depression Anxiety and Stress Scale (DASS-21), representing 57.2% of the initial sample. Additional exploratory analyses were conducted on a subsample of 152 participants who answered questions about their history of mental health diagnoses.

### **Measures**

#### ***Sociodemographic and work-related characteristics***

Sociodemographic variables were assessed in a customised survey developed for the purpose of this study and included age, gender (male/female/other), relationship status (entered as a binary variable indicating the presence or absence of a relationship/spouse), dependents (e.g., children including biological and step-children; entered as binary variable representing the presence or absence of dependents), employment status (casual, full-time, part-time), type of work contract (fixed term/permanent) and clinical (e.g., registered psychologist or doctor) status (yes/no). Participants were classified according to their self-reported career stage. Participants who were employed as a research assistant or project officer were combined into a single category representing support staff. Participants who were enrolled in a Postgraduate degree (PhD or Master's degree) were categorised as students. Participants who were employed at postdoctoral level or as a lecturer, were categorised as EMCRs. Lastly, senior researchers were participants who were employed as associate professor or above.

### ***Work-related psychosocial stressors***

Work-related psychosocial exposures were assessed using the COPSOQ III (12). The COPSOQ III has been tested in over 14 countries worldwide (13). Questionnaire items were obtained from the COPSOQ III middle and core items (14). The questionnaire used in this study comprised 60 items, encompassing 25 psychosocial dimensions and five domains (Table 1). Each item is rated on a 5-point Likert scale. All items were transformed to a value ranging between zero (minimum value) to 100 (maximum value) with lower scores representing the lowest probable exposure (never/hardly ever) and 100 representing the highest probable exposure (always or to a very large extent). Mean values were summarised according to the five core domains established previously in a previous international validation study that showed acceptable to good reliability with a Cronbach  $\alpha > 0.7$  (12). No adaption was made for this study.

### ***General psychological distress***

General distress was assessed using the DASS-21, a self-report measures of depression, anxiety and stress. Participants were asked to score each item on a 4-point Likert scale from 0 (did not apply to me at all) to 3 (applied to me very much). Total scores were computed by adding each item and multiplying the score by a factor 2 (15). Total scores for the DASS-21 total range between zero and 120. Cut-off scores of 60 were labelled high distress (15). Good inter-rater reliability, test-retest reliability, and validity of the DASS-21 have been reported previously in both clinical and non-clinical populations (16-18).

### ***Diagnosed psychological disorder***

Self-reported history of diagnosed mental-ill health was assessed using two questions: (1) Prior to beginning your research career (including your PhD), have you ever been diagnosed with a psychological disorder? (2) Since beginning your research career (including your PhD), have you ever been diagnosed with a psychological disorder? Participants were provided with the response options 'yes', 'no', and 'I have not been diagnosed, but I probably could have been'.

### ***Suicidal ideation***

Suicidal ideation was assessed using three questions adapted from the Patient Health Questionnaire-9 (PHQ-9; 19). Participants were asked: (1) Over the past two weeks, how often have you been bothered by thoughts that you would be better off dead, or thoughts of hurting yourself in some way? Response options were: Not at all, more than half the days, nearly every day and several days. Items were collapsed into a binary variable representing the presence or absence of suicidal ideation for each item.

Additionally, participants were asked: (2) Over the past year, have you experienced thoughts that you would be better off dead, or thoughts of hurting yourself in some way? and (3) Since beginning your research career (including during your PhD), have you ever experienced thoughts that you would be better off dead, or thoughts of hurting yourself in some way? Participants responded 'yes' or 'no', indicating the presence or absence of suicidal ideation.

## **Analysis**

Descriptive analysis was conducted to determine the sociodemographic characteristics of the study participants and their history of mental health diagnoses, suicidal ideation, work-related psychosocial exposures and general distress. Pearson's chi-square test of independence was used to compare mental health diagnoses and suicidal ideation across career stages (research support staff, postgraduate students, EMCRs, and senior researchers). Group comparisons of work-related psychosocial exposures, DASS-21 general distress and related sub-scores were conducted using ANOVA. Multiple pairwise comparisons were performed using the Tukey post hoc test, stratified by career stage. All analyses were conducted in R v 4.0.3.

