The experiences of those who support researchers struggling with their mental health

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The content of this report will broadly and briefly mention mental health difficulties (e.g. suicidal thoughts, self-harm) that could be caused by difficult events (e.g. bullying, sexual harassment). If you feel distressed or unsettled as a result, please do not hesitate to contact the following resources: the Samaritans can be contacted on 116 123 (UK number, 24/7) or by email at jo@samaritans.org; in the US, the National Suicide Prevention Lifeline is 1-800-273-8255 and in Australia the crisis service Lifeline is 13 11 14. Please visit www.befrienders.org to find other international helplines. A list of resources for those in supporting roles can be found at the end of this report.

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Executive summary

This report presents the results of a 2019 survey which **captured the voices of those in the academic community who support researchers struggling with their mental health**. As concerns about academic mental health are growing, these relationships are emerging as a potential lifeline for certain individuals, yet they remain poorly understood.

The final dataset comprises **1889 respondents**, over two-thirds of whom worked in the life and biomedical sciences. Individuals who identify as women or as a minority make up a large portion of our sample. **Over 80% of respondents had provided support** to someone who needed help, with over half having helped between two and five individuals.

Peer-to-peer support made up a large portion of supporting relationships for PhD students and postdoctoral researchers (postdocs), while faculty tends to help these two populations. Support for group leaders is rare. At the time of support, most supporters were **struggling with their own mental health** and were helping more than one person. Many have also faced situations where they could **not provide help**, often because of lack of knowledge or their own mental health.

Supporters proactively identified individuals who needed help, and they gave **emotional support** as well as advice, practical help, presence during a crisis and advocacy. As far as supporters were aware, the individuals they supported were dealing with a range of issues that included depression, anxiety, substance abuse, eating disorders and suicidal ideation. The vast majority of respondents believe the mental health problems of the people they supported were linked to **structural problems within academia**.

Most supporters **feel positively about providing help**, but they also find their role to be **emotionally draining**, **time-consuming**, and something they think about outside of work. A majority reports needing both **emotional support and practical advice**, which they find mainly in their personal sphere, and partly with colleagues: a fifth failed to receive the emotional support they wished for at the time of support. The vast majority of supporters **feel poorly valued and supported by their institution** in their supporting role, with training and tailored professional advice particularly lacking.

Gender and career stages have an impact on the supporting experience. Compared to men, **women in supporting roles** are more likely to **struggle with their own mental health**, to be **helping more than one person at the same time**, and to feel their supporting role was stressful, impacted their work or was time-consuming. **Early-career group leaders** also experienced additional problems and are in need of resources.

While restricted by built-in limitations, this survey underlines the complex work supporters do, as well as **institutional gaps in training, recognition and support for these individuals**. It also suggests that this invisible workload is more challenging for certain groups. We hope these findings can shed light on the **experiences and needs of supporters**, inform further research, and help organisations to **design interventions** for individuals who help others. The implication of this work is further discussed in an [eLife feature article](#).

Background

Mental health problems occur at much higher rates than in comparable groups and the general population (Evans et al., 2018; Hyun et al., 2006; Levecque et al., 2017; The Graduate Assembly, 2014). While PhD students are particularly vulnerable, research staff also experience high levels of stress and mental health conditions (Shaw, 2014; Acton et al., 2019; Guthrie et al., 2018).

In this context, the quality of the **advisory relationship** between group leaders and PhD students has a decisive impact on the mental health of students (Evans et al., 2018; Levecque et al., 2017; Peluso et al., 2011), but in practice, **few group leaders are trained to be in management positions** (Van Noorden, 2018). Support from **technicians** and postdocs is also emerging as key for PhD students, both emotionally and academically (Technician Commitment Collaborative Team, 2019; Feldon et al., 2019). **Peers** can also act as the first point of call for PhD students or staff who struggle, and individuals with stronger support networks tend to fare better emotionally (Barreira et al., 2018; Gillespie et al., 2001).

Despite the importance and diversity of supporting relationships in academia, **little is known about the experiences of those who give support to researchers struggling with their mental health**. However, a qualitative investigation of lecturers supporting undergraduate students suggests that these relationships can come with challenges (Hughes et al., 2016).

The goal of this survey was to therefore **capture the profiles and experiences** of individuals who have supported (and not supported) researchers with mental health issues. We wanted to better understand who they are, who they supported, what they did, how this role impacted them, what support and resources they needed, and how prepared they felt for this experience.

This work is part of a **[collection of articles on mental health in academia](#)**, which was curated by eLife, an open access journal in the life sciences. The collection encompasses a series of interviews with individuals (technicians representatives, lab managers, postdocs, principal investigators) who support researchers with mental health difficulties: these lived experiences were paired with previous, qualitative work on the experiences of academic staff supporting undergraduate students (Hughes et al., 2016) to inform the design of the survey.

Summary of methods

This work is a collaboration between eLife (an open access journal in the life sciences) and Dr Lucy Cheke, lecturer and member of the Wellbeing Equality and Diversity Committee at the Department of Psychology, University of Cambridge. It received ethical approval from the University of Cambridge (2018-19/35). An in-depth description of the methods, including recruitment approaches, statistical tests and limitations of this work, is provided at the end of this report.

The survey targeted individuals who knew, and potentially supported, people who conduct research while facing mental health issues. In order to hear from a range of individuals with various experiences, the definition of what constituted support was kept broad ("any action – such as actively listening, giving advice, providing practical help etc. – taken with a desire to help [an individual who experiences mental health issues]"). The survey was advertised through eLife's communication channels (social media, emails, newsletters) in late 2019, and was anonymous.

Out of the 2,422 volunteers who started the survey, 1,945 (80.3%) progressed to its final page and were kept for analysis – as per the information sheet, leaving the survey early was considered a withdrawal of consent. In addition, 56 people were removed during data cleaning, resulting in a final dataset of 1,889 respondents. If these individuals had provided support, the survey captured their latest supporting experience. As participants were able to skip any question they did not wish to answer, the number of respondents differs between questions.

Analyses mostly constitute of descriptive statistics, but also examine the influence of two main factors: the gender respondents identified with, and their academic career stage – PhD, postdocs, early-career group leaders (less than five years of experience), mid-career group leaders (five to ten years) and late-career group leaders (more than ten years).

The survey questions can be found here.

Section 1

Profile of all respondents

The following section describes characteristics of all respondents – both those who have and have not provided support. Overall, at the time they took the survey, **23.8% of respondents were PhD students, 27.9% postdocs, 28.3% group leaders**, 3.3% technicians or other lab staff, 2.4% a non-academic staff member and 3.6% Masters students: only 3.68% were not in academia.

Of the group leaders, 44% (or 12.0% of all respondents) had been in their position for less than five years, 22% (6.8% of all) for between five and ten years, and 33% (9.5% of all) for more than ten years (N=1,875). With regard to age, 48.7% of respondents are in the 18–24 age group, 48.7% are between 25 and 34 years old, 30.2% are between 35 and 44, 9.2% are between 45 and 54, 4.3% are between 55 and 64, and 1.2% are over 65 (N=1,808).

Most respondents belong to the **life science and biomedical fields** (69.3%; N=1,692), which is probably a reflection of the channels that were used to advertise the survey. The second biggest group of respondents (9.0%) work in the humanities.

Most respondents (61.8%; N=1,882) identify as **women**, 35.9% identify as men, 1.3% as nonbinary, genderfluid or two-spirit, and the remainder (less than 1%) preferred not to say. About a third (32.0%; N=1,803) also identify as a minority because of ethnicity (18.3%), sexual orientation (9.0%), disability status (4.2%) or socioeconomic background (7.8%).

The majority of respondents report finding their research environment to be **competitive** (57.6% strongly agree, 27.8% somewhat agree; Graph 1.1; N=1,881; NA means 'Not applicable'), and their research culture to be **toxic** (29.2% strongly agree, 29.7% somewhat agree; Graph 1.2; N=1,880). Over two-thirds of those who agree that their environment is competitive also report that the culture they are in is toxic.

My research environment is very competitive
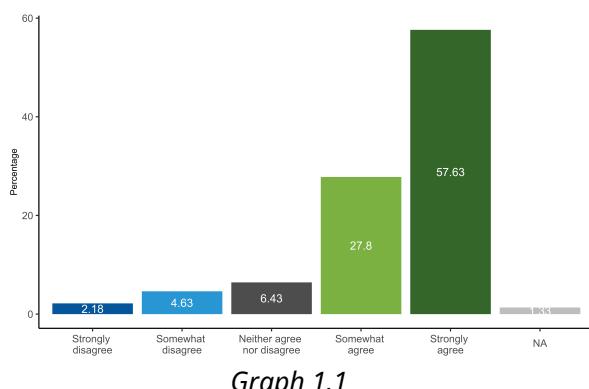
Graph 1.1

There is a toxic research culture in my research environment
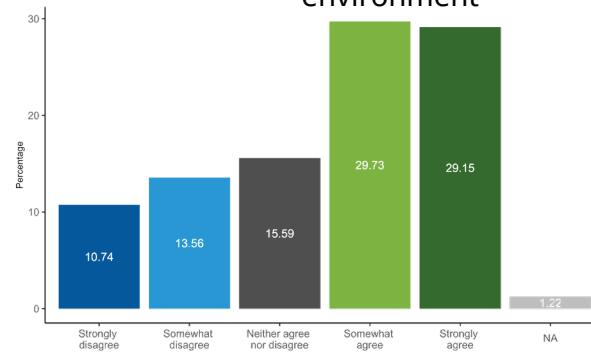
Graph 1.2

Most respondents agree that they have gone through times in their life when their **mental health was poor** (62.8% strongly agree, 21.2% somewhat agree; N=1,881), and most feel they have a **good understanding of mental health issues** (29.6% strongly agree, 44.1% somewhat agree; N=1,881). Women are 1.75 times more likely (factorial logistic regression; confidence interval (CI): 1.43-2.13) to have personally experienced mental health problems (Kruskal-Wallis, X^2 (1, N=1,676) = 30.62, p<0.001), and 1.65 times more likely (CI: 1.37-1.98) to feel they have a good understanding of mental health (Kruskal-Wallis, X^2 (1, N=1,685) = 28.13, p<0.001). Career stage also has a significant effect on these variables (personal experience: Kruskal-Wallis, X^2 (4, N=1,488) = 114.25, p<0.001); understanding: Kruskal-Wallis, X^2 (4, N=1,495) = 9.79, p<0.001).

Supporting experiences

Description of supporters in our sample

Most respondents (80.9%; N=1,888) have extensive **experience with providing support** to researchers going through mental health issues, with the majority having supported between two and five individuals, and 14.7% more than five (Graph 2.1.1; PNTA means 'prefer not to answer'). The term 'supporters' henceforth refers to individuals who indicate having supported at least one person, and who therefore progressed to questions where they described their supporting experience.

Amongst those who have supported at least one individual, **62.9% identify as women, 34.8% as men, and 1.2% as non-binary**. These numbers are in line with the gender split found in the entire sample of both supporters and non-supporters. In our sample, only 11.3% of respondents have never supported anyone.

I provided support to someone who was doing research and who was struggling with their mental health
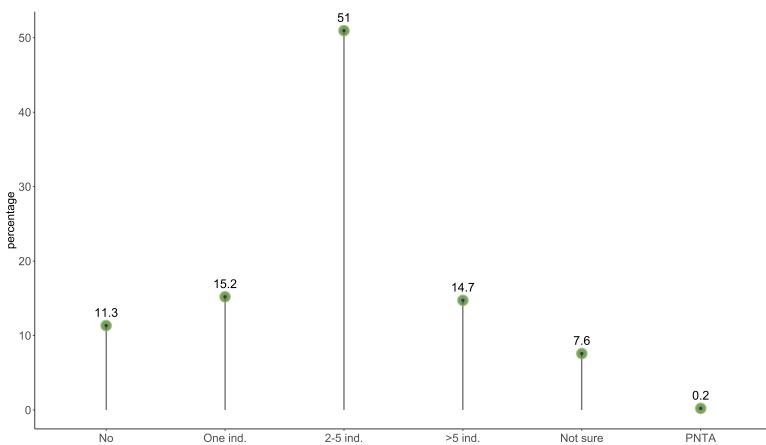
Graph 2.1.1

Supporters and those who report never having provided support do not differ in the way they answered the affirmations "I have gone through times in my life when my mental health was poor" and "I have a good understanding of mental health issues" (poor mental health: Kruskal-Wallis X^2 (1, N=1,676) = 2.51, p=0.11; understanding: Kruskal-Wallis: X^2 (1, N=1,685) = 0.95, p=0.33). There is, however, an effect of gender, with **women being 1.64 times more likely to be supporters than men** (factorial logistic regression, p<0.001, CI: 1.23-2.20, N=1,697). **Career stage also had a significant effect** (Kruskal-Wallis: X^2 (4, N=1,391) = 17.35, p=0.002). Yet, these results should be taken with great caution considering potential sampling biases (see "Limitations").

In our sample, of those who have provided support, **36.0% were PhD students at the time, 23.8% were postdocs and 24.4% were group leaders** (N=1,526). As reported in other studies (NSF, 2015; Lerchenmueller & Sorenson, 2018), the number of women significantly declines in more senior positions in our dataset: only 35.3% of late-career group leaders are women, as opposed to 70% of PhD students, 65.4% of postdocs, 57.4% of early-career group leaders and 47.3% of mid-career group leaders (factorial logistic regression: p<0.001, N=1,255).

Amongst those who report a supporting experience, 36% (N=1,527) were **helping somebody at the time they took the survey**. At the time of support, respondents were based in 66 countries, but most were in the US (37.7%; N=1,250), the EU/Switzerland (24.4%) and the UK (18.6%).

Most respondents (63.0%; N=1,888) – and indeed, the majority of those who have provided support (66.8%) – **report not having supported someone who may have needed it**. In fact, many have faced this situation several times (Graph 2.2.1; N=1,888). Amongst supporters, **junior researchers** report having not provided support slightly more often than group leaders (Graph 2.2.2; PhD students as compared with group leaders who are: early-career: p=0.004, Odd Ratio (OR): 0.54, CI: 0.36-0.83; mid-career: p<0.001 OR: 0.43, CI: 0.26-0.70; late-career: p<0.001; OR: 0.45, CI: 0.29-0.70; N=1,131).

