

## Mental health of young researchers in academia: Towards to growth perspective

Dina Di Giacomo<sup>a,\*</sup>, Eleonora Cilli<sup>a,b</sup>, Jessica Ranieri<sup>a</sup>, Federica Guerra<sup>a,b</sup>,  
Alessandra Martelli<sup>c</sup>

<sup>a</sup> Dep. of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy

<sup>b</sup> Postgraduate School on Clinical Psychology, University of L'Aquila, L'Aquila, Italy

<sup>c</sup> University of Teramo, Teramo, Italy

### ARTICLE INFO

#### Keywords:

Mental health  
Early research careers  
Emotional regulation  
Stress  
Researcher skills

### ABSTRACT

**Objective:** Young Researchers are a strategic sector in the research community because of the future academic scholars. Recently, growing evidence suggests mental health of young generation of researchers has a significant impact on their wellness, as well the related research output and their future career development. This study aimed to contribute and exploit a conceptual framework self-determination theory tailored to the academic context considering the specifics and challenges of academia.

**Methods:** Participants were 134 young Early Career Academics (mean age = 30.6; SD = 4.38; range = 25–40 years) enrolled via institutional e-mail. Psychological assessment was conducted applying standardized tests evaluating depression, anxiety, stress, emotional regulation difficulties and grit trait.

**Results:** Our findings highlighted a general trend toward negative psychological dimensions in young researchers: PhD students and Research contracts showed signs of depression, anxiety and stress. More, they highlighted reduced positive outcomes in psychological dimensions, as well as lower ability to manage emotional experiences and then to be perseverant for long-term goals and motivation. The balancing among examined psychological dimensions represents the perspective for mental health actions towards to personal growth related to successful academia experience.

**Conclusions:** Policy changes, communication activities and health-promotion activities through the circulation of experience, sharing actions, and strategies could be the pillar for fostering healthy academics by raising awareness, implementing interventions, or engaging professionals concerning mental health in academia.

### 1. Introduction

Young Researchers are a strategic sector of the research community because they represent a scientific incubator for future academic scholars. So-called Early Career Researchers (ERCs), represents the transition of stage between the highest postgraduate degree based on experienced researcher (Doctor of Philosophy, PhD) and senior academic positions: in other words, the young generation of future scholars. Being ERC means to study and work into research community featured by many benefits and privileges associated with working in academia including knowledge gain, personal fulfillment, flexibility, and comparatively high salaries at senior levels; by the way, the path of ERCs often involves a range of structural and organisational stressors that may potentially compromise well-being and increase stress, as well being

regularly evaluated and 'benchmarked' against output metrics, cyclical competition for funding (including salary support), job insecurity and uncertainty, and balancing multiple roles (teacher, mentor, researcher, writer, reviewer, and manager) [1–4].

Recently, the research interests regarding the mental well-being and health of researchers and employees in academia has been increasing [5–7,27]. The evaluation of research productivity of researchers, faculty, academic qualifications, and experience for the purposes of recruitment, promotion, and research grant funding represents salient experiences that could be focused on emotional dynamics based on stress, psychological distress, anxiety, and depression [8]. A growing body of evidence suggests that relevant doctoral researchers work under elevated levels of stress and frustration, which significantly impacts their personal health and research output and their future career

\* Corresponding author.

E-mail address: [dina.digiaco@cc.univaq.it](mailto:dina.digiaco@cc.univaq.it) (D. Di Giacomo).

<https://doi.org/10.1016/j.pmp.2024.100116>

development [9–11]. Hill's et al. (2022) analysed the relation between the psychological distress, mental health and work-related psychosocial stressors experienced by mental health researchers according to their career stage and to identify the association between general psychological distress and work-related psychosocial stressors within the academic settings. Their finding highlighted postgraduate students showed higher psychological distress, as well as anxiety, depression, and stress sub-scores, compared to research support staff, and senior researchers [12]. Behind the challenge of research community for young generation, stress buffering for ERCs could be drawn by the conceptual framework of the self-determination theory (SDT) [13]. The overview of SDT paints the human behavior is self-motivated and self-determined, based on 3 basic psychological needs: a) autonomy (=sense of to have choices), b) relatedness (=sense of connectedness with others) and, c) competence (=sense of effectiveness); individual must satisfy all of them to achieve health and wellness [13–16]; the failure in the satisfaction of needs for autonomy, competence and relatedness will favor the diminished growth, integrity and wellness [17].

This study aimed to analyse the well-being and mental health within ECR to contribute and exploit the conceptual framework of SDT tailored to the academic community; scope of the study was investigating the psychological resource of ERCs analysing the individual strengths and weakness dealing with the challenges of academia for young generation.

## 2. Materials and methods

### 2.1. Ethical approval

This study was approved by the Institutional Review Board (IRB) of the University of L'Aquila (Code 44/2022). Signed informed consent, based on the Declaration of Helsinki [18] was mandatory.

### 2.2. Participants

Participants were 134 young Early Career Researchers (mean age = 30.6; SD = 4.38; range = 25–40 years) who were enrolled via institutional e-mail. A 94-item questionnaire was created using Survey Monkey and distributed between October and December 2022. The inclusion criteria were as follows: a) age range 25–40; b) being research community member: a) PhD Student; b) Researcher Contract (until 4 years from PdD degree) in academia; and c) written informed consent. Participation in this study was voluntary. Those who did not meet any of the inclusion criteria were excluded from participation using the gated question method.

### 2.3. Measures

The assessment was based on two parts: sociodemographic data and, psychological assessment.