## **Results**

### ***Sociodemographic and employment characteristics***

Among the 357 participants who provided consent, 207 participants completed the full COPSOQ III survey and DASS 21; a completion rate of 57.2%. Participants were from Australia (63.7%), Europe (29.9%), North America (5.3%), and South East Asia (<1%). Most participants were female (82.1%) and over half (56.5%) were aged 18-34 years. Table 2 displays the sociodemographic and employment characteristics of participants according to career stage. The largest group of participants were postgraduate students (34.3%), followed by EMCRs (28.5%), senior researchers (20.3%), with research support staff constituting the smallest group (16.9%). One third (31%) of participants reported the presence of a mental health policy at their research institution, however relatively few had read the policy or were aware of its contents (15%).

### ***Work-related psychosocial exposures***

Table 3 shows the work-related psychosocial exposures according to career stage for the five work-related COPSOQ III domains (see Table 1). Differences between career stages were observed for the domains: 'demands at work', 'work-life balance (termed hereafter as work life balance) 'social capital' and 'health and wellbeing.' Tukey's post-hoc analysis revealed that the differences in the 'demands at work domain'

were driven by lower (i.e., better) scores among research support staff relative to other career stages ( $p < 0.001$  for postgraduate students, EMCRs and senior researchers, respectively). A similar trend was observed for the 'work-life balance domain ( $p < 0.001$  for postgraduate students;  $p = 0.002$  for EMCRs and  $p = 0.04$  for senior researchers). Differences in social capital were driven by higher scores among research support staff compared to senior researchers ( $p = 0.004$ ). Lastly, differences in health and wellbeing were driven by higher scores in research support staff compared to postgraduate students ( $p = 0.003$ ) and in senior researchers compared to students ( $p = 0.03$ ).

### ***Psychological distress***

Figures 1 to 3 show sub-scores for depression, anxiety, stress, and total psychological distress, stratified by career stage. Post hoc comparisons revealed postgraduate students reported experiencing significantly greater anxiety and stress, and total psychological distress compared to research support staff ( $p = 0.01$ ), EMCRs ( $p = 0.01$ ) and senior researchers ( $p = 0.01$ ; Table 4). A total of 27 (13.4%) participants reported DASS-21 scores  $\geq 60$ , indicating severe distress. Severe distress was most frequently reported among postgraduate students ( $n = 16$ ), followed by research support staff ( $n = 4$ ), EMCRs ( $n = 3$ ) and senior researchers ( $n = 4$ ). Fisher's exact test revealed these differences were statistically significant ( $p = 0.02$ ).

### ***History of mental health diagnoses and suicidal ideation***

Of the 152 participants who responded to the question on mental health diagnoses, over half (54.6%) had received a mental health diagnosis at some point during their lives and a further 46 (30.1%) reported a suspected mental health disorder (i.e., did not receive a diagnosis but thought they should have; Table 5). The proportion of participants who had a diagnosed mental health disorder prior to their academic career was over one-third (37.5%), while just under one-third (31.6%) of participants received a psychological diagnosis since commencing their academic career. Senior researchers were significantly less likely to report having received a mental health diagnoses prior to their career in academia, compared to research support staff, postgraduate students, and EMCRs. Of the 80 (52.0%) participants who reported suicidal ideation since embarking on their academic career, 36 (17.4%) reported experiencing suicidal ideation in the past fortnight and 69 (33.3%) reported experiencing suicidal ideation in the past year. All measures of suicidal ideation were comparable across career stages.

## **Discussion**

This study sought to identify the mental health and work-related stressors experienced by mental health researchers according to their career stage. In the present study, over half of participants had either received a mental health diagnosis in their lifetime or had a suspected mental health diagnosis, compared to approximately 18–36% reported in previous studies in the general population (20, 21). Moreover one-third of participants had received a mental health diagnosis since commencing their academic careers. Similarly, rates of suicidal ideation were reported among 52% of participants, compared to approximately 10% reported in a previous cross-sectional study of suicidal ideation in the

general population (22). Taken together, these findings suggest that many mental-health researchers have lived experience of mental-ill health themselves, and that the work-place environment remains an important setting for primary and secondary prevention of mental-ill health.