I have been in a situation when I thought someone in academia needed help, but I couldn't or didn't provide support
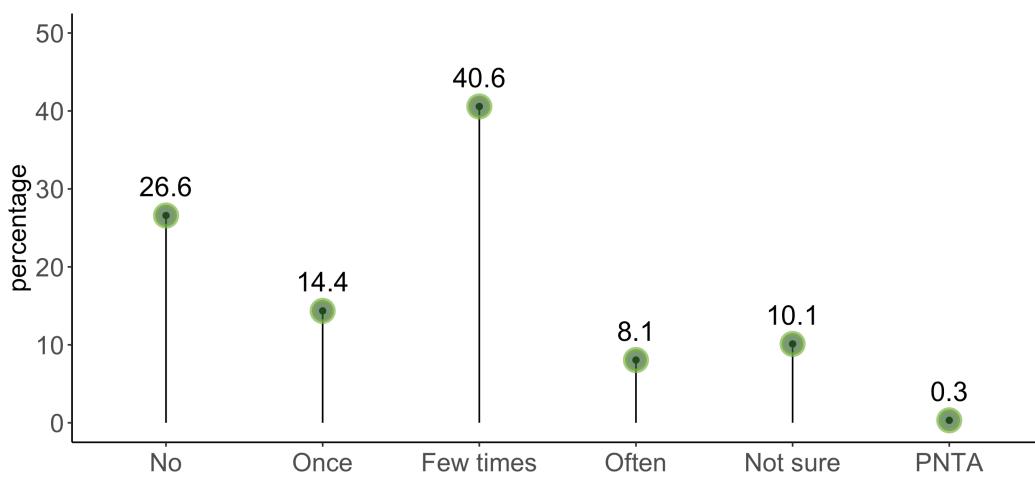
Graph 2.2.1
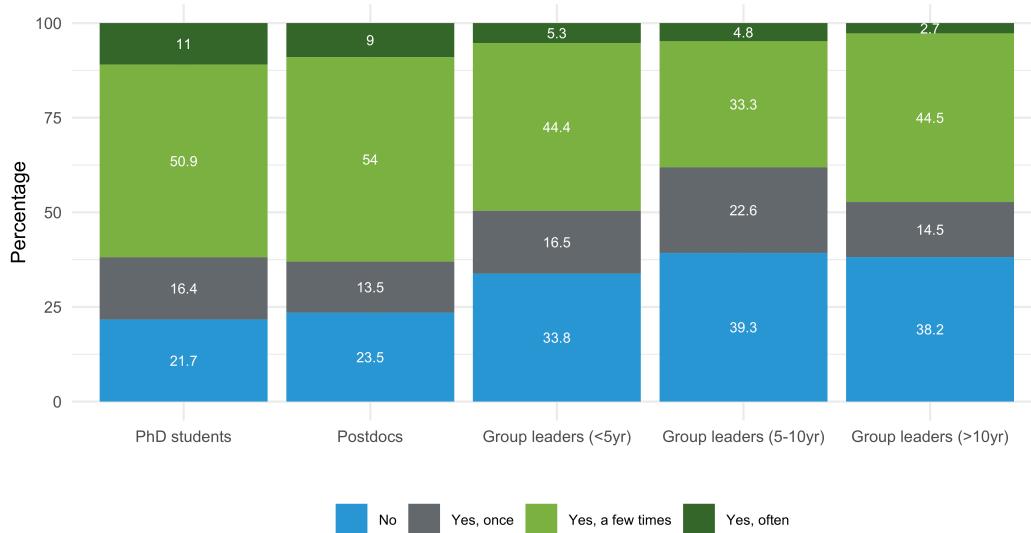
Graph 2.2.2

Overall, the most common reasons for not providing help are **not knowing what to do**, **supporters struggling with their own mental health** and **not wanting to be invasive** (Graph 2.2.3; N=1,302). Many respondents also mention that the person in need was **difficult to approach** or supporters did not think they wanted to be approached; and that providing support potentially put the supporter in a difficult position. While men and women cite the same top three reasons for not helping (not knowing what to do, not wanting to be invasive and their own mental health), **one's wellbeing is the first reason reported by women**, while **not knowing what to do comes first for men**. This difference is consistent with women in our sample being more likely to report having experienced times of poor mental health.

I did not provide support because I:

Reason	Percentage
Didn't know what to do	50.4
Was struggling with own mental wellbeing/ didn't have the emotional resources required	49
Didn't want to be invasive	43.7
Didn't think the person wanted to be approached/ they were difficult to approach	39.2
Felt someone else was in a better position to intervene	31.2
Wasn't sure the person needed help	27
Felt intervening would have put me in a difficult position	21.4
Didn't have time to help	17.3
Already supporting someone else	15.5
Didn't think it was my responsibility	14.1
The timing was wrong	7.8
Other	6.8
I am not sure	4.5
Prefer not to answer	0.7

Graph 2.2.3

The **top three reasons for both PhD students and postdocs** are, in order: their own mental health, not knowing what to do and not wanting to be invasive. As for women, these findings are in line with these populations reporting higher rates of poor mental health in our dataset.

For **early-career group leaders**, however, **not knowing what to do** takes the first spot, followed by the person being difficult to approach/not wanting to be approached, and not wanting to be invasive. This last reason is actually the one most cited by mid-career group leaders (followed by the person being difficult to approach, and not knowing what to do).

Late-career group leaders, on the other hand, report the person being **difficult to approach** first, and thinking that someone else was in a better position to help second. For this group, not wanting to be invasive and feeling that providing support would put them in a difficult position were the second and third top-cited reasons. Approaching an individual as a senior academic may therefore come with specific challenges due the power dynamics at play.

At the time of support, about two thirds of supporters were **helping more than one individual** (in their professional or personal life; Graph 2.3.1; N=1,526). In addition, 60.1% were experiencing **mental health issues themselves** (Graph 2.3.2; N=1,524).

I was helping more than one person at the same time (in my professional and personal life)
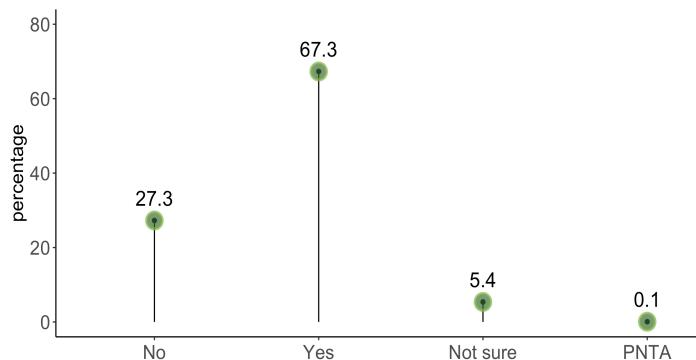
As I was providing support, I was struggling with my own mental health
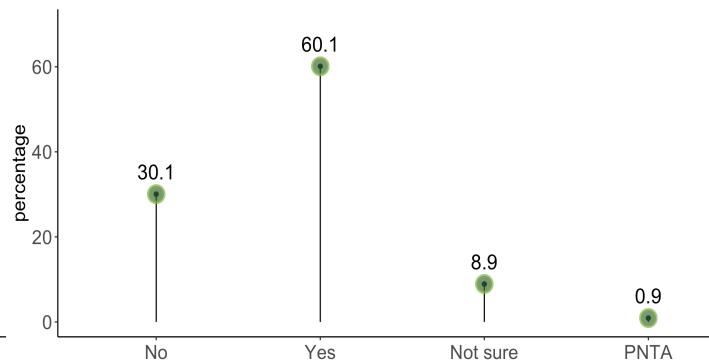
Graph 2.3.1

Graph 2.3.2

Regardless of career stage, **women were significantly more likely than men** to support more than one person and to be experiencing mental health problems at the time of support (support more than one person: Graph 2.3.3; factorial logistic regression, p<0.001, OR: 2.01, CI: 1.55-2.59, N=1,183; mental health at time of support: Graph 2.3.4; factorial logistic regression, p<0.001, OR: 2.16, CI: 1.67-2.78, N=1,125). This effect of gender on mental health at time of support may stem from women being more likely to be diagnosed with mental health conditions in general.

I was helping more than one person at the same time (in my professional and personal life)
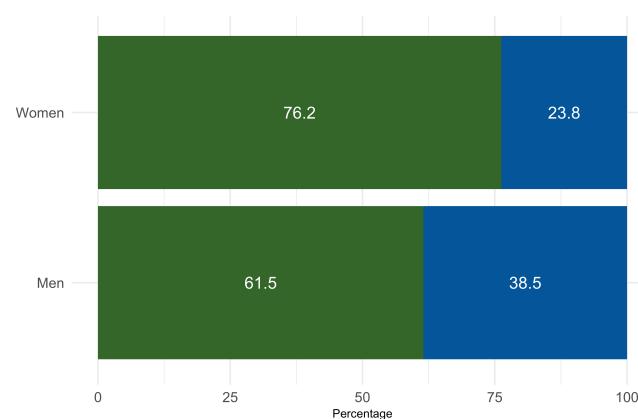
As I was providing support, I was struggling with my own mental health
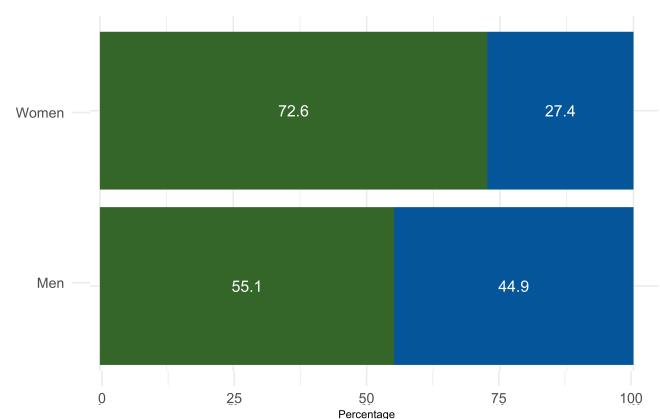
Graph 2.3.3

Graph 2.3.4

Additional challenges for supporters

Regardless of gender, **PhD students are also more likely to experience poor mental health** at the time of support compared to any other career stage (Graph 2.3.5; factorial logistic regression, PhD vs. postdocs: p<0.001, OR: 0.44, CI: 0.31-0.62; PhD vs. early-career group leaders, p<0.001, OR: 0.17, CI: 0.11-0.26, PhD vs. mid-career group leaders: p<0.001, OR: 0.12, CI: 0.07-0.19, and PhD vs late-career group leaders p<0.001,OR: 0.06, CI: 0.04-0.10, N=1,125). Compared to PhD students, **mid- and late-career group leaders are also less likely to support more than one person** at the same time (Graph 2.3.6; factorial logistic regression: mid-career, p<0.001, OR: 0.44, CI: 0.28-0.72; late-career, p<0.001: OR: 0.47, CI: 0.31-0.72, N=1,183).

As I was providing support, I was struggling with my own mental health
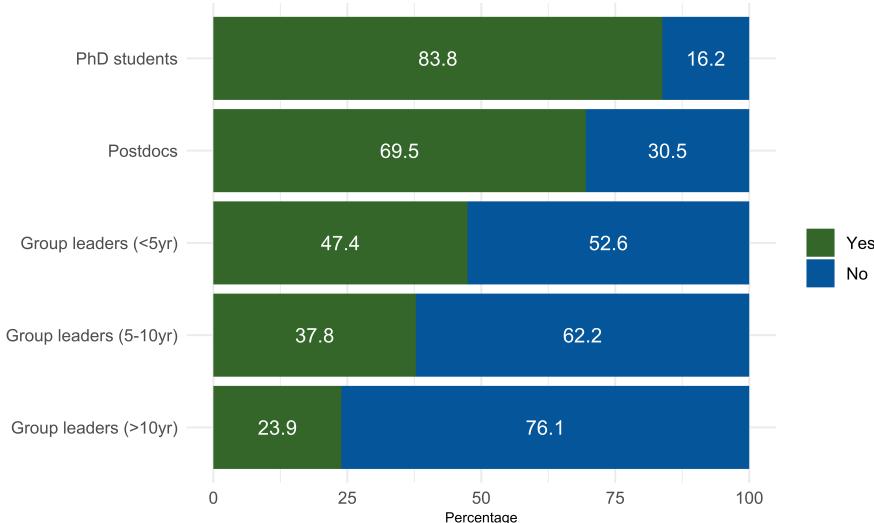
Graph 2.3.5

I was helping more than one person at the same time (in my professional and personal life)
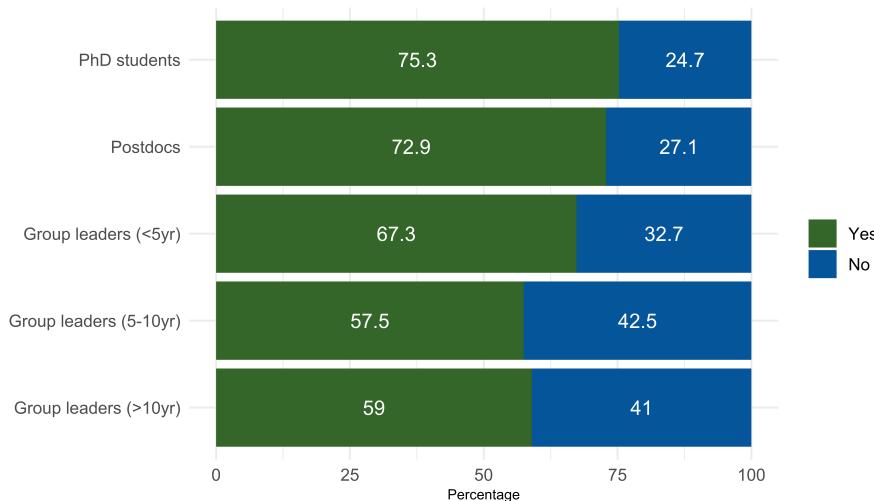
Graph 2.3.6

Dynamics of support

Most PhD students (81%), as well as over half of postdocs (50.8%), early-career group leaders (59.6%), mid-career group leaders (53.2%) and late-career group leaders (51.2%) supported a PhD student. In addition, 32.5% of postdocs, 16.6% of early-career group leaders, 16.3% of mid-career group leaders and 17.3% of late-career group leaders provided help to a postdoc.

Only a minority (5.7% of early-, 6.5% of mid-, and 7.4% of late-career group leaders) provides help to early-career group leaders, and these numbers drop even further when it comes to helping more senior academics. **Peer-to-peer support** therefore seems to take place **early in the academic career track** (between PhDs, and to some extent, between postdocs), but appears to quickly dwindle thereafter.

Compared to PhD students, postdocs (Graph 3.1.1; factorial logistic regression, p=0.02, OR: 2.17, CI: 1.13-4.27, N=1,207), but especially early- (p<0.001, OR: 44.31, CI: 24.89-83.38), mid- (p<0.001, OR: 42.54, CI: 22.57-84.20), and late-career group leaders (p<0.001, OR: 59.91, CI: 32.43-116.79) are more likely to support someone in an official capacity.

Still, even 34.9% of late-career group leaders do not consider themselves as being 'in charge' of the person they helped. Regardless of career stage, **women are also more likely to support someone unofficially** (that is, they are 0.51 times as likely as men to support someone officially; Graph 3.1.2; logistic regression, p<0.001; CI: 0.38-0.68, N=1,207).

It was part of my official job description to be in charge of the person I helped
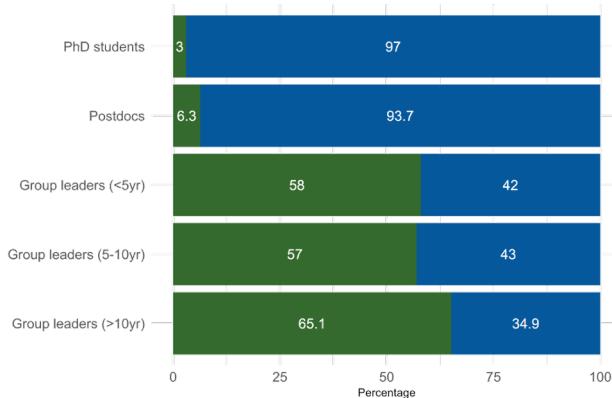
Graph 3.1.1
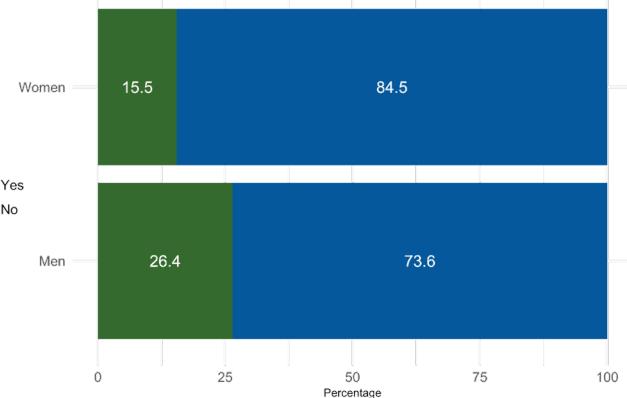
Graph 3.1.2

Supporting experiences take place over **long periods** – 22.4% of respondents have supported someone for more than a year (N=1,527). Length of support does not significantly differ between genders or career stages (gender: Kruskal-Wallis: X^2 (1, N=1,207) = 0.029, p=0.86; career stage: Kruskal-Wallis: X^2 (4, N=1,207) = 2.39; p=0.66)

Supporting also often takes place **without the person in need receiving professional help** – in total, 49.7% of respondents supported someone who, at least during part of the supporting experience, did not receive help from a professional (N=1,528).