### 2.4. Socio-demographic and individual characteristics

The socio-demographic characteristics of the participants, age, sex, civil status, academic roles (PhD student, Research Contract), scientific fields by European Research Council categorisation (ERC) (Life Sciences (LF), Physical & Engineering (PE), Social Humanities (SH)), and years of employment (>12 months, 12–24 months, 24–36 months, <36 months) were assessed using a socio-demographic form.

### 2.5. Psychological dimensions

The psychological battery consists of four standardised self-reports measuring mental traits (depression, anxiety, and stress), emotional difficulties and grit components. Each standardised test was applied using Italian population adaptation.

*Depression Anxiety Stress Scales 21* (DASS-21) [19] The DASS-21 is a

**Table 1**

Sociodemographic data of participants.

	Early Career Researchers (n = 134)
Age (years)	X30.6 SD ± 4.38 (min. = 25; max. = 40)
Gender: n (%)	
Female	72 (53.7 %)
Male	62 (46.3 %)
Academic Role: n (%)	
PhD Students	92 (68.7 %)
Research Contract	42 (31.3 %)
Marital status: n (%)	
Single	84 (62.7 %)
Engaged	44 (32.8 %)
Prefer not to say	6 (4.5 %)
ERC Scientific Field: n (%)	
Life Sciences (LS)	79 (59.0 %)
Physical & Engineering Sciences (PE)	38 (28.4 %)
Social Humanities and Sciences (SH)	17 (12.7 %)
Timing of Early Career: n (%)	
Short-term (>1 year)	54 (40.3 %)
Mid-term (until 4 years)	44 (32.8 %)
Long-term (<4 years)	36 (26.9 %)

self-report measure of the degree of severity of three emotional indices: depression, anxiety, and stress. It is composed of 21 questions with responses on a 4-point Likert-type scale.

*Difficulties in Emotion Regulation Scale-20* (DERS-20) [20] DERS-20 is a test to assess individual differences in the ability to identify, accept and manage emotional experience; the test is composed of n. 5 indexes: a) Non-acceptance, b) Goals, c) Impulse, d) Awareness, e) Strategies. Non-acceptance is an index that evaluates non-acceptance of emotional responses, better the tendency to experience negative secondary emotions in response to a negative emotion or to demonstrate a reaction of non-acceptance concerning one's discomfort; the Goals index detects the difficulties engaging in goal-directed behaviour, and it reflects difficulties in concentrating and performing a task when experiencing negative emotions; impulse index is oriented to impulse control difficulties, and detects the difficulty in maintaining control when one feels negative emotions; the awareness index is based on the lack of emotional awareness, and it identifies the tendency to pay attention to emotions and the relative ability to recognise them. Finally, the strategies index deals with limited access to emotion regulation strategies and reflects the belief that it is particularly difficult to regulate emotions once they have occurred. The score is obtained by standard scoring, with a higher score indicating greater difficulty in emotion regulation.

*Short Grit Scale* (Grit-S) [21]. It is a self-report questionnaire which measures trait-level perseverance and passion for achieving long-term goals. Each item is endorsed using a 5-point Likert-type scale, which provides a total score and two subscale scores: Perseverance of Effort and Consistency of Interest. These subscales evaluate interest in tasks, ability to respond to setbacks, consistency in distraction, engagement, ability to complete goals, and conscientiousness.

### 2.6. Procedure

Participants were enrolled via institutional e-mail by the Laboratory of Clinical Psychology (Head Prof. Dina Di Giacomo), Department of Clinical Medicine, Public Health, Life and Environmental Sciences (MeSVA), University of L'Aquila (IT). Combined demographic and career status questions have been detected. Additionally, participants were asked about their stress, anxiety, and emotional distress using validated measures (see Measures). Informed consent was obtained from all participants.

### 2.7. Study design

An observational study. Descriptive analyses and ANOVA/MANOVA statistical analyses have been conducted to draw the mental health