It is noteworthy that rates of mental health diagnoses and suicidal ideation were comparable across career stages for those in employment, however postgraduate students reported notably higher scores for psychological distress, as well as anxiety, depression, and stress sub-scores, compared to research support staff, EMCRs and senior researchers. Potential explanations include financial strains experienced by many postgraduate students, which may include the need to also engage in paid employment leading to multiple role commitments. Another possibility is that postgraduate students may face greater uncertainty regarding future employment. Indeed, previous studies have shown that although the number of PhD graduates from science, technology engineering and mathematics has increased substantially over the past 20-years (23), the number of post-graduate research positions has remained constant, resulting in fewer job prospects among recent graduates (24). Moreover, there is the possibility that certain fields of study may further increase an individual's likelihood to develop mental health problems. Similar to applied clinical professions (e.g., nurses and therapists), mental health researchers may experience increased risk of adverse mental health due to factors such as vicarious trauma that may arise from exposure to complex behavioural phenomena such as suicide (25).

The impact of mental ill-health in the workplace is well documented and includes adverse outcomes for the individual and organisation including productivity costs and absenteeism, accidents, and staff turnover (26, 27). In the present study, the finding that mental health researchers experience high rates of mental ill-health and suicidal ideation, suggests that embedding mental health, wellbeing, and suicide prevention programs within these workplace settings is warranted. Given that less than half of participants indicated having knowledge of a mental health and wellbeing policy or strategy at their place of employment, an important next-step forward for research institutions is to assess for the presence or absence of mental health and wellbeing policies within the workplace, and whether these are sufficiently implemented and/or accessible by researchers within the institution. This includes ensuring that mental health researchers have both access to and knowledge of mental health and wellbeing strategies that are available to them at their institution or place of employment (28) and having policies in place that facilitate employees return to work following an episode of mental-ill health (29). It is important that policies include proactive strategies to reduce stigmatizing attitudes and cultures of non-disclosure that have been shown to impact individuals help-seeking behaviours in the workplace (30).

It is noteworthy that senior researchers in this study were also significantly less likely to have received a mental health diagnosis prior to their career in academia compared to postgraduate students and EMCRs. On the one hand, it is possible that mental health researchers who stay in academia and transition to senior roles are those who are less likely to have a history of mental ill-health. It is also possible that students and EMCRs experience significant differences in career pressure and funding success decline that senior researchers did not experience, to the same extent. Nonetheless, results from the current study provide further evidence that emphasises the need for targeted support for postgraduate

students experiencing mental ill-health so as to increase their abilities to succeed in a subsequent academic career (31). Whilst evidence regarding the effectiveness of interventions targeting mental-ill health in the workforce is limited, previous studies have shown that screening employees for mental ill-health symptoms, proactive outreach, and providing opportunities for therapeutic counselling in the workplace, is both cost effective and associated with improved individual mental health outcomes and workplace productivity (32, 33). Furthermore, secondary interventions such as stress management, coping, resilience training, mindfulness-based stress reduction, problem solving, physical activity and cognitive behavioural therapy have been efficacious at increasing productivity and reducing distress in other occupational settings (34–38). However, it is critical that secondary interventions are complimented by primary interventions that address the specific work-related stressors faced by mental health researchers in academic settings (e.g., systemic changes that address stressors related to temporary contracts and funding shortages).

In the present study, the stressors experienced by mental health researchers fell into three primary categories, namely, those demands at work, work-life balance and social capital (horizontal/vertical trust, and organisational justice). It is noteworthy, that we did not observe significant differences in these factors among postgraduate students, EMCRs or senior researchers, however research support staff (research assistants and project managers) appeared less impacted by each of these domains, suggesting that despite working in the same research environment, the experiences of research support staff are qualitatively different to those faced by postgraduate students, EMCRs and senior researchers.

## Limitations

Limitations exist within this study. Firstly, participants were self-selected and did not represent a random sample, nor did we sample participants for maximum variation. As such, the significant proportion of mental health researchers who reported a mental health diagnosis at some point in their lives may be inflated by self-selection, as opposed to a true representation of mental health and wellbeing across the general population of mental health researchers. With regard to the analysis, missing data, particularly on suicide ideation outcomes, meant that it was not possible to investigate the association between mental health outcomes and work-related stressors such as job insecurity and suicidal ideation, which have been reported in previous workplace studies (39). Another key limitation of this type of research is that occupation-based surveys are known to return higher rates of distress than population surveys. This is considered to be a reflection of employees being consciously or unconsciously more inclined to vent their frustrations at their current work (40). However, Winefield, Gillespie (4) found evidence to suggest that respondents to a university-based survey on stress and psychological distress were neither more nor less likely to display bias in their response based on their current distress.