This does not differ between men and women, but compared to individuals with no official leadership positions (PhDs and postdocs), **group leaders were 1.91 times more likely to support someone who was receiving professional help** at the time the supporting relationship began (Graph 3.2.1; factorial logistic regression, p<0.001, CI: 1.40-2.60, N=1,037).

Was the person receiving professional help when the supporting relationship started?
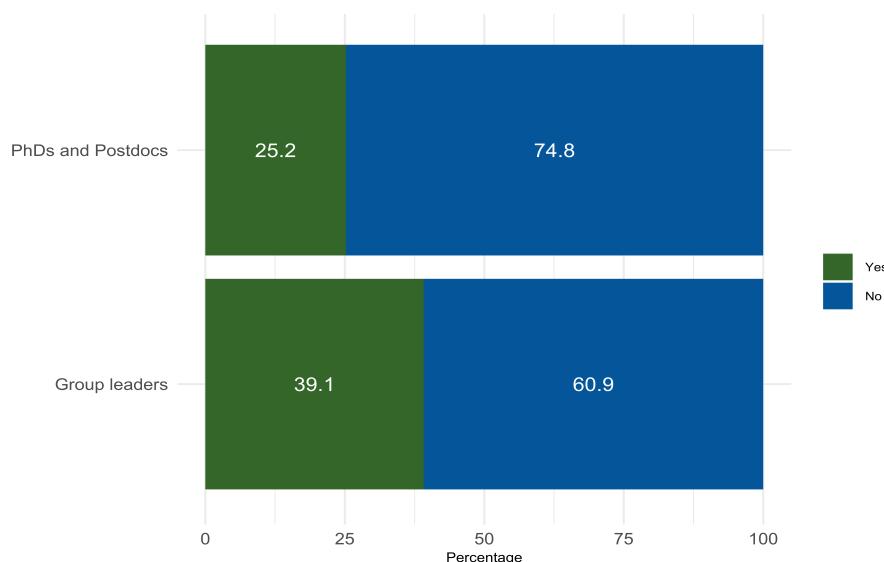
Graph 3.2.1

This result may stem from **group leaders being more likely to support senior individuals** (such as other group leaders) who may have better access to professional help. In addition, individuals who hesitate to disclose their condition to senior colleagues may feel empowered to do so once under the care of a doctor or therapist. There may also simply be an **overlap between those who look for professional help and those who discuss their experience in the workplace**. The impact of supporting someone who has no professional help could be an important factor to consider further.

Supporters deploy an array of approaches to attempt to provide help. In addition to **emotional support**, most give **advice**, both practical (46.6%; N=1,525) and in terms of resources that could be accessed (50.6%). Over 41% also report having provided **help with work**, and nearly a quarter have **advocated** for the individual (Graph 3.3.1).

When supporting the person, I:

Action	Percentage
Provided emotional support	90.1
Actively helped them open up	59.5
Suggested resources	50.6
Gave them practical advice on how to manage their mental health	46.6
Provided practical help with work	41.7
Was present during a moment of crisis	26.8
Advocated for the person in the research place	24.1
Made alternative work arrangements	20.7
Helped them access resources	18.4
Provided practical help in their personal lives	18.3
Other	2.7
Not sure	0.7
Prefer not to answer	0.3

Graph 3.3.1

The **top five actions** that supporters report having taken are examined by career stages. Supporters always report **emotional support** as the main type of help they provide. Next, PhDs and postdocs list having **helped someone to open up** – an action that ranks third amongst group leaders.

Only PhD students include being **present during a moment of crisis** (such as a panic attack or an episode of self-harm) in their top five actions. In addition, only PhD students and postdocs mention having **given practical advice on how to manage mental health problems** (such as discussing medication or healthy routines): this is the third most popular option amongst PhD students.

Postdocs, early-, mid- and late-career group leaders all report having **given practical help with work** (such as helping with experiments, writing or taking on some of the individual's workload). This is respectively the third and fourth most popular option among postdocs and early-career group leaders – and the fifth in mid- and late-career group leaders. All group leaders also report having made **alternative work arrangements**, such as allowing the individuals to go on leave.

In addition, compared to PhD students, postdocs and all group leaders are more likely to report having **advocated for the individual within their institution** (factorial logistic regression: postdoc, p=0.01, OR: 1.52, CI: 1.09-2.10; early-career group leaders, p=0.009, OR: 1.75, CI: 1.15-2.63; mid-career group leaders, p<0.001, OR: 2.76, CI: 1.70-4.45, early-career group leaders, p<0.001, OR: 2.57, CI: 1.66-3.96).

Mental health issues in supported individuals

Supporters were asked to report what mental health symptoms or conditions the individual they tried to support was experiencing. This showed that, to the best of the supporters' knowledge, **individuals who received support struggled with a wide range of mental health issues**, including those which may be associated with high levels of harm, such as **suicidal thoughts** (16.1%), **self-harm** (6.5%), **substance abuse** (7.3%), or **eating disorders** (6.1%; Graph 3.4.1; N=1,526). This second-hand information should be treated carefully, however, due to potential biases introduced by supporters (see Limitations).

To the best of my knowledge, the person I was supporting was struggling with:

	Percentage
Depression/Low mood	63
Anxiety	61.5
Burnout	51.4
Low self esteem	45.2
Perfectionism	31.4
Insomnia	29.5
Panic attacks	22.2
Suicidal thoughts	16.1
Substance abuse	7.3
Self harm	6.5
Unsure	6.4
Eating disorders	6.1
Other	6.1
Bipolar disorder	5.8
Bereavement	4.7
ADHD	3.7
Personality disorders	3.7
PTSD	2.9
Prefer not to answer	0.4
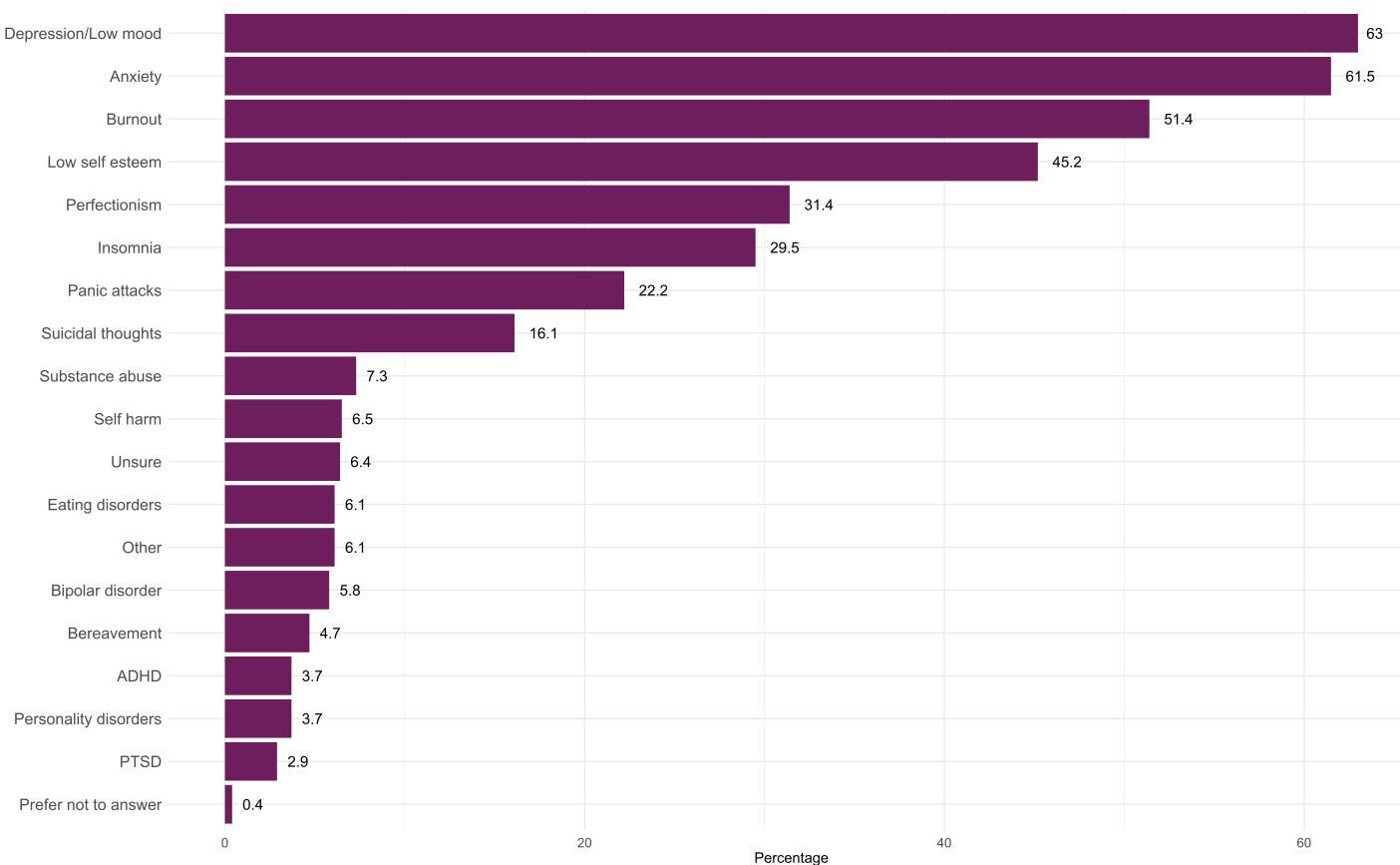
Graph 3.4.1

Contributing factors to mental health issues

Supporters were asked whether, in their view, a range of **factors associated with the academic environment** contributed to mental health issues in the supported individual. Problems with **workloads** and **work progress**, as well as **poor work relationships**, are the top reasons reported. Yet issues such as **racism and sexual abuse** are also cited at relatively high rates (7.7% and 5.4%; Graph 3.5.1; N=1,528). The survey was conducted before the **COVID-19 pandemic**, yet the fact that **isolation** is cited by 42.2% of respondents as contributing to poor mental health should be of particular interest in the context of widespread student quarantines (Packham, 2020).

I believe the following factor(s) played a role in the person's struggles:

Factor	Percentage
Work progress	66
Conflict with supervisor	54.2
Workload	50.4
Isolation	42.2
Lack of institutional support for conditions related to mental health	23.4
Bullying	20.9
Homesickness or culture shock	19.2
Problems with funding	19.2
Other	12.4
Poor physical health	10.4
Administrative problems	8.8
Mental health issues not related to academia	8.2
Lack of institutional support for conditions not related to mental health	8
Discrimination or racism in place of research	7.7
Sexual assault or harassment in place of research	5.4
Not sure	3.1
Prefer not to answer	0.1

Graph 3.5.1

Again, these results must be taken with caution, as they are through the lens of supporters (see Limitations). And indeed, in comments, a few respondents highlighted that they felt the individuals they supported entered academia with pre-existing conditions.

Contributing factors to mental health issues

According to supporters, **what the individuals they supported most lacked was**: help from supervisors and managers; professional mental health provision within the institution; and institutional measures such as intermissions (Graph 3.5.2; N=1,487). Overall, men or group leaders are slightly less likely than women or PhD students to feel that the main missing factor lies with managers or supervisors (factorial logistic regression: early-career group leaders: p<0.001, OR: 0.11, CI: 0.07-0.17, mid-career: p<0.001, OR: 0.08, CI: 0.05-0.14, late-career: p<0.001, OR: 0.09, CI: 0.05-0.14; gender: p<0.001, OR: 1.60, CI: 1.27-2.01, N=1,255).

Postdocs, mid-career and late-career group leaders are also less likely than PhDs to feel the main issue lies with a lack of institutional measures (factorial logistic regression: postdocs: p=0.004, OR: 0.67, CI: 0.50-0.88; mid-career group leaders: p=0.002, OR: 0.46, CI: 0.28-0.75; and late-career group leaders: p<0.001, OR: 0.22, CI: 0.12-0.36, N=1,255).

What type of support do you think was most lacking or insufficient for the person you supported?
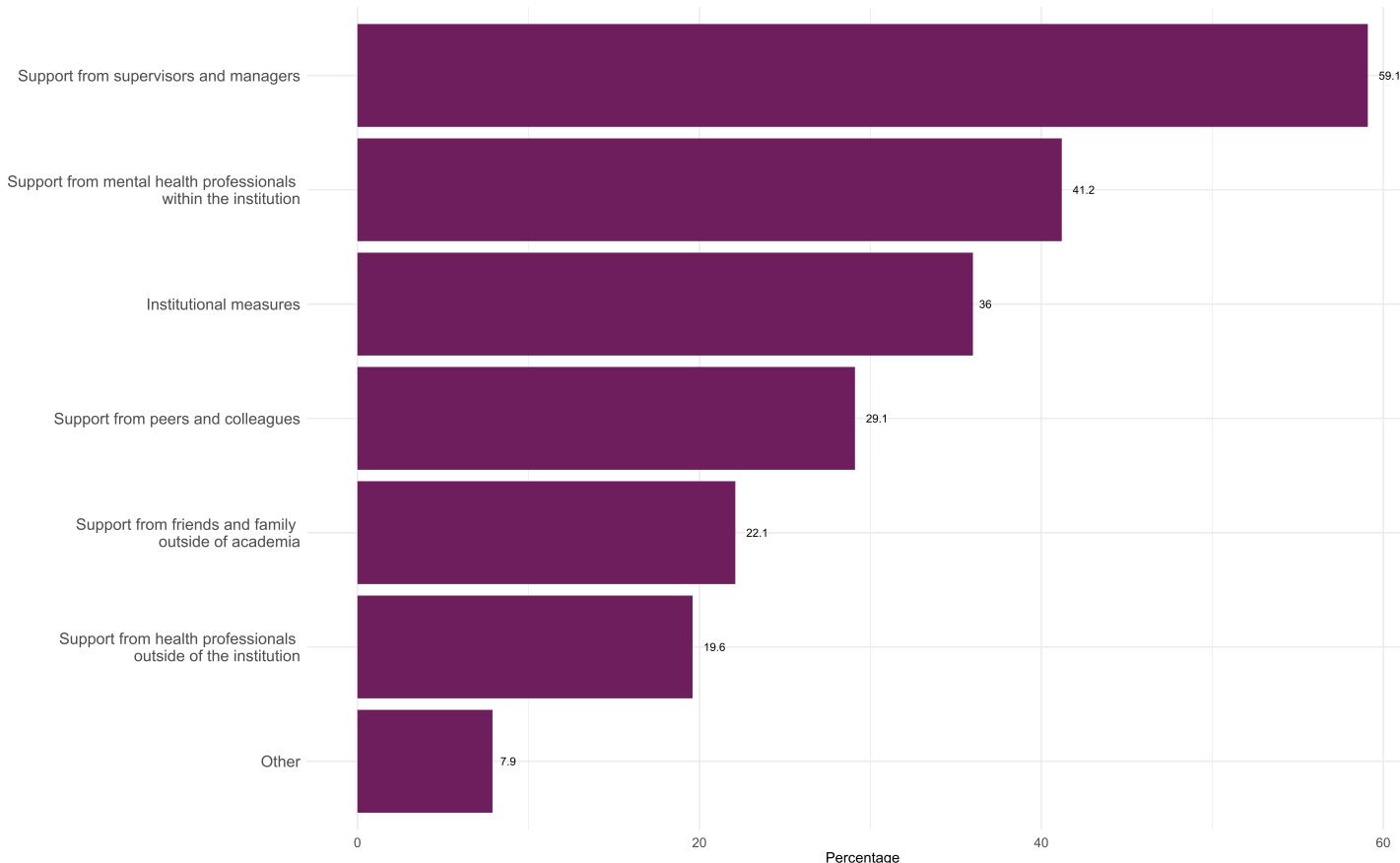
Graph 3.5.2

Impact of support

Positive impact of support

Overall, the majority of supporters **feel positively** about providing help: 67.5% agree that the experience was **rewarding** (Graph 4.1.1; N=1,522), and 75.7% feel that they made a **positive difference** in the person's life (Graph 4.1.2; N=1,521). 84.8% also **feel appreciated** by the person they helped (Graph 4.1.3; N=1,509).