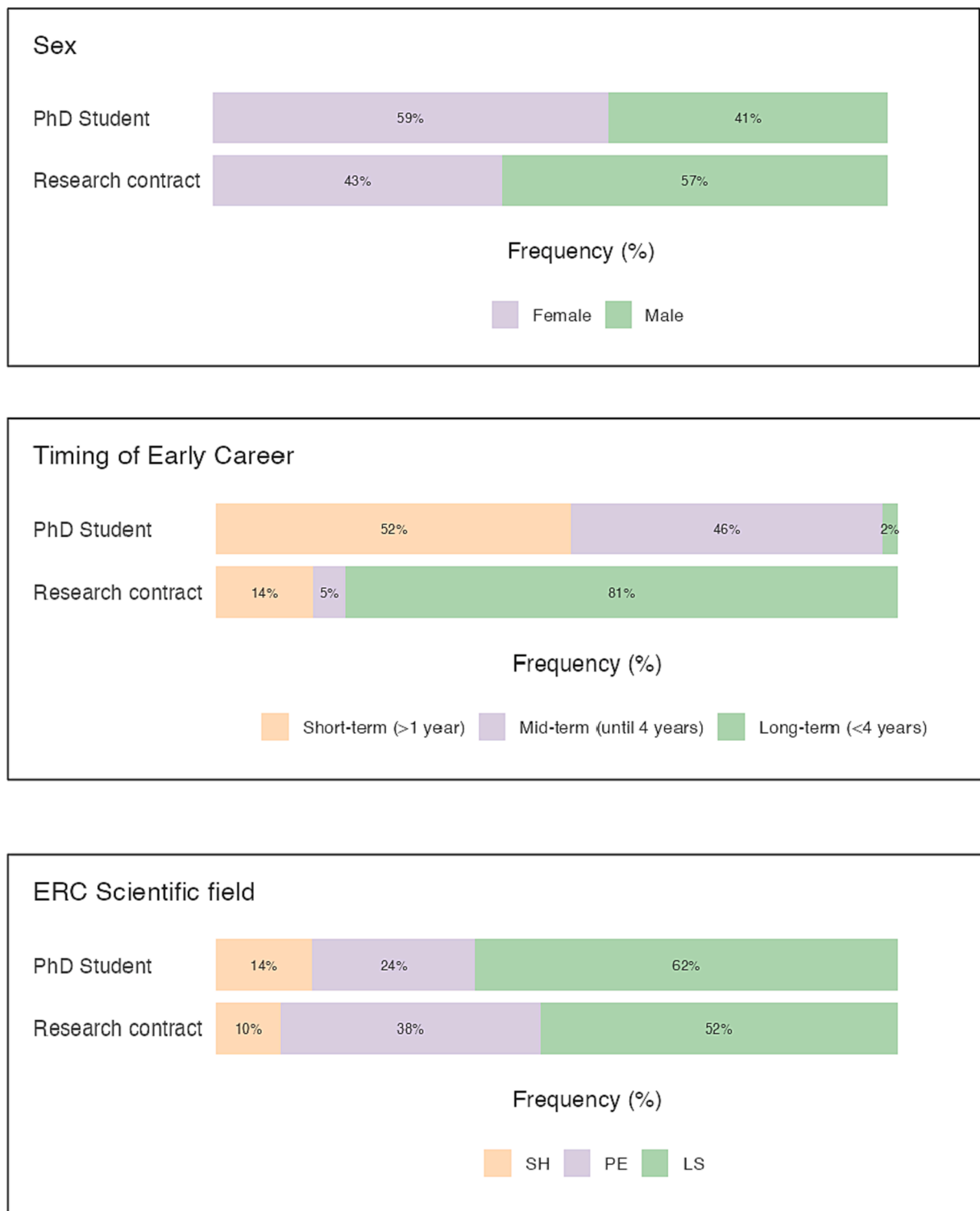


Fig. 1. Representation of distribution by sex, academic roles, timing of early career.

status of ERCs in Italian Accademia detected by standardized psychological tests. Then, Pearson correlation was conducted to explore the influence of psychological dimensions into mental health balancing. All statistical analyses were conducted using Jamovi software [22] and the  $\alpha$ -value was set as  $p \leq 0.05$ .

### 3. Results

Data were elaborated aggregated method and anonymously.

Statistical analyses were conducted to verify the significance in the performance of the target by n. 2 main labels: a) research position (PhD student; Researcher Contract) and, b) ERC scientific fields (LS: Life Sciences; SH: Social Science and Humanities; PE: Physical and Engineering Sciences).

Table 1 reports the sociodemographic data of the participants.

Fig. 1 shows the distribution of the sample by sex, ERC scientific fields and ECRs target.

The study sample comprised 134 participants distributed into two

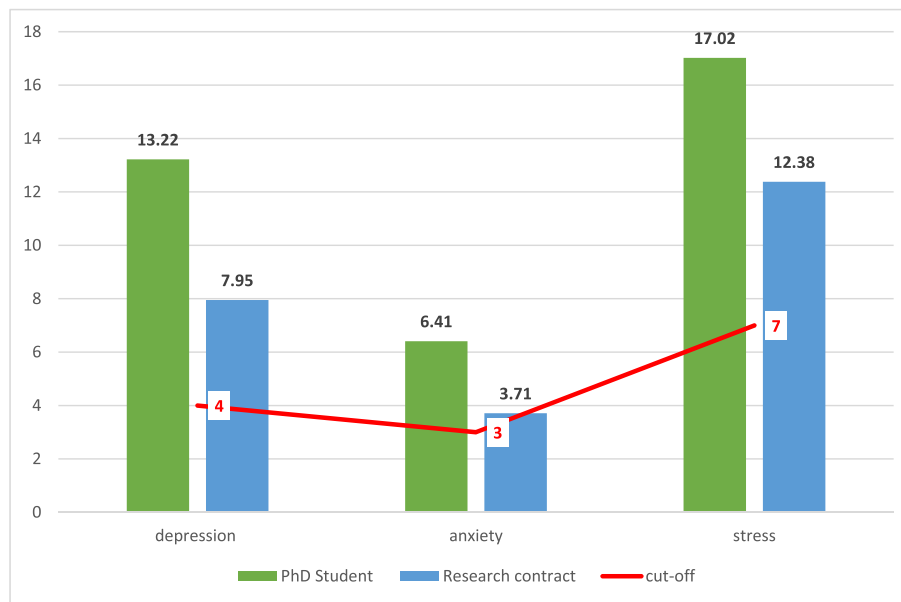


Fig. 2. Representation of Psychological dimensions of participants.

Table 2 Raw scores of psychological evaluations.