Lastly, data reported in the present study were collected prior to the onset of the COVID-19 pandemic. Factors such as social-distancing restrictions and the transition from office-based to home-based work environments have been linked to disruptions in productivity across disciplines (41). As such, it is likely that the psychosocial stressors experienced by mental health researchers, such as those involving the

work-life balance (characterised by work-life balance and work-family conflict) have increased as a result of COVID-19 restrictions. These effects may be particularly pronounced among specific groups, such as academics with young dependents (42, 43) as well as postgraduate students who may have experienced significant disruptions in their social support networks whilst working remotely during their studies. Moving forward, future research that examines the impact of the COVID-19 pandemic on the mental health of mental health researchers and academics, more generally, should be prioritised so that decision makers within research institutions can embed timely and appropriate primary and secondary harm minimization strategies, accordingly.

## **Conclusion**

Over half of mental-health researchers have experienced mental-ill health during their lives and this figure is greater than those reported in the general population and this warrants concerted efforts to validate these findings against larger, representative samples within academia.

Despite working in the same environment, research support staff experience significantly less psychosocial stressors compared to postgraduate students, early-middle career researchers and senior researchers. In contrast, students are significantly more likely to experience mental ill-health and suicidal ideation relative to mental health researchers at different career stages.

Future research that targets the modifiable stressors at each career stage, including the systemic issues that impact work-life balance has the potential to improve the overall mental health and wellbeing of mental health researchers and that these differences ought to be reflected in mental health and wellbeing policies within research institutions.

## **Declarations**

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### **Availability of data and materials**

De-identified aggregate data available from the corresponding author.

### **Authors contributions**

NTMH, EB, RB, GC, CW conceived of the research. CG and RB conceived the demographic questionnaire. NTMH, EB and CW were responsible for recruitment. NTMH conducted all data analysis. NTMH, EB, RB, GC, OK, SR, RP, JR, CCW contributed to the manuscript.

### **Ethics approval and consent to participate**

Human subjects' approval and all information was received by the University of Melbourne Human Research Ethics Committee for the key informant interviews (ID: 1954670). Written informed consent was collected from all participants. It was emphasized that participation was voluntary. Participants were informed that the information they gave in the survey would be published in anonymised form.

### **Consent for publication**

Not applicable.

### **Competing interests**

The authors declare no competing interests.

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## Tables

**Table 1.** COPSOQ III Questionnaire domains and dimensions

<b>Domains</b>	<b>Dimensions</b>
Demands at work	Emotional demands
	Demands for hiding emotions
	Quantitative demands
	Work pace
Work organization and job content	Influence at work
	Possibilities for development
	Control over working time
	Meaning of work
Interpersonal relations and leadership	Recognition
	Predictability
	Role conflicts
	Role clarity
	Illegitimate tasks
	Quality of leadership
	Social support from supervisor
	Social support from colleagues
	Sense of community at work
Work individual interface (work life balance)	Job insecurity
	Insecurity over working conditions
	Quality of work
	Job satisfaction
	Work life conflict
Social capital	Horizontal trust
	Vertical trust
	Organizational justice
General health	Self-rated health

**Table 2.** Sociodemographic and employment characteristics by career stage

	Total	Support staff	Student	EMCR <sup>a</sup>	Senior researcher	Chi Square
	N= 207	n= 35	n= 71	n= 59	n= 42	<i>P</i> value
		n (%)	n (%)	n (%)	n (%)	
<b>Gender</b>						
Male	35	7 (20.0%)	8 (11.3%)	7 (11.9%)	13 (31.0%)	0.05
Female	170	28 (80.0%)	61 (85.9%)	52 (88.1%)	29 (69.0%)	
Non-Binary	2	-	2 (2.8%)	-	-	
<b>Age range (years)</b>						
18-24	14	8 (22.9%)	8 (11.3%)	-	-	0.05
25-34	103	21 (60.0%)	51 (71.8%)	31 (52.5%)	-	
35-44	53	6 (17.1%)	7 (9.9%)	21 (35.6%)	17 (40.5%)	
45-54	24	-	3 (4.2%)	6 (10.2%)	15 (35.7%)	
55-64	12	-	2 (2.8%)	1 (1.7%)	9 (21.4%)	
65+	1	-	-	-	1 (2.4%)	
<b>Relationship status</b>						
Cohabiting	52	4 (11.4%)	24 (33.8%)	19 (32.2%)	5 (11.9%)	0.05
Divorced	2	-	-	-	2 (4.8%)	
Married	78	6 (17.1%)	13 (18.3%)	31 (52.5%)	28 (66.7%)	
Registered partnership	4	2 (5.7%)	2 (2.8%)	-	-	
Separated	2	-	1 (1.4%)	-	1 (2.4%)	
Single	69	23 (65.7%)	31 (43.7%)	9 (15.3%)	6 (14.3%)	
<b>Dependents</b>						