There are **no significant differences between genders and career stages** on these dimensions, except for an effect of career stage on feeling appreciated or valued by the person (factorial logistic regression: Rewarding: gender p=0.65, career stage p=0.06, N=1,243; Positive difference: gender p=0.7041, career stage p=0.47, N=1,241; Appreciated/valued: gender p=0.89, career stage p=0.006, N=1,227).

Being in a supporting role was personally rewarding
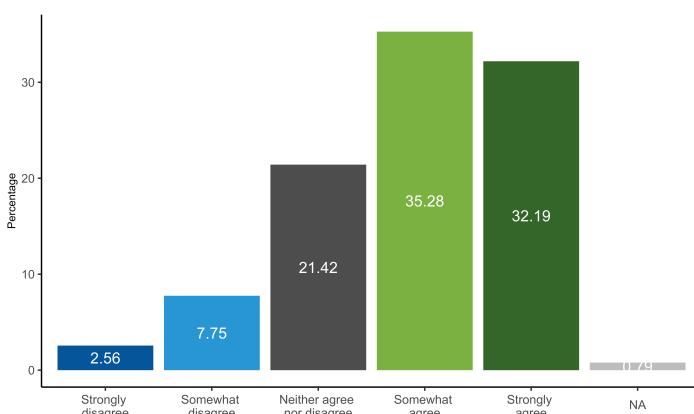
Graph 4.1.1

I made a positive difference in someone's life
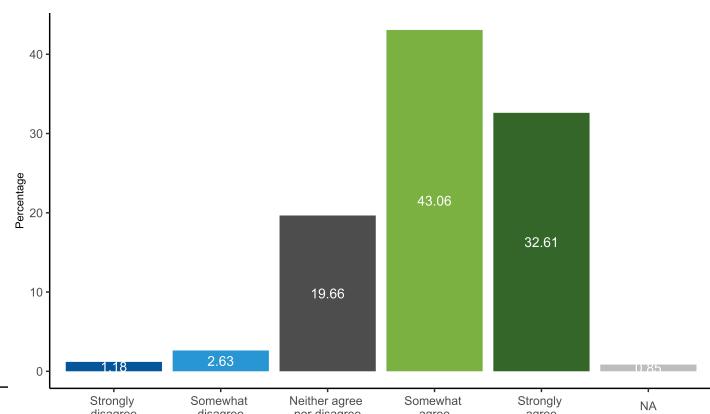
Graph 4.1.2

I felt valued by the person I was helping
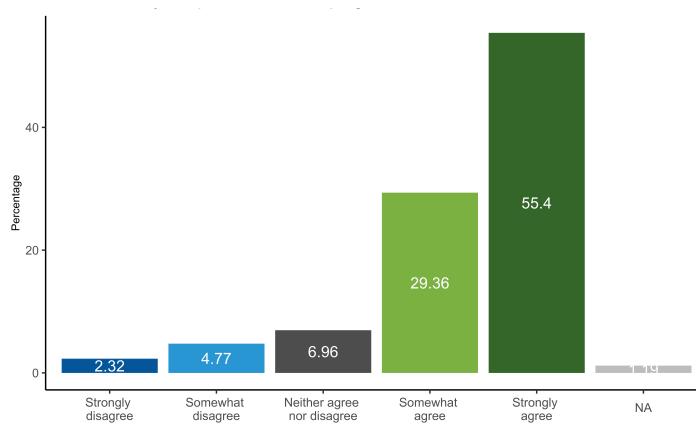
Graph 4.1.3

Positive impact of support

45.7% of respondents say that being in a supportive relationship resulted in **more people coming to them for help**, but 20% disagree with this statement (Graph 4.1.4; N=1,522). **Women** are 1.42 times more likely (CI: 1.15-1.77) to feel that being supportive brought more people to them (Kruskal-Wallis: X^2 (1, N=1,161) = 10.69, p=0.001), but there is no impact of career stage (Kruskal-Wallis: X^2 (4, N=1,161) = 7.78, p=0.10).

Other people came to me for help because they knew I was providing support
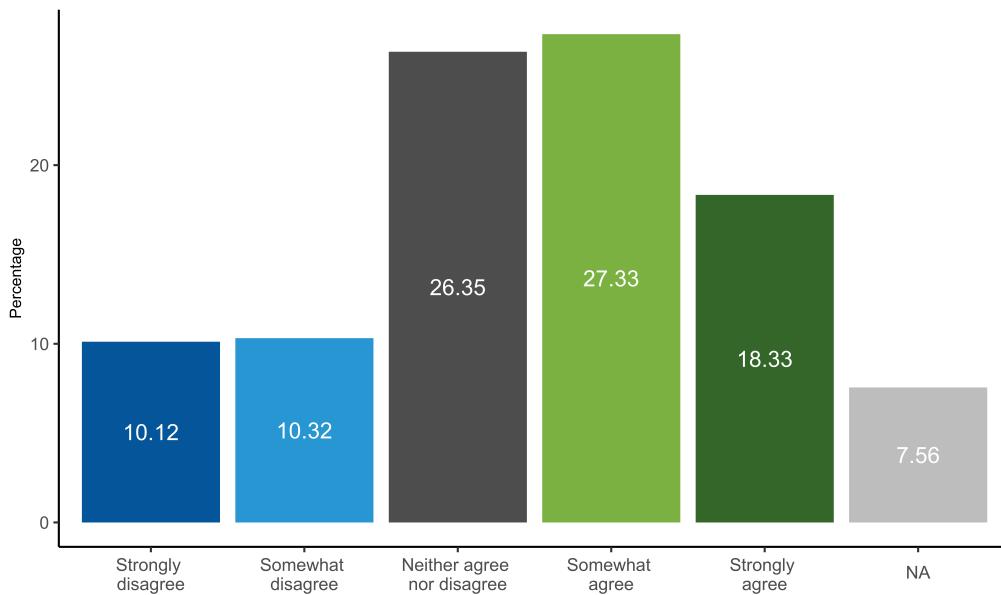
Graph 4.1.4

Challenges associated with providing support

Respondents describe their supporting experience as **rewarding** but also as coming with **challenges** (Graph 4.2.1, based on the answers to the question "List up to five words to describe your [supporting] experience; N=663).
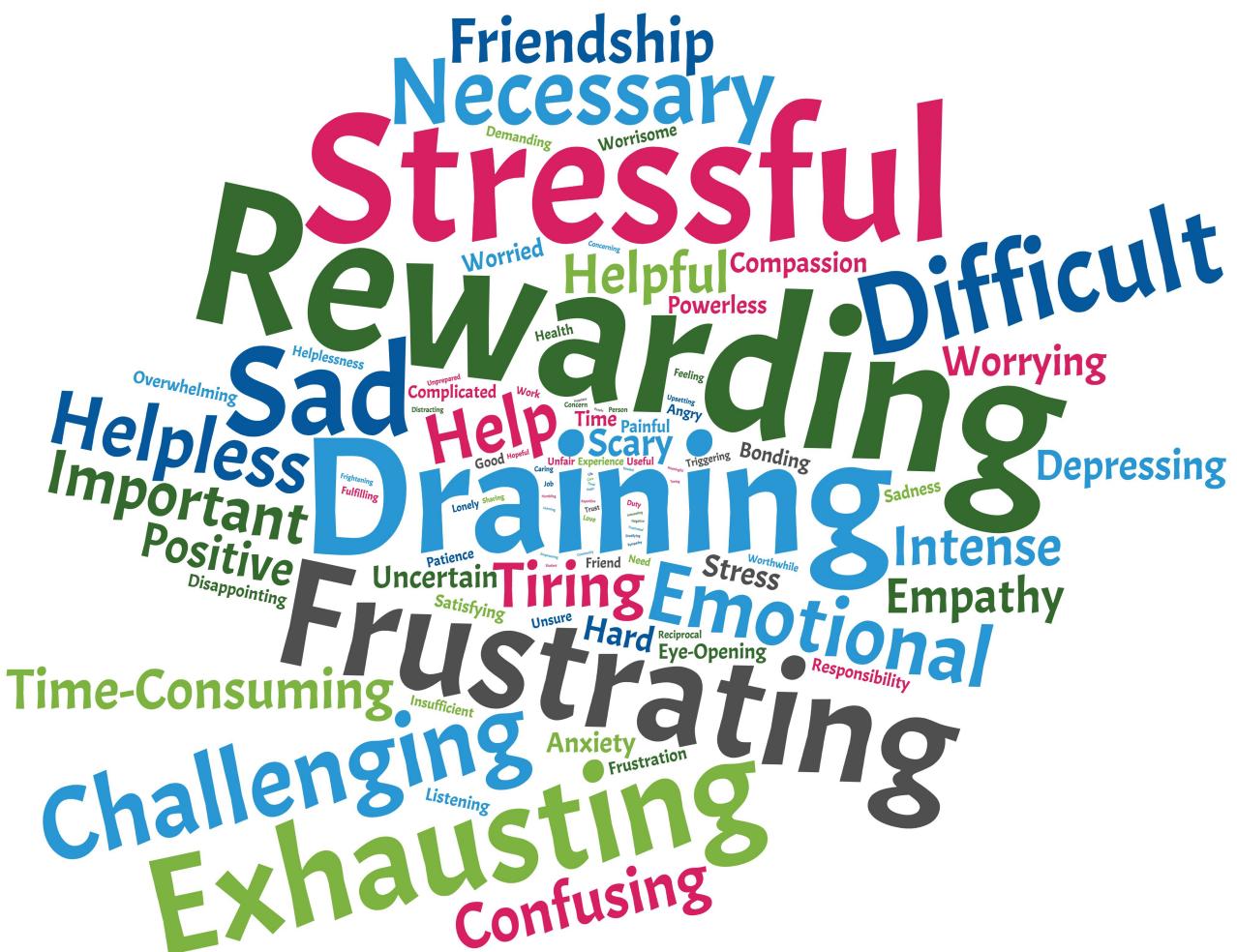
Graph 4.2.1

Challenges associated with providing support

Most find supporting someone else **emotionally draining** (76.1% somewhat or strongly agree; Graph 4.2.2; N=1,520), and that they take these situations 'home' by thinking about them outside of work (67.0% somewhat or strongly agree; Graph 4.2.3; N=1,519).

The experience was emotionally draining or stressful
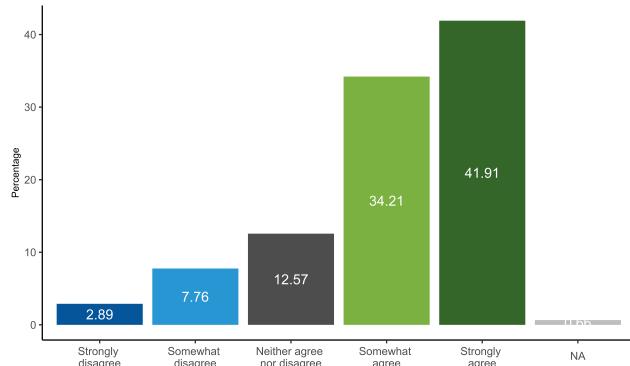
Graph 4.2.2

The experience had an impact on my personal life
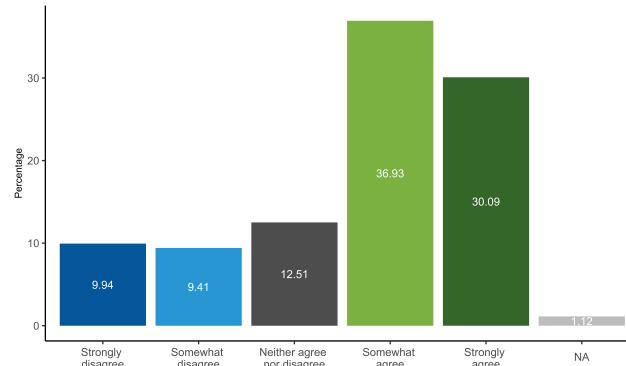
Graph 4.2.3

A small majority also feels being a supporter was **time-consuming** (59.5% somewhat or strongly agree; Graph 4.2.4; N=1,520), yet only a **third** (32.6%) somewhat or strongly agree that the experience had affected their **work** (Graph 4.2.5; N=1,519).

The experience took a lot of my time
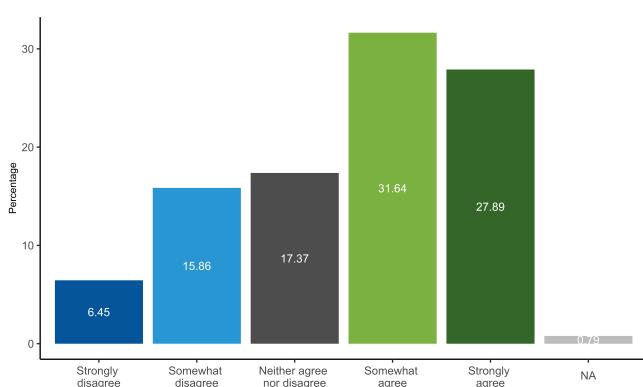
Graph 4.2.4

The experience negatively impacted my academic work
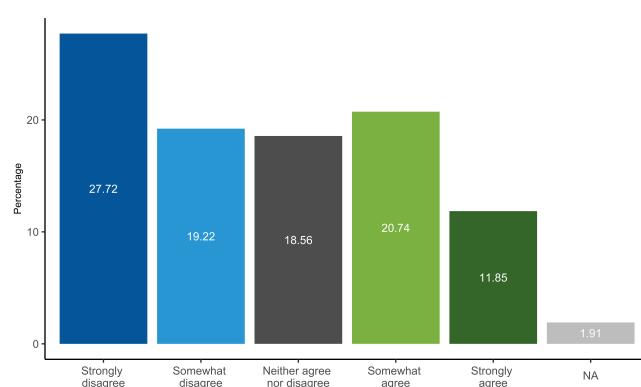
Graph 4.2.5

Women face additional challenges

Compared to men, women seem to **face more difficulties** during their supporting experiences. Women in supporting positions are 1.44 times more likely (ordinal logistic regression: CI: 1.16-1.78) to report that their role was **emotionally draining/stressful** (Graph 4.3.1; Kruskal-Wallis: X^2 (1, N=1,242) = 11.33, p<0.001). They are also 1.43 more likely (CI: 1.16-1.76) to say it took a **lot of their time** (Graph 4.3.2; Kruskal-Wallis: X^2 (1, N=1,241) = 11.58, p<0.001).