	Mean	SD	Shapiro-Wilk	
			W	p
<b>DASS-21 test</b>				
Depression	11.57	10.93	0.88	< 0.001
Anxiety	5.57	5.72	0.86	< 0.001
Stress	15.57	9.99	0.96	0.003
<b>DERS-20 test</b>				
Non-acceptance	10.23	5.28	0.88	< 0.001
Goals	10.72	4.71	0.93	< 0.001
Impulse	6.81	3.99	0.75	< 0.001
Strategies	6.34	2.87	0.89	< 0.001
Awareness	10.51	3.81	0.96	< 0.001
<b>GRIT-S test</b>				
Consistent of interest	3.67	0.87	0.92	< 0.001
Perseverance of Effort	3.70	0.73	0.96	0.003

ECR groups: PhD students (n = 92) and research contracts (n = 42). The distribution into two groups reflects the ongoing reduction of academic position and the changing for working applying (Fig. 2).

3.1. Psychological patterns

Participants were evaluated using standardised psychological tests focused on measuring a) emotional dimensions (depression, anxiety, and stress), b) the individual’s ability to identify, accept, and manage emotional experience, and c) the ability to maintain focus and interest,

Table 3 One-way ANOVA and post-hoc test for Academic role in DASS-21 variables.

	Academic Role	N	Mean	SD	SE	F	p	Post-hoc test p
Depression score	PhD Student	92	13.22	11.92	1.243	9.86	0.002	0.000***
	Research contract	42	7.95	7.29	1.125			
Anxiety score	PhD Student	92	6.41	5.99	0.625	8.10	0.005	0.005**
	Research contract	42	3.71	4.62	0.713			
Stress score	PhD Student	92	17.02	10.85	1.131	8.92	0.003	0.003**
	Research contract	42	12.38	6.90	1.065			

Note. \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

and persevere in obtaining long-term goals. Table 2 reports the mean values and standard deviations of the sample for standardised psychological testing.