Yes	57	4 (11.4%)	9 (12.7%)	16 (27.1%)	28 (66.7%)	0.00
No	150	31 (88.6%)	62 (87.3%)	43 (72.9%)	14 (33.3%)	
<b>Clinical degree<sup>b</sup></b>						
Yes	45	3 (8.6%)	14 (19.7%)	15 (25.4%)	13 (31.0%)	0.10
No	157	32 (91.4%)	57 (80.3%)	45 (74.6%)	29 (79.0%)	
<b>Type of work contract</b>						
Permanent	46	3 (8.6%)	6 (8.5%)	16 (27.1%)	21 (50.0%)	0.00
Temporary/Fixed term	121	30 (88.6%)	30 (42.3%)	42 (71.2%)	19 (45.2%)	
Other	41	2 (5.7%)	36 (50.7%)	1 (1.7%)	2 (4.8%)	
<b>Employment status</b>						
Full time	156	26 (74.3%)	47 (66.2%)	48 (81.1)	35 (83.3%)	0.48
Part time	38	7 (20.0%)	17 (23.9%)	9 (15.3%)	5 (11.9%)	
Other	12	2 (5.7%)	6 (8.5%)	2 (3.4%)	2 (4.8%)	
<b>Mental health policy present</b>						
Yes	64	16 (45.7%)	15 (30.5%)	18 (30.5%)	15 (35.7%)	0.06
No	100	11 (31.4%)	37 (52.5%)	31 (52.5%)	21 (50.0%)	
Unsure	43	8 (22.9%)	19 (17.0%)	10 (17.0%)	6 (14.3%)	
<b>Participant has read the mental health policy<sup>c</sup></b>						
Yes	32	6 (37.5%)	7 (46.7%)	11 (61.1%)	8 (53.3%)	0.57
No	32	10 (62.5%)	8 (53.3%)	7 (38.9%)	7 (46.7%)	
<b>Thinks the mental health policy is adequate<sup>c</sup></b>						

Yes	20	3 (18.8%)	6 (40.0%)	8 (44.4%)	3 (20.0%)	0.48
No	10	2 (12.4%)	3 (20.0%)	3 (16.7%)	2 (13.3%)	
Unsure	34	11 (68.8%)	6 (40.0%)	7 (22.9%)	10 (66.7%)	

<sup>a</sup>EMCR= Early-middle career researcher; <sup>b</sup>Includes participants who are currently completing a clinical degree (e.g., medicine, psychology or similar); <sup>c</sup>Denominator is based on the number of participants who were aware of their organisation having a mental health policy.

**Table 3.** COPSOQ III Work-related psychosocial exposures by career stage

	Support staff		Student		EMCR <sup>a</sup>		Senior researcher		ANOVA
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	<i>P</i> value
Demands at work	41.55	16.54	53.00	17.38	52.82	13.92	54.32	9.77	0.006
Work organization and job content	71.65	12.75	73.89	16.70	73.89	11.86	75.18	9.36	0.719
Interpersonal relations and leadership	68.13	11.49	64.51	16.37	62.92	13.04	62.73	12.93	0.270
Work-life balance	40.00	11.14	49.87	11.07	48.23	10.78	48.43	10.44	<0.001
Social capital	66.19	16.22	57.75	23.08	56.14	16.49	51.19	17.46	0.008
Health and wellbeing	70.14	23.01	51.74	27.94	57.63	21.90	64.88	22.13	<0.001