The experience was emotionally draining or stressful
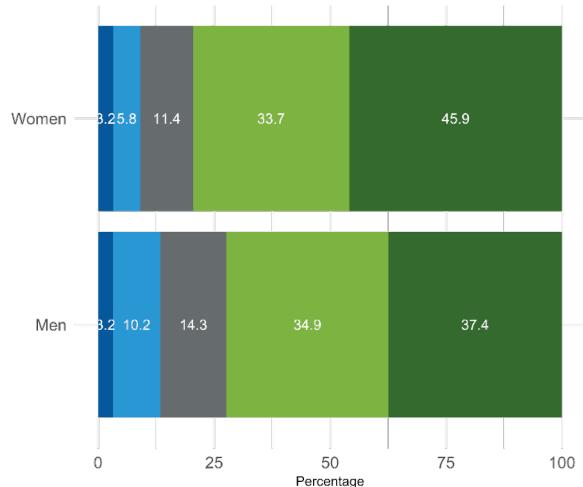
Graph 4.3.1

The experience took a lot of my time
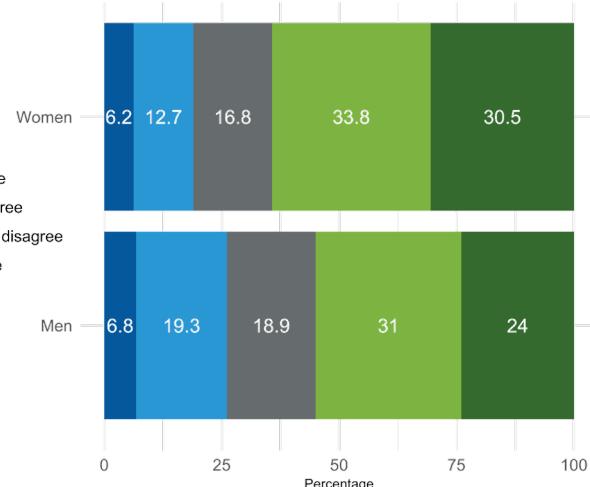
Graph 4.3.2

In addition, women are 1.46 times more likely (CI: 1.19-1.80) to feel that being a supporter **impacted their personal lives** (Graph 4.3.3; Kruskal-Wallis: X^2 (1, N=1,510) = 12.65, p<0.001). Finally, they are also 1.24 time more likely (CI: 1.01-1.52) to say that it had a **negative impact on their work** (Graph 4.3.4; Kruskal-Wallis: X^2 (1, N=1,235) = 4.11, p=0.03).

The experience had an impact on my personal life
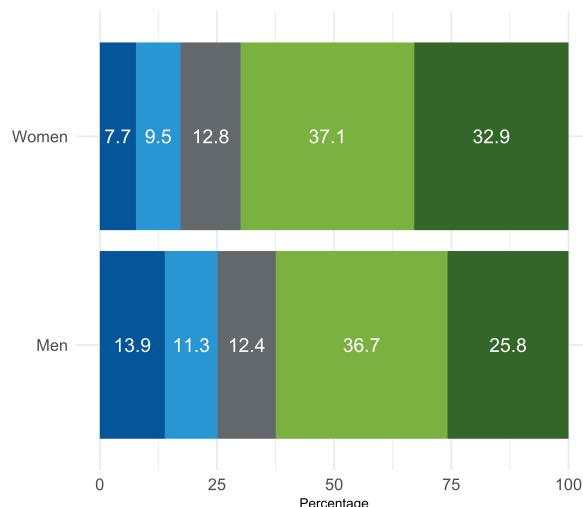
Graph 4.3.3

The experience negatively impacted my academic work
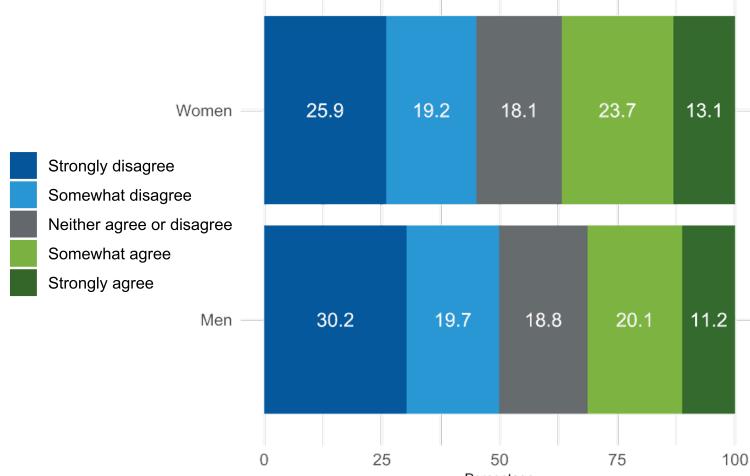
Graph 4.3.4

Supporters at different career stages have different needs

Career stage has an effect on the degree to which supporting someone is draining, as well as on work and the personal lives of supporters (Draining: Graph 4.4.1; effect of career stages, Kruskal-Wallis: X^2 (4, N=1242)=15.29, p=0.004; Impact work: group leaders; Graph 4.4.2; effect of career stages, Kruskal-Wallis: X^2 (4, N=1235)=26.305, p<0.001; Impact personal lives: effect of career stages, Kruskal-Wallis: X^2 (4, N=1235)=16.143, p=0.003).

In particular, being a supporter is 1.60 times (ordinal logistic regression: CI: 1.14-2.27) **more draining for early-career group leaders** than for PhD students. In fact, this population is significantly more likely to find the experience draining compared to any other group except for mid-career group leaders (see Appendix II for pairwise statistics).

Early-career group leaders also report having their **work more impacted than any other group** (ordinal logistic regression: 2.26 times more than PhD students; CI: 1.63-3.12; see Appendix II for pairwise of statistics).

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The experience was emotionally draining or stressful
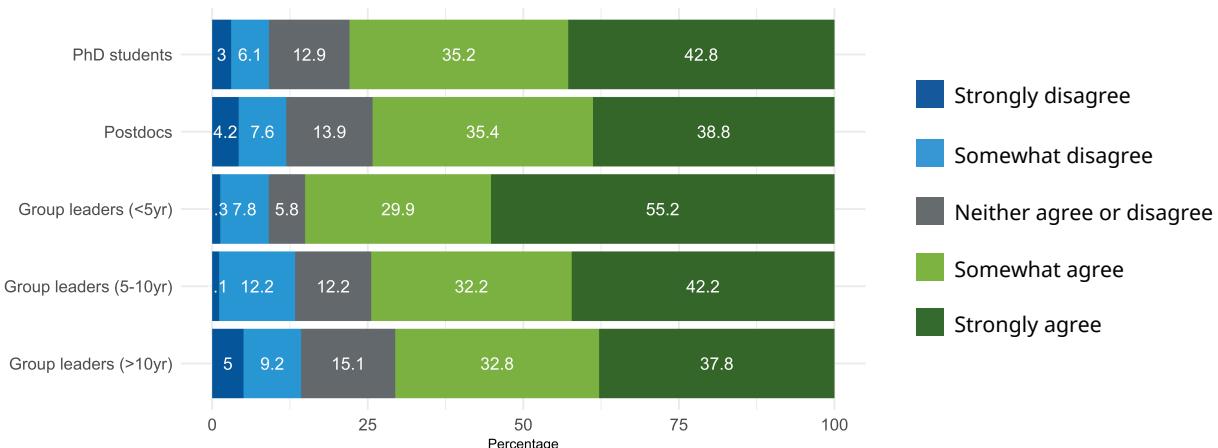
Graph 4.4.1

The experience negatively impacted my academic work
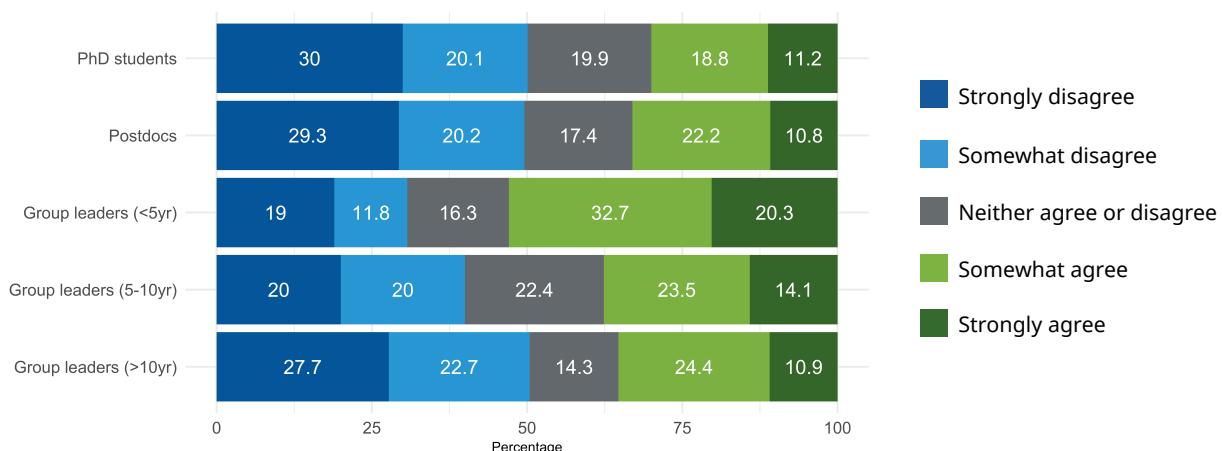
Graph 4.4.2

Supporters at different career stages have different needs

Being a supporter in a new leadership position therefore seems to be associated with specific challenges, potentially stemming from having to **quickly learn how to provide support as managers**, rather than as peer or friend. This new role may coincide with a **period already fraught with challenges and uncertainties**.

Finally, **PhD students** are more likely to find that their supporting experience was having an **impact on their personal lives** (Graph 4.4.3; ordinal logistic regression; vs postdoc: OR: 0.78, CI: 0.61-1.00; vs early-career group leaders: OR: 0.88, CI: 0.63-1.22, vs mid-career: OR: 0.82. CI: 0.55-1.22, vs late-career OR: 0.49, CI: 0.34-0.70).

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The experience had an impact on my personal life

Group	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
PhD students	6.7	10.3	11.1	39.6	32.3
Postdocs	14	8.9	10.9	36.9	29.4
Group leaders (<5yr)	11	9	14.8	31.6	33.5
Group leaders (5-10yr)	6.8	8	21.6	35.2	28.4
Group leaders (>10yr)	14.3	16.8	15.1	33.6	20.2

Legend: ■ Strongly disagree ■ Somewhat disagree ■ Neither agree or disagree ■ Somewhat agree ■ Strongly agree
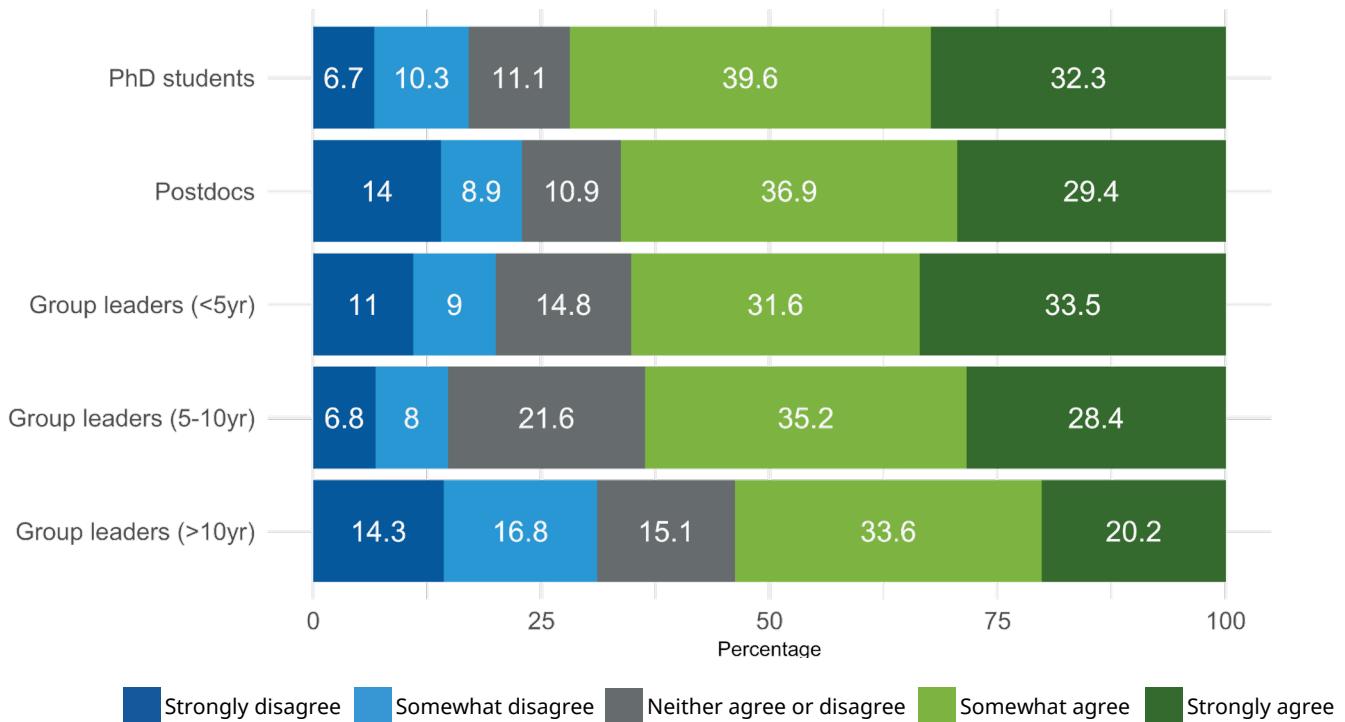
Graph 4.4.3

Section 5

Finding support as a supporter

The majority of respondents felt they **needed emotional support while helping someone else**, yet nearly 20% report not having had access to this support, even though they needed it (Graph 5.1.1; N=1,519). Women are more likely to find this support with colleagues and in their personal spheres (factorial logistic regression; colleagues: p=0.003, OR: 1.57, CI: 1.17-2.13; personal spheres: p<0.001, OR: 1.98, CI: 1.56-2.52, N=1,184).