First, we wanted to detect the emotional dimensions of early academic researchers; MANOVA (3 × 2 × 3) was conducted to compare the DASS-21 indexes (3: depression, anxiety, stress) to academic roles (2: PhD Student; Research contract) and ERC scientific fields (3: SH, LS, PE) (see Table 3).

The comparison of academic roles into three emotional dimensions emerged as significant (F(126,3) = 2.76; p = 0.04); there were no significant differences in the ERC scientific field and no interaction. The following one-way ANOVA (3 × 2) on emotional dimensions between academic roles showed that PhD students suffered from higher depression, anxiety, and stress than research contracts (see Table 3).

We then processed the data to analyse the ability to manage emotional experiences. Table 4 and Fig. 3 reports the statistical analysis results and graphical representation of performance in DERS.

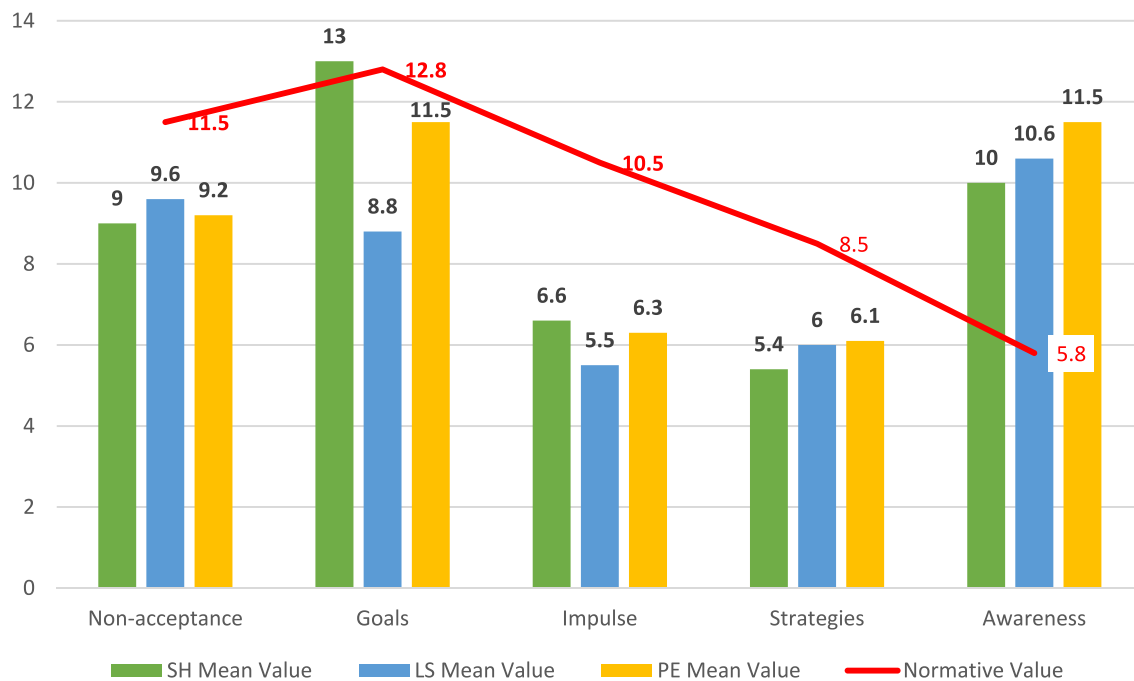
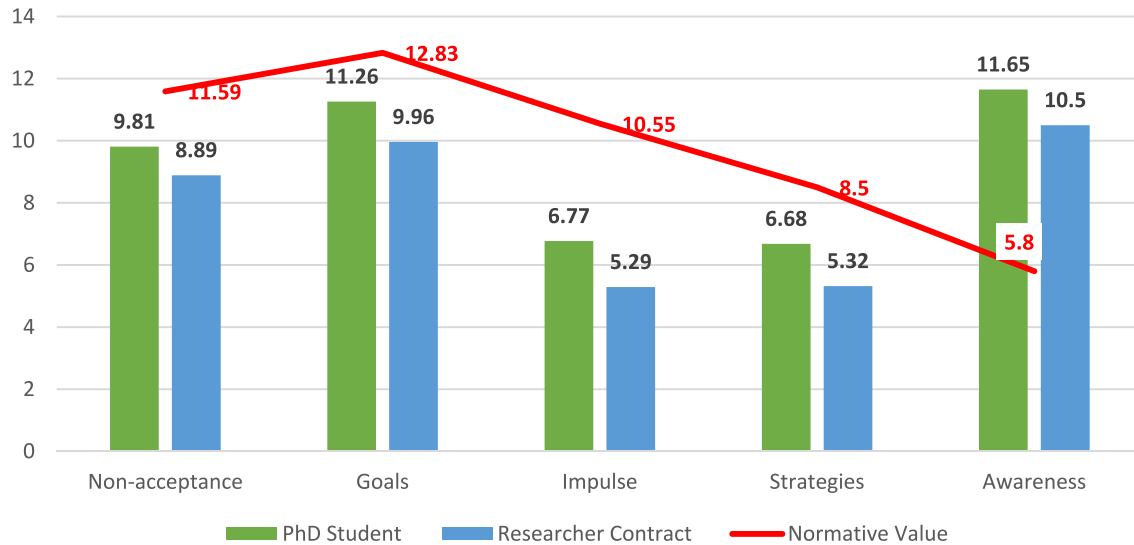
MANOVA (5 × 2 × 3) was conducted to compare the DERS indexes (5: Non-acceptance, Goals, Impulse, Awareness, Strategies) into academic roles (2: PhD Student; Research contract) and ERC scientific fields (3: SH, LS, PE). The comparison of academic roles into three emotional dimensions emerged as significant (F(126,3) = 2.76; p = 0.04); there were no significant differences in the ERC scientific fields and, no interaction. One-way ANOVA revealed higher difficulties in Goals and Impulse indexes for PhD students than for research contracts.