<sup>a</sup>EMCR= Early-middle career researcher

**Table 4.** DASS-21 scores stratified by career stage

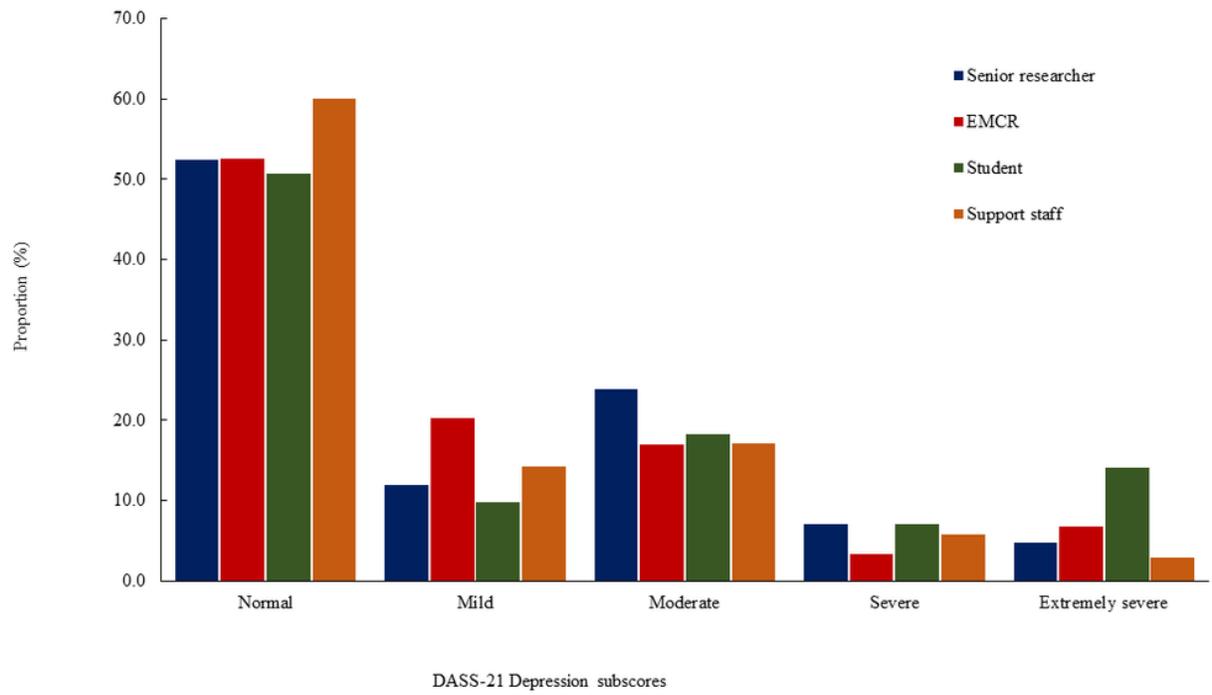
	Support staff		Student		EMCR <sup>a</sup>		Senior researcher		ANOVA
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	<i>P</i> value
Depression	8.80	7.70	12.72	11.98	9.32	8.75	10.00	8.75	0.128
Anxiety	7.03	6.35	10.37	11.15	5.49	6.34	4.62	5.35	<0.001
Stress	12.91	7.90	19.35	10.22	13.49	9.49	14.43	8.39	<0.001
Psychological Distress	28.74	18.46	42.48	29.75	28.31	20.13	29.05	18.21	0.001

**Table 5.** Mental health history and suicidal ideation by career stage

	<b>Total</b>	<b>Support staff</b>	<b>Student</b>	<b>EMCR</b>	<b>Senior researcher</b>	<b>Chi Square</b>
	N=152	(n=26)	(n=57)	(n=40)	(n=29)	<i>P</i> value
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	
Diagnosed mental health disorder (lifetime)	83 (54.6%)	16 (61.5%)	33 (57.9%)	23 (57.5%)	11 (37.9%)	0.138
Suspected mental health disorder (lifetime)	46 (30.3%)	6 (23.1%)	15 (26.3%)	15 (37.5%)	10 (34.5%)	
No diagnosed or suspected mental health disorder (lifetime)	23 (15.1%)	4 (15.4%)	9 (15.8%)	2 (5.0%)	8 (27.6%)	
Diagnosed mental health disorder prior to academic career	57 (37.5%)	14 (53.8%)	26 (45.6%)	14 (35.0%)	3 (10.3%)	0.008
Suspected mental health disorder prior to academic career	48 (31.6%)	6 (23.1%)	13 (22.8%)	17 (42.5%)	12 (41.4%)	
No diagnosed or suspected mental health disorder prior to academic career	47 (31.0%)	6 (23.1%)	18 (31.6%)	9 (22.5%)	14 (48.3%)	
Diagnosed mental health disorder since beginning academic career	48 (31.6%) <sup>b</sup>	7 (26.9%) <sup>c</sup>	16 (28.1%) <sup>d</sup>	16 (40.0%) <sup>e</sup>	9 (31.0%) <sup>f</sup>	0.478
Suspected mental health disorder since beginning academic career	50 (32.9%)	8 (30.8%)	18 (31.6%)	16 (40.0%)	8 (27.6%)	
No diagnosed or suspected mental health disorder since beginning academic career	54 (35.58%)	11 (32.3%)	23 (40.3%)	8 (20.0%)	12 (41.4%)	
Suicidal ideation (past 2-weeks)	36 (23.7%)	4 (15.4%)	16 (28.1%)	8 (20%)	8 (27.6%)	0.519
Suicidal ideation (past 12-months)	69 (45.4%)	13 (50%)	26 (45.6%)	15 (37.5%)	15 (51.7%)	0.631