I needed emotional support related to my supporting role

Category	Percentage
Needed support and found it with my friends, partners and family outside of academia	44.6
Did not need support	25
Needed support and found it with peers and colleagues	19.9
Needed support but didn't find it	19.2
I am not sure	5.9
Other	4.8
Needed support and it was offered by the institution	3.8
Prefer not to answer	0.2
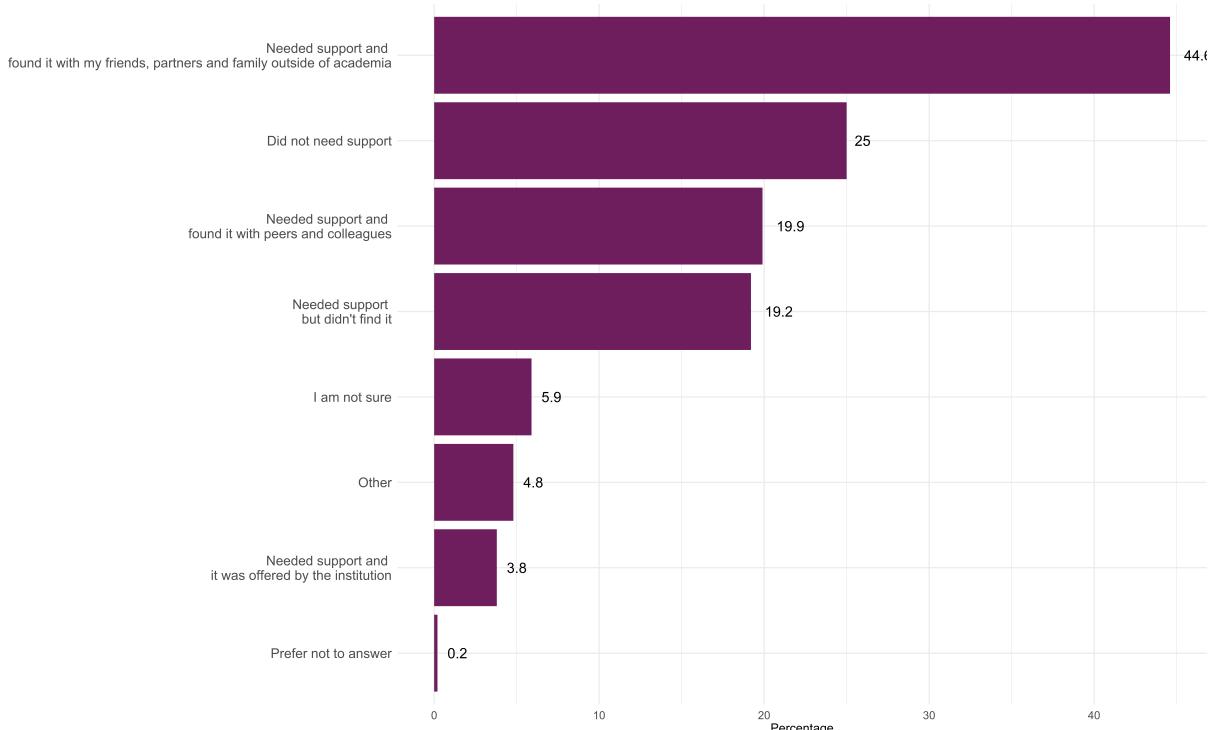
Graph 5.1.1

Compared to PhD students, **late-career group leaders are 3.05 times more likely to say they did not need any emotional support** and slightly less likely to have found it in their personal sphere (factorial logistic regression; emotional support: p<0.001, CI: 2.00-4.64; personal sphere: p=0.006, OR: 0.55, CI: 0.36-0.83, N=1,184).

Compared to PhD students, **postdocs are slightly more likely to have found the support they needed** (factorial logistic regression; p<0.001, 0.53 times as likely as PhDs to say "Needed support but didn't find it", CI: 0.37-0.76, N=1,255). They are, however, less likely to have found it with their institutions (factorial logistic regression; p=0.03, OR: 0.42, CI: 0.18-0.89, N=1,184).

Feeling valued and supported

Over half of supporters feel valued and **supported by their friends, partners and families** during their supporting experiences (Graph 5.2.1; N=1,515); this feeling somewhat extends to **work colleagues** (38.1% somewhat or strongly agree; Graph 5.2.2; N=1,515). However, only a **minority** (13.3%; N=1,517) feels **supported or valued by their institutions** (Graph 5.2.3).

I felt supported by my friends, partners and family outside of academia for the support I was providing
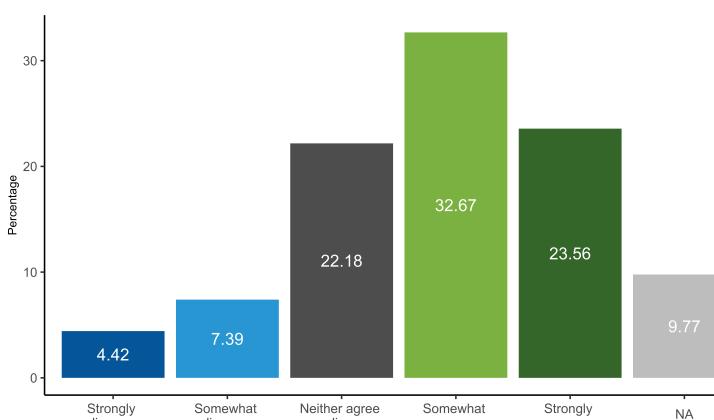
Graph 5.2.1

I felt supported by my colleagues for the support I was providing
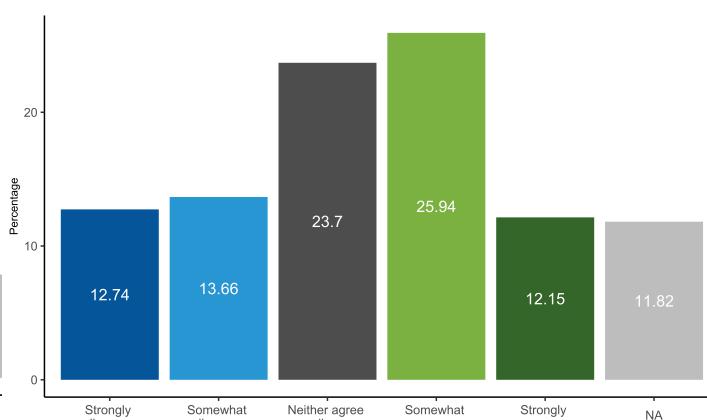
Graph 5.2.2

I felt supported by my institution for the support I was providing

Graph 5.2.3

Regardless of career stage, **women felt slightly less supported by their institution compared to men** (Graph 5.2.4; Kruskal-Wallis: X^2 (1, N=1,104) = 5.64, p=0.02, OR: 0.77, CI: 0.61-0.95), but there were no differences when it came to support from colleagues and loved ones (colleagues: Kruskal-Wallis: X^2 (1, N=1,104) = 2.02, p=0.16; loved ones: Kruskal-Wallis: X^2 (1, N=1,104) = 0.005, p=0.94).

Regardless of gender, respondents differ in their answers depending on their **career stage** (institutions: Kruskal-Wallis: X^2 (4, N=1,104) = 92.75, p<0.001; colleagues: Kruskal-Wallis: X^2 (4, N=1,111) = 20.33, p<0.001; personal sphere: Kruskal-Wallis: X^2 (4, N=1,111) = 13.3, p=0.009). For instance, **group leaders** – and in particular, late-career group leaders – are **more likely to feel supported by their institution** (5.25 times more than PhD students, CI: 3.54-7.80; Graph 5.2.5), and by their colleagues (2.40 more than PhD students, CI: 1.64-3.53). On the other hand, compared to PhD students, early- and mid-career group leaders report finding **less support with their friends and families** (early-career: factorial logistic regression; 0R: 0.88, CI: 0.63-1.24; mid-career: OR: 0.70, CI: 0.46-1.05).

I felt supported or valued by my institution (e.g. managers, department) for the help I was providing
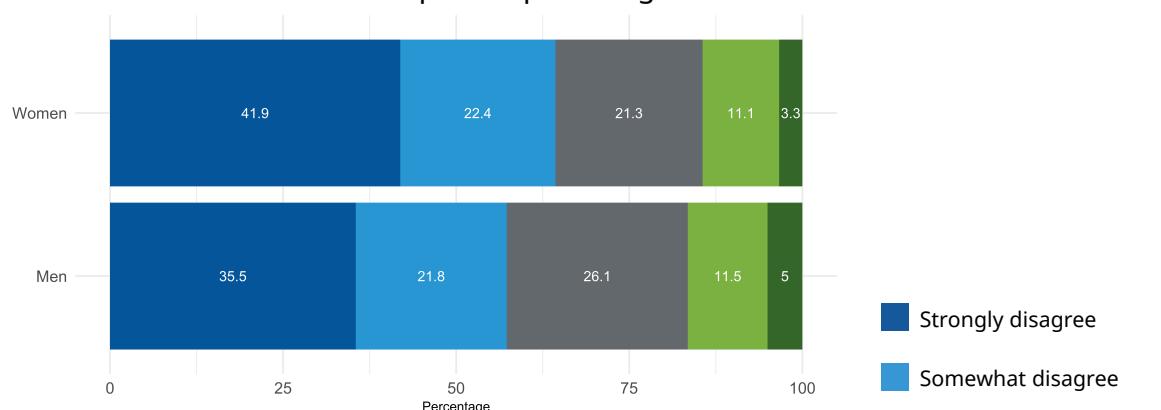
Graph 5.2.4
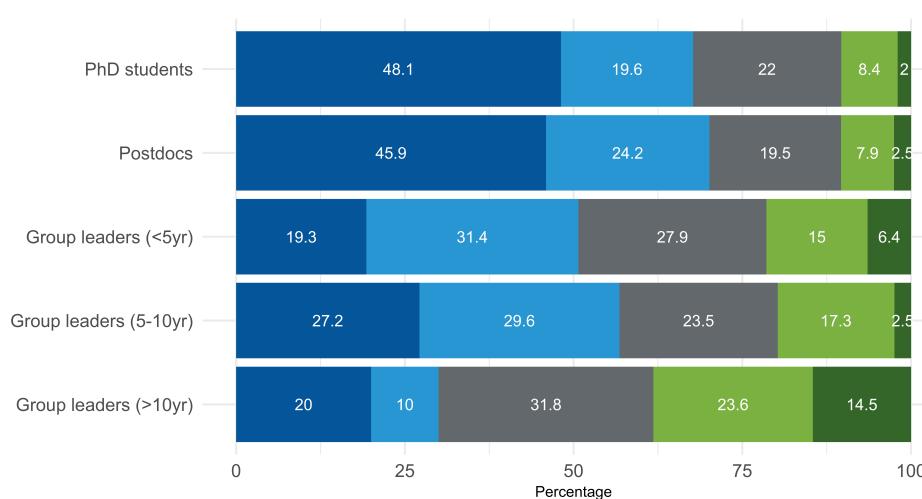
Graph 5.2.5

Readiness of supporters

Levels of comfort and understanding around mental health

Overall, 74% of supporters strongly or somewhat agree that they are **comfortable discussing mental health related problems** (Graph 6.1.1; N=1,521). Still, just over half (51.3%) are confident in their ability to provide the right type of help (Graph 6.1.2; N=1,523).

I was comfortable discussing mental health problems
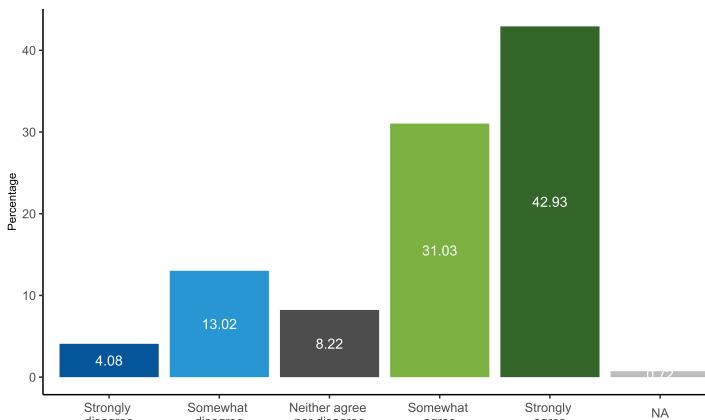
Graph 6.1.1

I was confident in my ability to do or say the right thing
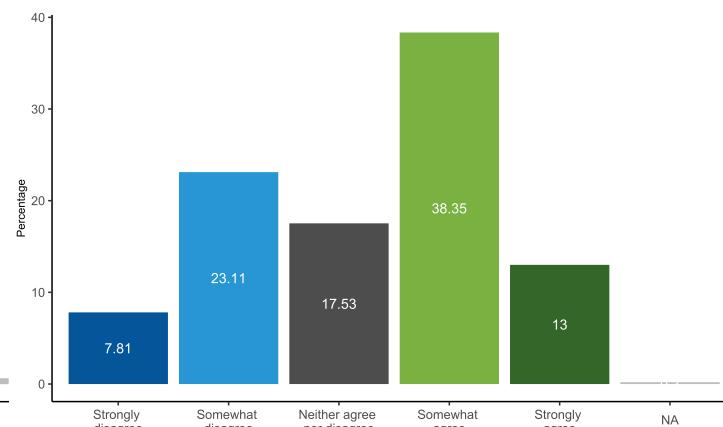
Graph 6.1.2

Regardless of career stages, women are **1.28 times more comfortable** (ordinal logistic regression: CI: 1.03-1.58) talking about mental health than men (Graph 6.1.3; Kruskal-Wallis: X^2 (1, N=1,246) = 5.14, p=0.02).

I was comfortable discussing mental health problems
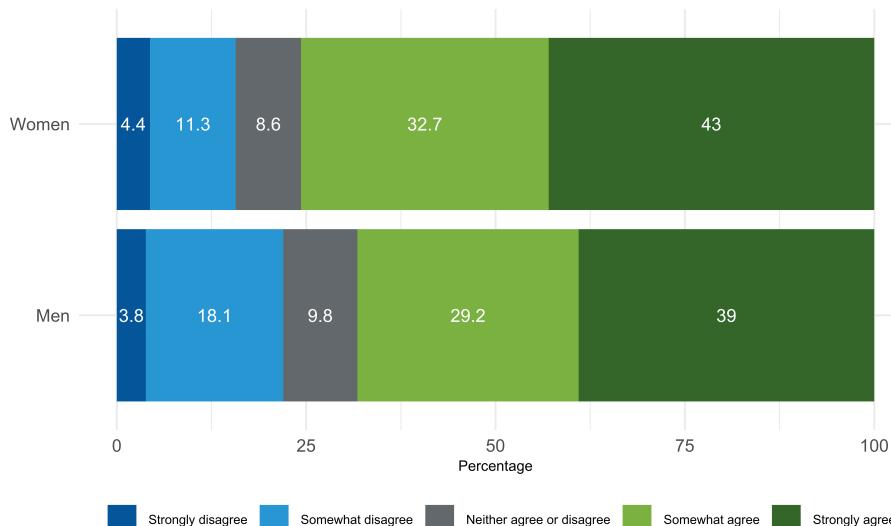
Graph 6.1.3

Levels of comfort and understanding around mental health

Career stages also have an impact on how confident supporters feel that they are doing or **saying the right thing** (Graph 6.1.4; effect of career stages: Kruskal-Wallis: X^2 (4, N=1,251) = 9.91, p=0.04). In particular, **confidence seems to drop as supporters take on more leadership responsibilities**, until they are more established in their careers.

Early-career group leaders, for instance, are significantly **less confident** in their abilities to do or say the right thing compared to PhD students and late-career group leaders (see Appendix II for pairwise statistics). However, their experience **is not significantly different compared to postdocs or mid-career group leaders** (see Appendix II for pairwise statistics).

These results could help to understand why **not knowing what to do** is the first reason early-career group leaders cite for not having provided help, and potentially why they **find the experience more stressful**.