Then, we examined the ability to persevere goals for long-term. MANOVA 2 × 2 × 3 was conducted to compare the GRIT indexes (2: Perseverance of Effort, Consistency of Interest) into academic roles (2: PhD Student; Research contract) and ERC scientific field (3: SH, LS, PE); statistical analysis showed significant differences between academic

**Table 4**  
One-way ANOVA and Post-hoc test for Academic role in DERS variables.

	Academic Role	N	Mean	SD	F	p	Post-hoc p
Non-acceptance	PhD Student	92	10.57	5.28	1.173	0.28	0.28
	Research contract	42	9.50	5.29			
Goals	PhD Student	92	11.27	4.80	4.04	0.04*	0.04*
	Research contract	42	9.52	4.36			
Impulse	PhD Student	92	7.52	4.50	10.0	0.002*	0.002**
	Research contract	42	5.24	1.81			
Strategies	PhD Student	92	6.55	2.83	1.70	0.19	0.19
	Research contract	42	5.86	2.95			
Awareness	PhD Student	92	10.41	3.60	0.20	0.64	0.64
	Research contract	42	10.74	4.29			

Note. \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.



**Fig. 3.** Representation of performance of sample in DERS test.

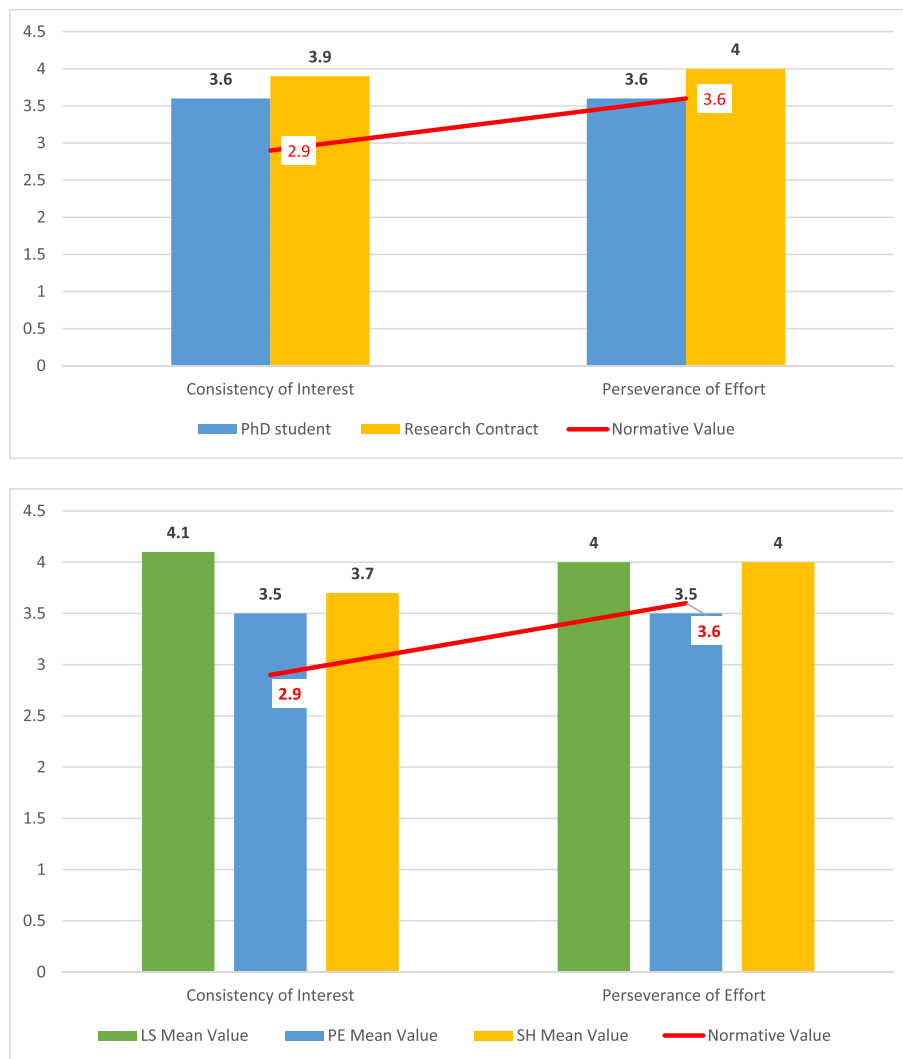


Fig. 4. Representation of GRIT performance by target and ERC scientific fields.

Table 5 One-way ANOVA and Post-hoc test for Academic role in GRIT variables.

	Academic Role	N	Mean	SD	F	p	Post-hoc p
Consistent of interest	PhD Student	92	3.58	0.929	4.66	0.03	0.05
	Research contract	42	3.89	0.690			
Perseverance of Effort	PhD Student	92	3.60	0.750	6.93	0.01	0.01*
	Research contract	42	3.93	0.656			

Note. \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

roles, no significant difference between ERC field, and no interaction. One-way ANOVA comparing GRIT indexes and academic roles highlighted lower persistence traits (p = 0.05) and lower consistency of interest (p = 0.01) in PhD Students than in research contracts (see Table 4; Fig. 4).

Finally, we analysed the influence among examined psychological indexes by Pearson correlation. Taking into account data on Table 5, the psychological indexes are significantly influenced positively or negatively by each other; Fig. 5 the Gaussian graphical model revealed the dynamics relationship of psychological dimensions.

4 Discussion and conclusions

Our study aimed to investigate the mental health of ERCs by analysing psychological dimensions, the ability to manage emotional experience, and the ability to be perseverant for long-term goals in personal growth for academic career. The focus of this study was to contribute to developing a conceptual framework of SDT tailored to the academic context by adoption of standardized tests (Table 6).

Firstly, general trend of finding evidenced negative psychological dimensions in ECRs: all target (PhD students and Research contracts) showed high level of depression, anxiety and stress, even PhD Students appeared higher impact than others, as well as lower ability to manage emotional experiences and then to be perseverant for long-term goals and motivation.

Our findings highlight that mental health in ECRs is a challenge that needs to be addressed in academia. According to the literature, ECRs can be affected by negative psychological dimensions [2,4,23]. More, starting preview study [24], our finding does matter the balancing of psychological dimensions as perspective for growth in research community pointing out the SDT framework. The self-determination could gain the growth in the academia career making young generation productive and efficient scholar preserving the mental health of ECRs; buffering effect could be addressing the knowledge gap in how academics manage their mental health and what interventions are effective for them enhancing the wellness. Furthermore, it could be fruitful setting the emphasis on connecting ERC scientific fields, enabling a person-centred approach to mental health in different academic contexts;