<sup>a</sup>EMCR= Early-middle career researcher; <sup>b</sup> n=22 participants who reported mental health diagnoses both prior and since commencing their academic career; <sup>c</sup> n= 5 participants who reported MH diagnoses both prior and since commencing their academic career; <sup>d</sup> n= 9 participants who reported MH diagnoses both prior and since commencing their academic career; <sup>e</sup> n=7 participants who reported MH diagnoses prior and since commencing their academic career; n= 1 participant who reported MH diagnoses prior and since commencing their academic career.

# Figures



**Figure 1**

DASS-21 Depression subscores by career stage

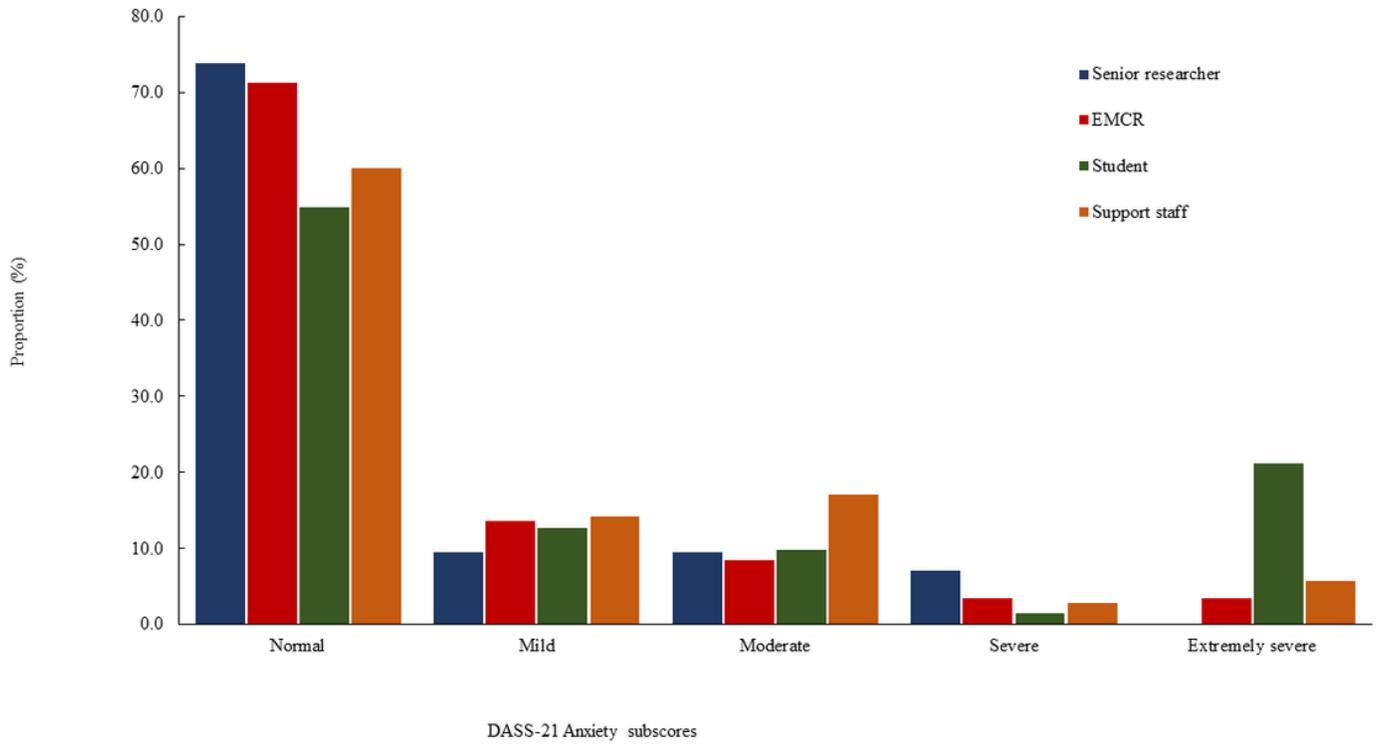
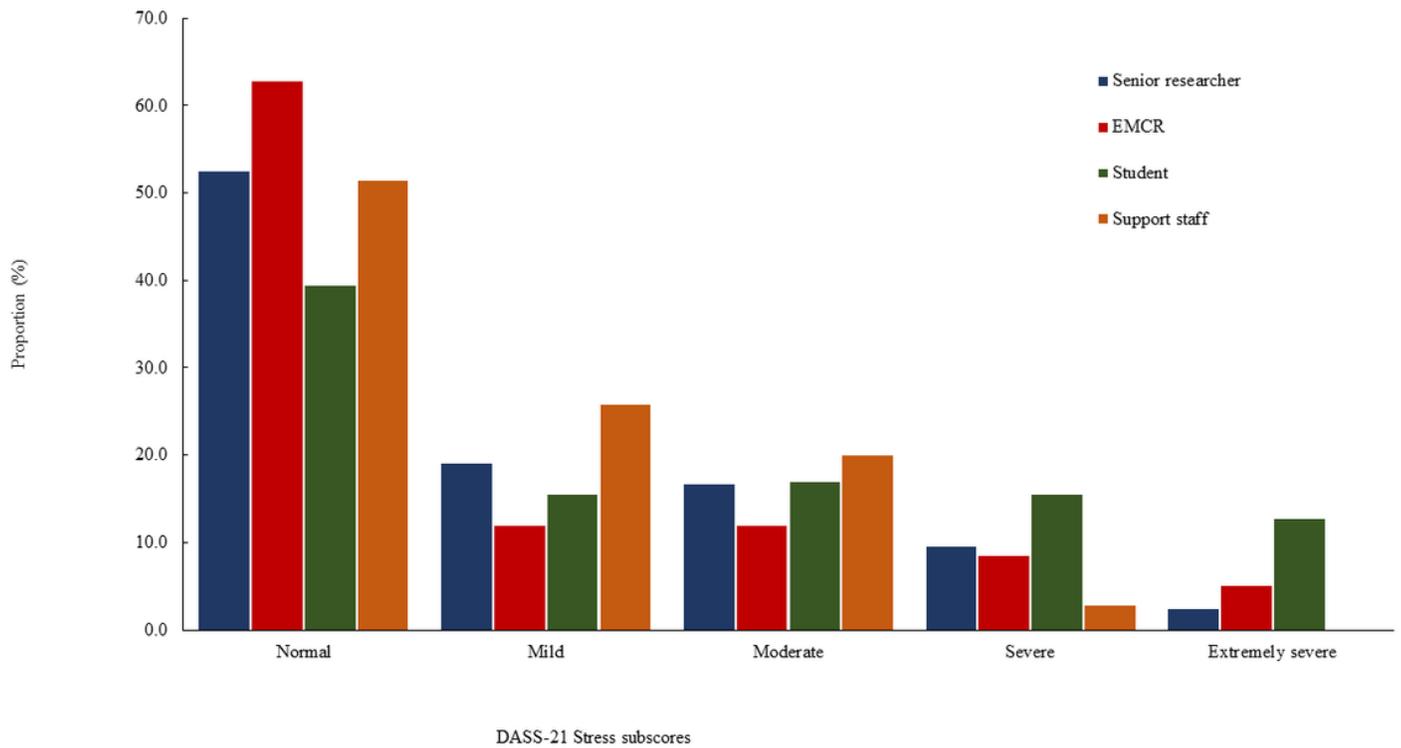


Figure 2

DASS-21 Anxiety subscores by career stage



### Figure 3

DASS-21 Stress subscores by career stage