I was confident in my ability to do or say the right thing

	Strongly disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Strongly agree
PhD students	8.1	21.5	18.5	38.8	13.2
Postdocs	6.7	25.6	16.3	39	12.4
Group leaders (<5yr)	11.6	27.7	17.4	33.5	9.7
Group leaders (5-10yr)	5.6	30	16.7	33.3	14.4
Group leaders (>10yr)	8.4	14.3	17.6	42.9	16.8

Percentage

Legend: ■ Strongly disagree ■ Somewhat disagree ■ Neither agree or disagree ■ Somewhat agree ■ Strongly agree
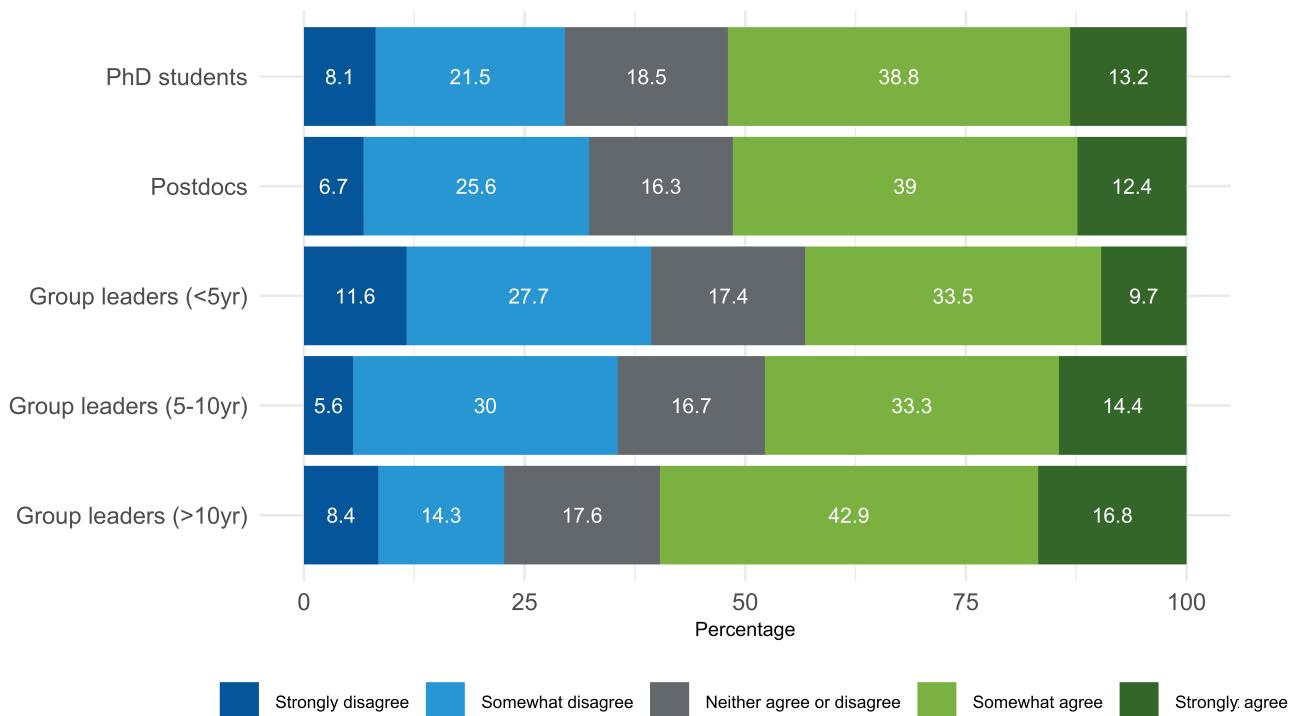
Graph 6.1.4

Need for practical information

Over half of supporters felt they **needed practical information** such as advice, guidelines or training to make their supporting experience better (Graph 6.2.1; N=1,515).

I needed practical information to help me in my supporting role:
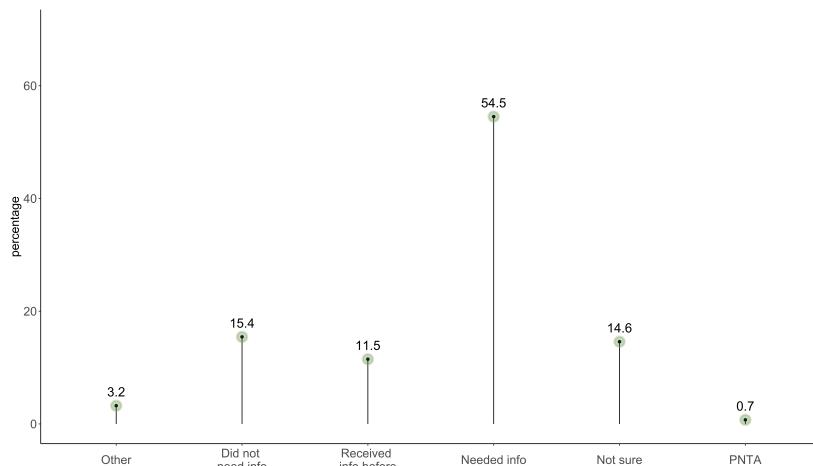
Graph 6.2.1

The lack of confidence expressed by those new to leadership is reflected in their desire for practical information. Compared to PhD students and late-career group leaders, **early-career group leaders were significantly more likely to crave practical information** (Graph 6.2.2; early-career group leaders vs. PhD students: Kruskal-Wallis: X^2 (1, N=1,251) = 8.71, adjusted p=0.01; early- vs. late-career group leaders: Kruskal-Wallis: X^2 (1, N=1,251) = 8.92, adjusted p=0.003). Early-career group leaders did not differ significantly from postdocs and mid-career group leaders (early-career group leaders vs. postdocs: Kruskal-Wallis: X^2 (1, N=1,251) = 4.91, adjusted p=0.10; early- vs. mid-career group leaders: Kruskal-Wallis: X^2 (1, N=1,251) = 4.33, adjusted p=0.14)

I needed practical information to help me in my supporting role:
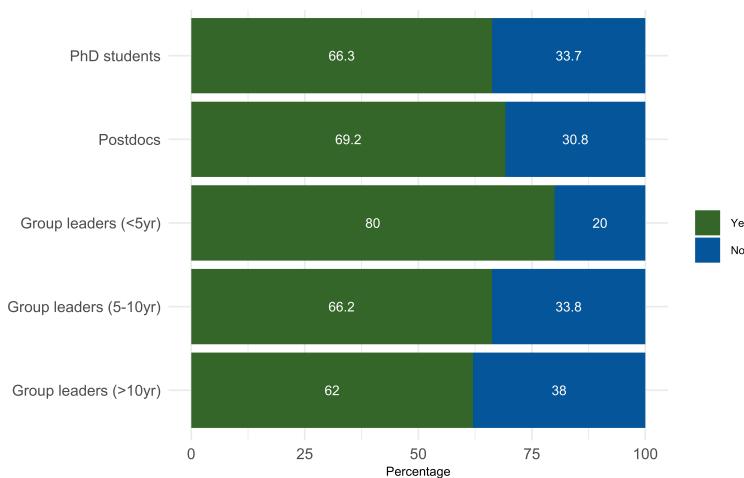
Graph 6.2.2

Need for practical information

Supporters were also asked to report, for a **range of supporting resources**, which ones they had needed but not accessed, needed and accessed easily, needed and accessed with difficulty, or not needed. Over half of respondents reported that they **needed but did not access specific advice from professionals** (51%; N=1,092) and **mental health training** such as workshops or courses (56.4%; N=1,094).

On the other hand, the majority (62.4%; N=1,095) did find **advice with friends, partners and family outside of academia** – only 10.6% mentioned that they did not need to access this source of information. **Colleagues** are also another source of advice, accessed by 56.6% of respondents (21% with difficulty, 35.6% with ease; N=1,091); worryingly, **23% needed help from colleagues, but were not able to find it**.

Online scientific communities (such as Twitter or Facebook groups) and written resources present a more contrasted picture, with respondents being split as to whether they needed and used these resources. Over a third (33.7%; N=1,090) said they did not need advice from online communities, but 32.8% reported that they had accessed them. Similarly, **18.5% of supporters did not need written resources, but 35.2% had accessed them** (21.4% easily, 13.8% with difficulty), and 28.5% needed these resources but did not access them (N=1,088).

In open answers, the top three most useful resources that respondents mention were their **colleagues** (14.5%; N=268), **resources on the internet** such as articles, social media and online communities (13.8%), and their **own experiences** (8.9%, with an additional 5.6% mentioning their own therapists).

Only a minority of respondents (9.8%; N=1,081) did not have issues accessing the resources they needed. For most (52.3%) the **main barrier is a lack of time** to find or access resources, followed closely (49.7%) by resources being difficult to find, or completely unavailable (34.8%). In addition, 21.6% of respondents mention they did not have the financial means to look for or access resources, and 16.9% found one of the main barriers to be that the resources available were not useful.

Limitations
Future directions
Methods

Limitations

Biases in our dataset

As a voluntary survey, it is likely our work suffers from **self-selection and sampling biases**, which were potentially reinforced by the way the survey was advertised, and its wording.

The channels used for recruitment were heavily biased towards individuals in the life sciences, which shows in the final dataset. The main pool of answers came from directly contacting eLife authors and community members, either through newsletters (voluntary subscriptions), or by emailing previous corresponding authors – which presumably targets a more senior segment of the population. Social media, however, our second most successful means of recruitment, caters to a younger, possibly more junior audience (the majority of Twitter users are under 35). Recruitment also specifically targeted certain groups based on their career stages (e.g. early- or mid-career group leaders), so the sample would include supporters from all stages. However, this also means that we cannot make conclusions as to whether individuals are more likely to be supporters at a given point in their academic journey. In addition, these recruitment efforts probably missed non-academic supporters, such as university and lab staff, which may not be part of academic online communities. As such, these individuals are likely to be underrepresented in the sample, and their experiences not appropriately accounted for.

The survey was advertised towards anyone "who know[s] a researcher who struggles with their mental health". Yet it is likely that individuals who have never given support did not take part in the survey; that cohort is indeed quite small in our dataset. While it is important to describe this population in this report, **conclusions regarding a 'supporters' profile' cannot be drawn.** In other words, our dataset cannot establish whether supporting and non-supporting populations are different in terms of gender, career stage, minority status, understanding of mental health or first-hand experience of mental health issues.

Similarly, the survey being branded as being about mental health probably excluded people who did not perceive the individuals they supported as experiencing mental health issues, potentially because of their understanding of mental health (e.g. concluding that academia is a stressful environment and therefore that the individuals were going through a 'normal' experience). In the same vein, there may be a segment of the population which did not register their actions as 'providing support', conceptualizing it as providing mentorship or 'just' being a good friend/partner instead. Finally, we may have missed those in the population who think about mental health using a different framework and vocabulary, potentially for cultural reasons.

On that note, results suggest that poor academic mental health may be a global problem (Cactus Foundation, 2020), yet our sample is overwhelmingly Western, and follows a **Western mental health framework**. As culture influences the structure of interpersonal relationships, as well as the way mental health is experienced, conceptualized and discussed (Gopalkrishnan N., 2018), the survey could be adapted to be culturally relevant during investigations of supporting relationships around the world.

Limitations

It is also possible that the sample is enriched in individuals who feel deeply about reporting support: this could be because of personal interest in the issue, or because they have experienced interactions (either positive or negative) that they feel strongly about reporting.

Women are overrepresented in our dataset: as women in the general population are more likely to have diagnosed mental health issues, they may be more familiar with the topic and the way it is framed, as well as have a greater interest in mental health. This bias may also indicate that they are more likely to be supporters – which would be in-line with other areas of informal care work, which usually fall more strongly on women (Sharma et al., 2016). However, this cannot be concluded from our dataset.

The sample also has high levels of individuals who have experienced times when their mental health was poor; while the rate of mental illness is thought to be 1 in 4 each year in the UK (Mind, 2017), and nearly 1 in 5 in the US, in our survey this rate was nearly two thirds, from 84% in PhD students to 25% in late-career group leaders. This may be because this population is more likely to be interested in mental health, to have a good understanding of it in themselves or others, or to be supporters.

Together, these limitations highlight the importance of further work that will engage with populations who have different levels of mental health literacy, gather a more representative sample, and better define what support and mental health issues entail.

Second-hand information

Several questions required supporters to indicate what they believe the person they supported was struggling with, and the reasons for these difficulties. These results should be interpreted with caution, as they are potentially distorted by the **supporters' own prejudice, framework and knowledge of mental health**. However, including these questions was necessary to inform what type of training or measures could be useful for supporters (e.g. is it worth discussing personality disorders or panic attacks, or are very few supporters facing these conditions?) and to encourage further, more detailed research.

Confounding factors, interacting effects

Men and women were compared while controlling for the effect of career stage – and indirectly via this, partially also of age. However, the differences found between the two genders - for instance that women find the supporting experience more draining - could be due to other factors which diverged between the populations (e.g. women being more likely to support more than one person at once, or to be themselves struggling with their mental health). Exploring the impact of these interacting effects is important but beyond the scope of this report. However, using gender as a proxy for other factors that may predispose supporters for burnout could still be helpful and relevant for organisations designing practical interventions for supporters, and to target those who most need help.

Future directions

Two other independent variables – that is, **minority** status of the supporters, and their **own mental health** during the supporting experience – should be examined to assess whether they make a difference on the supporting experience. Looking into these dimensions (and their intersections) is key to assess whether certain segments of the academic population face additional, invisible workloads and challenges. The supporting roles of other **frontline supporters**, such as technicians and admin staff, should also be considered.

It would also be useful to dissect whether supporters who feel that their **research environment** is toxic and/or competitive have a different supporting experience than those who do not. Other factors, such as the **career stage of the person supported**, and whether they were **receiving professional help**, would also be important to study so that training and support can be tailored to the experiences of supporters. Finally, further studies could benefit from a quantitative assessment of the intensity of the supporting relationship, and examining whether it was taking place during professional or personal time.

Overall, results from this survey expose patterns of behaviour that should encourage further research and may prove useful for organisations seeking to assist their supporters. They highlight that 'informal', unofficial support is common, and that these relationships, while positive, can be challenging for supporters, particularly women. Support, both emotional and practical, is sorely needed yet rarely found within institutions. Those new to leadership, in particular, need help in their supporting interactions. Although many in our survey report that being a supporter takes time, and sometimes affects their work, these interactions remain invisible and poorly valued by universities. Finally, better mental health provisions could benefit supporting relationships, as many supporters struggle with their mental health, and the individuals they help often receive no professional support. The implications of these findings are further discussed in an eLife feature article.

The results reported here provide a snapshot of the nature and extent of support across academia, particularly in the life sciences. The characteristics and **needs of supporters are likely to vary greatly between and within institutions** depending on local pressures. The survey, which we have made available for reuse, could help wellbeing officers to better understand the state of play within their own universities, and tailor interventions in response.

Methods

Survey Development

The survey was created in collaboration with and reviewed by academics and university officials before being released. It received ethical approval from the University of Cambridge Psychology department (2018-19/35), and was created on the Survey Monkey platform. It was open between the 23rd October 2019 and 5th January 2020, but only actively advertised until early December 2019.

The survey comprised 54 questions (none of which were mandatory) divided into eight sections – see full questionnaire here. Sections two to seven were only visible to respondents who had reported having supported at least one researcher struggling with their mental health. These sections were dedicated to questions about the respondents' latest supporting experience.

Amongst these, section five was only accessible to respondents who mentioned having needed practical information to help them in their supporting role (that is, people who answered "Yes, I needed information" to question 22). Section eight collected demographic information on all participants regardless of whether they have supported someone before.

Survey Recruitment

eLife is an open access journal in the life sciences. Recruitment took place through eLife's social media channels (Twitter, Facebook, LinkedIn); eLife's newsletters to authors and its early-career community (voluntary subscriptions); directly emailing corresponding authors who have published with eLife; and by contacting groups of interest and institutions that may be willing to share the survey amongst their networks (e.g. New PI Slack, Mid Career PI Slack, Women in Academia Support Network, SMaRteN, Graduate and Postdoc unions in the US and the UK).