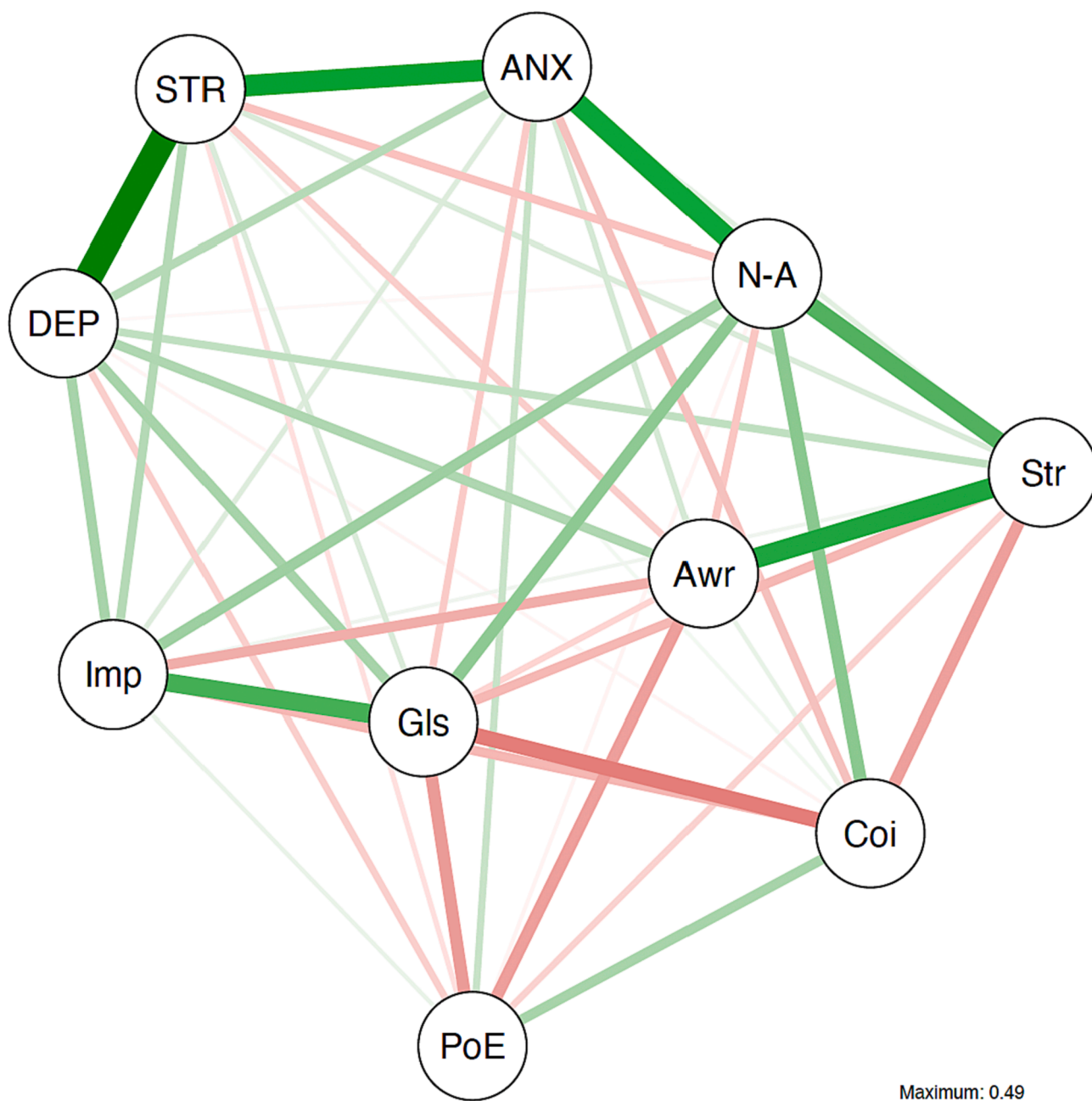


Fig. 5. Gaussian graphical model of correlational analysis. Legend: Imp = Impulse; Gls = Goals; Awr = Awareness; N-A = Non acceptance; Str = Strategies; Coi = Consistence of interest; PoE = Persistence of effort; DEP = Depression; ANX = Anxiety; STR = Stress.

Table 6  
Pearson correlation among psychological measures.

		N-AC	Goals	Impulse	Strategies	Awareness	COI	POE
COI	r	-0.1*81	-0.484***	-0.44***4	-0.334***	-0.072	—	—
	p-value	0.0362	3.16e0-9	7.81e0-8	7.88e-5	0.41001	—	—
POE	r	-0.203*	-0.388***	-0.279**	-0.327***	-0.25**2	0.361***	—
	p-value	0.0184	3.55e0-6	0.00111	1.14e-4	0.00330	1.84e-5	—
DEP	r	0.409***	0.537***	0.596***	0.467***	0.189*	-0.421***	-0.394***
	p-value	9.26e0-7	2.19e-11	3.22e-14	1.25e-8	0.02876	4.02e-7	2.47e-6
ANX	r	0.549***	0.383***	0.513***	0.451***	0.138	-0.355***	-0.235
	p-value	6.68e-12	4.88e0-6	2.23e-10	4.47e-8	0.11108	2.62e-5	0.00628
STR	r	0.391***	0.499***	0.588***	0.419***	0.091	-0.393***	-0.338***
	p-value	3.01e0-6	8.71e-10	8.32e-14	4.73e-7	0.29376	2.62e-6	6.59e-5

Legend: COI = Consistence of Interest; POE = Persistence of effort; N-AC = non acceptance; DEP = Depression; ANX = Anxiety; STR = Stress.

buffering actions should be based on a) sharing difficulties faced by young generation into academia; b) gathering new solutions to mental health concerns in academia; c) creating networking around well-being of academics using change management models that are evidenced to facilitate systemic change,

Considering the literature, our study oriented to contribute to provide a conceptual framework into explain and exploit the the management and self-regulation of emotions toward to self-determination and, up to personal growth of ECRs. Findings showed the need for PhD students to improve their commitment to higher-order goals: behavioural change could positively impact the well-being of the young and, at the same time, enhance the cumulative achievements of the individual for scientific productivity.

These findings have major implications for addressing the mental health needs of ECRs drawing policy decision for better academia perspective for young generation of scholars. Emotional balancing in the research context represents a challenge for academia: reinforcing young talent means identifying and triaging those at high risk for mental health disorders to activate coping strategies and arrange tailored training [25]. Outreach efforts for ECR mental health are needed to maintain talented scholars in academic settings and toward to that relevant actions should be acted to reinforce the wellness of young researcher generation by enhanced personal perspective.

This study has several limitations. First, the low response rate of this non-random sample resulted in a highly skewed study population, with more females than males responding. As the goal of the screening was to identify and triage at-risk ECR, the participants might have represented young people with more severe mental health needs. Second, the study's sample size could be improved, and more sophisticated analyses could be conducted, greatly limiting the generalisability of the study's findings.

#### CRedit authorship contribution statement

**Dina Di Giacomo:** Conceptualization, Visualization, Writing – review & editing. **Eleonora Cilli:** Data curation. **Jessica Ranieri:** Formal analysis. **Federica Guerra:** Data curation. **Alessandra Martelli:** Investigation.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### References

- [1] Roach M, Sauermann H. The declining interest in an academic career. Rosenbloom JL, editor. PLoS ONE. 2017 Sep 18;12(9):e0184130.
- [2] Sang K, Powell A, Finkel R, Richards J. 'Being an academic is not a 9–5 job': long working hours and the 'ideal worker' in UK academia. *Labour Ind* 2015;25(3): 235–49.
- [3] Ahmed D. From curiosity to contribution: reflections of a junior researcher on his journey into mental health research in Iraq. *GPA* 2023;6(1):1–5.
- [4] Kinman G. Work stressors, health and sense of coherence in UK academic employees. *Educ Psychol* 2008;28(7):823–35.
- [5] McDowell GS, Gunsalus KTW, MacKellar DC, Mazzilli SA, Pai VP, Goodwin PR, et al. Shaping the future of research: a perspective from junior scientists. *F1000Res* 2014;28(3):291.
- [6] Moran H, Karlin L, Lauchlan E, Rappaport SJ, Bleasdale B, Wild L, et al. Understanding research culture: What researchers think about the culture they work in. *Wellcome Open Res* 2020;26(5):201.
- [7] Petersen AM, Riccaboni M, Stanley HE, Pammolli F. Persistence and uncertainty in the academic career. *Proc Natl Acad Sci USA* 2012 Apr 3;109(14):5213–8.
- [8] Kumar N, Gupta R, Gupta S. Research and academic output evaluation for career initiation or progression: Critical issues for Health Professionals. *Med Teach* 2022; 44(10):1179–81.
- [9] Fisher JJ, James JL. Know the game: Insights to help early career researchers successfully navigate academia. *Placenta* 2022;125:78–83.
- [10] Kismihók G, Cahill B, Gauthier S, Metcalfe J, Mol ST, McCashin D, et al. Researcher Mental Health and Well-being Manifesto. 2021 Dec 17 [cited 2023 Mar 8]; Available from: <https://zenodo.org/record/5788557>.
- [11] Woolston C. Postdocs under pressure: 'Can I even do this any more?'. *Nature* 2020; 587(7835):689–92.
- [12] Hill NTM, Bailey E, Benson R, Cully G, Kirtley OJ, Purcell R, et al. Researching the researchers: psychological distress and psychosocial stressors according to career stage in mental health researchers. *BMC Psychol* 2022;10(1):19.
- [13] Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol* 2000;55(1):68–78.
- [14] Deci EL, Ryan RM. Intrinsic Motivation and Self-Determination in Human Behavior [Internet]. Boston, MA: Springer US; 1985 [cited 2024 Jan 2]. Available from: <http://link.springer.com/10.1007/978-1-4899-2271-7>.
- [15] Gagné M, editor. The Oxford Handbook of Work Engagement, Motivation, and Self-Determination Theory [Internet]. Oxford University Press; 2014 [cited 2024 Jan 2]. Available from: <https://academic.oup.com/edited-volume/28208>.
- [16] Ryan RM, Deci EL, editors. Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness [Internet]. Guilford Press; 2017 [cited 2024 Jan 2]. Available from: [https://www.google.com/books/edition/Self-Determination\\_Theory/th5rDwAAQBAJ?hl=en&gbpv=1&dq=inauthor:%22Richard+M.+Ryan%22](https://www.google.com/books/edition/Self-Determination_Theory/th5rDwAAQBAJ?hl=en&gbpv=1&dq=inauthor:%22Richard+M.+Ryan%22).
- [17] Ryan RM, Deci EL. Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemp Educ Psychol* 2020;61:101860.
- [18] World Medical Association. WMA DECLARATION OF HELSINKI [Internet]. 2008. Available from: <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>.
- [19] Bottesi G, Ghisi M, Altoè G, Conforti E, Melli G, Sica C. The Italian version of the Depression Anxiety Stress Scales-21: Factor structure and psychometric properties on community and clinical samples. *Compr Psychiatry* 2015;60:170–81.
- [20] Lausi G, Quagliari A, Burrai J, Mari E, Giannini AM. Development of the DERS-20 among the Italian population: a study for a short form of the Difficulties in Emotion Regulation Scale. *Mediterranean Journal of Clinical Psychology*. 2020 Aug 13;Vol 8:No 2 (2020).
- [21] Sullà F, Renati R, Bonfiglio S, Rollo D. Italian students and the Grit-S : A self-report questionnaire for measuring perseverance and passion for long-term goals. In: 2018 IEEE International Symposium on Medical Measurements and Applications (MeMeA) [Internet]. Rome, Italy: IEEE; 2018 [cited 2023 Jan 3]. p. 1–5. Available from: <https://ieeexplore.ieee.org/document/8438668/>.
- [22] Vitae. Wellbeing and mental health lens on the Vitae Researcher Development Framework (RDF) [Internet]. Available from: <https://www.vitae.ac.uk/vitae-publications/rdf-related/wellbeing-and-mental-health-lens/view>.
- [23] Cilli E, Ranieri J, Guerra F, Di Giacomo D. Early career researchers and mental health: Observational study of challenge and wellbeing. *Health Science Reports* 2023;6(11):e1649.
- [24] Susan Guthrie, Hofman AK Joanna, Lichten. Understanding mental health in the research environment A Rapid Evidence Assessment [Internet]. Available from: [https://www.rand.org/pubs/research\\_reports/RR2022.html](https://www.rand.org/pubs/research_reports/RR2022.html).
- [25] Gloria CT, Steinhardt MA. Relationships among positive emotions, coping, resilience and mental health: Positive emotions. *Resilience Health Stress Health* 2016;32(2):145–56.
- [27] Kismihók G, Cahill B, Gauthier S, Metcalfe J, Mol ST, McCashin D, et al. Italian Translation of Researcher Mental Health and Well-being Manifesto - Manifesto per la salute mentale e il benessere dei ricercatori [Internet]. Zenodo; 2022 Nov [cited 2023 Mar 8]. Available from: <https://zenodo.org/record/7345733>.