Certain tweets advertising the survey were boosted (paid promotion) to reach an academic audience, in particular early-career researchers. Overall, the most successful recruitment channel was direct contact with the eLife community (emails and newsletters: 944 responses), followed by Twitter (650 responses).

The advertising around the survey focused on whether the potential respondents knew researchers who had struggled with their mental health. It did not explicitly call for academics – because support can also come from non-academics, or for respondents who had provided help – so that people who have never helped a researcher could take the survey and be compared to supporters.

Methods

Confidentiality and anonymity

The survey did not require identifiable information from the respondents, such as email addresses, institutions etc. However, it comprised a number of open questions where respondents could share their thoughts and experiences. The open answers were removed before the release of the dataset unless the respondents gave active consent for their words to be shared. In addition, answers to open questions that could have allowed individuals or institutions to be identified were redacted.

Sample

2,422 respondents took part in the survey, with 1,945 individuals (80.3%) completing it – that is, progressing to the final screen of the survey. Respondents who did not complete the survey were excluded from the analysis, as the consent form specified that respondents could withdraw consent by leaving the survey. After further data cleaning (as described below) 1,889 respondents remained. This includes people who have never supported anyone, and those who describe their last supporting experience.

Data cleaning

For data to be included, there were no upper or lower limits put on the number of questions answered or time taken to complete the survey. No outliers were identified in terms of number of questions answered, or finishing the survey too fast. Overall, 94 individuals completed the survey unusually slowly (taking over an hour compared with the group mean of 31 minutes), however these individuals were retained as this was not deemed to indicate poor data quality.

Moreover, we excluded a small number of individuals (N=56) who indicated that they did not understand the instructions properly. For example, the survey aimed to collect information on supporters' most recent experience helping someone else. Answers that indicated the respondents were relying on several experiences (as mentioned in open answers) were removed so it would be possible to draw conclusions based on the career stage of the supporters at the time of support.

Methods

Certain multiple-choice questions allowed respondents to contradict themselves, for example checking "prefer not to answer" or "I am not sure" to questions they have actually answered. This was kept, as we could not be sure that these options were not checked by accident, or because respondents wanted to add that, in addition to their answers, there was something they were unsure about or preferred not to share.

Certain forced or multiple choice questions allowed respondents to add an open answer. In those cases, some respondents gave responses that matched existing options they could have checked. Such answers were recoded into existing categories within the demographic questions (e.g. 'Research assistant' was recoded in the following category "A technician, research assistant, lab manager, field coordinator or similar lab staff"). In total, there were 21 instances of recoding across questions pertaining to the career stage during the supporting relationship, career stage of the person supported, gender and current career stage of the respondent.

Where open responses could not be recoded into existing categories, new categories were created for demographic-related questions (Q4, Q9 and Q30): "Other academic staff (research & teaching)" for lecturers or assistant professors who do not oversee a research group and "Academic admin staff" for deans, directors of graduate studies etc. Only a very limited number of respondents belong to these new categories. Answers outside of demographics, however, were not recoded, as this would risk wrongly interpreting a personal experience.

Finally, a new variable was added to capture the proportion of respondents who identify as a minority for at least one reason besides gender (that is, ethnicity, sexual orientation, socio-economic status, disability status, or a reason specified by the individual).

Methods

Analyses

Analyses were conducted using R; the dataset and code are available. Answers to open-ended questions were not examined in this report, with the exception of one question (what resources supporters found most useful), which was coded independently by two authors.

The bulk of the analyses consisted of descriptive statistics – that is, reporting how individual variables are distributed within the sample. However, the effect of two independent variables was also explored: self-identified gender (this was conducted using women vs. men, as only a small number of individuals identified as non-binary/genderfluid); and 'career stages', a subsection of the professions held by the supporters at the time of support (in this case: PhD, postdocs, early-career group leaders, mid-career group leaders and late career group leaders). These two variables were chosen based on the literature exploring how care and pastoral responsibilities in academia may be gendered (e.g. Guarino et al., 2017), and because examining career stages could inform the timing and content of training and workshops offered by universities. For questions regarding supporters (Section 2-6), the data was filtered to keep only individuals who answered both the gender and career stages question, as to control for interactions between the two factors.

An additional variable was considered in Section 1 – whether the respondents have reported supporting at least one person before. In this section, gender and the career stage of the respondents at the time they took the survey (as opposed to career stage at the time of support, since not all respondents have been supporters) were examined, although they were considered separately.

The effect of gender and 'career stages' variables on categorical/binary dependent variables was examined using factorial logistic regressions, where the intersections between the two independent variables could also be assessed. In these cases, the dependent variable was also recoded to remove "I am not sure" and/or "Prefer not to answer" options.

The effect of gender and career stages on ordinal dependent variables (that is, five-point Likert scales – with the option "Non-Applicable" removed) was examined using a combination of ordinal logistical regressions and Kruskal-Wallis tests.

In addition, Chi-squared tests were used where appropriate to explore the intersection between gender and career stages. In all logistical regression models with career stage as an independent variable, PhD is chosen as the reference group. Therefore the responses of every career group is compared to the ones reported by PhD students.

Methods

A logistic regression model with significance test is used to assess whether there is any significant relationship between an independent variable (e.g. gender or career stage) and a binary dependent variable (e.g. yes/no in response to a question). When a p-value of an independent variable is less than 0.05, it is quite unlikely that an effect of that size (or bigger) could have been found if, in fact, there was no effect in the population.

In the case where there is more than one independent variable of interest, if both independent variables have a non-zero correlation with the dependent variable, then a factorial logistic regression model with significance test is used to test for any significant relationship between interactions of the two independent variables and the binary dependent variable.

To calculate odds ratios, an ordinal logistic regression model is used to model the relationship between an independent variable and an ordinal dependent variable. Odds ratios are calculated from the model's coefficients (odds ratio = exp(coefficient)); they are used synonymously with effect sizes. Two-sided 95% confidence intervals of the odd ratios are calculated with the R functions exp(confint()). Effects sizes and confidence intervals for comparisons depicted in the graphs in the report are shown in Appendix I.

The Kruskal-Wallis test is used to assess for significant differences on an ordinal dependent variable by a categorial independent variable, e.g. gender or career stage. A p-value inferior to 0.05 indicates that it is unlikely that an effect of that size could have been found if there had not been differences between the groups with different values for the independent variable, e.g. men's responses vs women's responses. For analyses examining whether early-career group leaders stand out from other career stages, a pairwise comparison between early-group leaders and all other groups was conducted, with a Sidak correction being applied posthoc.

Resources
References
Appendices I & II

Resources

Mental health first aider training:
*   https://mhfa.com.au/mental-health-first-aid-training (Australia)
*   https://mhfaengland.org/ (UK)
*   https://www.mentalhealthfirstaid.org/ (USA)
*   https://www.prevent-suicide.org.uk/training-courses/asist-applied-suicide-interventions-skills-training/ (Applied suicide intervention skills training)

Resources for active listening:
https://www.samaritans.org/how-we-can-help/if-youre-worried-about-someone-else/how-support-someone-youre-worried-about/what-do-if-you-think-someone-struggling/

Creating a workplace that fosters good mental health:
*   https://www.mind.org.uk/media-a/4663/resource1_mentally_healthy_workplacesfinal_pdf.pdf
*   https://www.mind.org.uk/media-a/4664/resource_2_take_stock_of_mh_in_your_workplace_final.pdf
*   https://www.mind.org.uk/media-a/4662/resource3_howtopromotewellbeingfinal.pdf

Creating an inclusive lab:
*   https://www.sciencemag.org/features/2020/01/inclusivity-all-how-make-your-research-group-accessible
*   https://www.nature.com/articles/d41586-019-00282-y?utm_source=twt_nnc&utm_medium=social&utm_campaign=naturenews&sf206801873=1
*   https://www.frontiersin.org/articles/10.3389/fpsyg.2019.01305/full

Creating a positive work environment for LGBT faculty: what higher education unions can do
*   https://www.aft.org/sites/default/files/wysiwyg/genderdiversity_lgbt0413.pdf

Leadership programs for group leaders:
*   https://www.publichealth.columbia.edu/research/precision-prevention/pi-crash-course-skills-future-or-new-lab-leaders
*   For postdocs: https://lab-management.embo.org/dates#postdocs

Leadership resources for group leaders and mentors
*   https://www.vitae.ac.uk/doing-research/leadership-development-for-principal-investigators-pis
*   https://rackham.umich.edu/downloads/how-to-mentor-graduate-students.pdf

Resources

Managing someone with mental health issues:

* https://www.ourcommunity.com.au/files/MadWorkplaces-ForEmployers.pdf
* https://mhfastorage.blob.core.windows.net/mhfastoragecontainer/bbaee8ce4864ea11a811000d3ab82d69/Line%20Managers%20Resource%20Screen.pdf?sv=2015-07-08&sr=b&sig=6l8RMIwWRek4%2BzWZqkUr4Awgi5K097vDJ7ouYBAvMNg%3D&se=2020-10-26T18%3A32%3A31Z&sp=r
* https://www.mind.org.uk/media-a/4660/mental-health-at-work-1_tcm18-10567.pdf
* https://www.mind.org.uk/media-a/4661/resource4.pdf
* https://cdn.mentalhealthatwork.org.uk/wp-content/uploads/2020/02/25142446/9793_Nuffield-Health_Emotional-Wellbeing_Information-for-Line-Managers-H....pdf
* https://archive.acas.org.uk/index.aspx?articleid=6064

Supporting someone who is returning to work after a mental health break:

* As manager: http://affinityhealthatwork.co.uk/sites/default/files/2019-11/RTW%20MH%20IGLOO%20Guide%20for%20Line%20Manager.pdf
* As colleagues: http://affinityhealthatwork.co.uk/sites/default/files/2019-11/RTW%20MH%20IGLOO%20Guide%20for%20Colleagues.pdf
* As the employee: http://affinityhealthatwork.co.uk/sites/default/files/2019-11/RTW%20MH%20IGLOO%20Guide%20for%20Employees.pdf

Peer support:

* http://www.studentminds.org.uk/uploads/3/7/8/4/3784584/interactive_laym_guide.pdf
* https://www.youtube.com/watch?v=crVyblRi7eQ&feature=emb_logo&ab_channel=CALM
* https://news.liverpool.ac.uk/2020/04/07/new-online-module-supporting-pgr-student-mental-health-for-supervisors/

Mental health at university:

https://mhfastorage.blob.core.windows.net/mhfastoragecontainer/10fb7eeb1bfee811815be0071b664191/Higher%20Education%20MHFA%20brochure_wp.pdf?sv=2015-07-08&sr=b&sig=jXxbWdFF1Z84%2FtwWOkG7bDPiVeG1aKBqMDdL6WhPO2Y%3D&se=2020-10-26T19%3A03%3A07Z&sp=r

Overview of various mental health conditions:

* https://www.mind.org.uk/information-support/helping-someone-else/
* http://www.sane.org.uk/resources/mental_health_conditions/
* https://www.rethink.org/advice-and-information/about-mental-illness/learn-more-about-conditions/
* https://www.rethink.org/advice-and-information/about-mental-illness/learn-more-about-symptoms/ (mental health symptoms)
* https://www.time-to-change.org.uk/category/blog/tips-supporting-someone (Advice and tips on how to talk about mental health to friends, colleagues and family, written by people with personal experiences of mental health problems)

Resources

Coping when supporting someone else:
https://www.mind.org.uk/media-a/2903/supporting-someone-else-2017.pdf

Encouraging someone to seek help:
- https://www.rethink.org/advice-and-information/about-mental-illness/learn-more-about-symptoms/persuading-someone-to-speak-to-their-gp/
- https://www.mind.org.uk/information-support/guides-to-support-and-services/seeking-help-for-a-mental-health-problem/helping-someone-else-seek-help/

Supporting someone with depression:
https://www.studentsagainstdepression.org/helping-others/

Supporting someone who is having a panic attack:
- https://youngminds.org.uk/blog/how-you-can-help-someone-having-a-panic-attack/#how-to-help-someone-having-a-panic-attack
- https://nopanic.org.uk/wp-content/uploads/2020/06/PDF-Printables-How-to-help-someone-having-a-panic-attack.pdf

Supporting someone with suicidal thoughts:
- https://www.samaritans.org/how-we-can-help/if-youre-worried-about-someone-else/supporting-someone-suicidal-thoughts/
- https://www.rethink.org/advice-and-information/carers-hub/suicidal-thoughts-how-to-support-someone/
- https://www.papyrus-uk.org/worried-about-someone/ (young persons)

Supporting/being an employee with bipolar disorder:
- https://www.bipolaruk.org/Handlers/Download.ashx?IDMF=573ebcfc-8af4-4e28-aad3-9f158246fb40
- https://www.bipolaruk.org/Handlers/Download.ashx?IDMF=bc7d232f-3e7b-4104-88df-8da7f70ec2db

Supporting a transgender employee:
http://www.lgbthealth.org.uk/wp-content/uploads/2016/07/TWSP-Info-Guide-Final.pdf

Guide for bystander intervention in case of harassment:
https://www.ihollaback.org/app/uploads/2016/11/Show-Up_CUPxHollaback.pdf

Supporting someone online:
http://talkspace.com/blog/help-online-friend-in-need/

Resources

Supporting someone in an abusive relationship:
- https://www.loveisrespect.org/resources/questions-to-ask-if-youre-worried-about-your-friends-relationship/
- https://www.joinonelove.org/learn/help_a_friend/

Supporting someone being abused during COVID:
https://nnedv.org/wp-content/uploads/2020/04/Library_COVID_helping_a_friend.pdf

Supporting someone with an eating disorder:
https://www.beateatingdisorders.org.uk/uploads/documents/2017/10/carers-booklet.pdf

Supporting someone with birth trauma: https://www.birthtrauma.org.au/wp-content/uploads/2020/05/ABTA-Family-and-Friends-resource-May-2020.pdf

Supporting someone who is bereaved by suicide:
- https://uksobs.org/we-can-help/suicide-bereavement/supporting-the-bereaved/
- https://www.cruse.org.uk/sites/default/files/uploaded_files/Cruse%20YouBeU%20Signposting%20Pack.pdf

Losing someone to suicide:
- https://www.cruse.org.uk/sites/default/files/default_images/pdf/Help%20is%20at%20Hand%20guide.pdf (with a section on helping someone who has been bereaved by suicide)
- https://uksobs.org/wp-content/uploads/2019/11/Support-after-Suicide-Booklet-V5-10-2019.pdf

Supporting someone who has been raped or sexually assaulted:
- https://www.pcar.org/sites/default/files/resource-pdfs/friends_and_family_guide_final.pdf
- https://rapecrisis.org.uk/get-help/looking-for-information/supporting-a-survivor/

Resources for individuals facing sexual abuse:
https://docs.google.com/document/d/14I3lGpEQa-pLl9Lz0JW1PoNyyOwg6WOom_oK2NMBxy8/edit#

Online communities:
- https://sidebyside.mind.org.uk/
- https://www.phdbalance.com/
- https://newpislack.wordpress.com/
- https://twitter.com/mid_career_pi?lang=en
- https://twitter.com/futurepi_slack?lang=en

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Graph	Group	Baseline group	Effect size	CI lower bound	CI upper bound
Graph 2.1.2	Women	Men	1.24	0.99	1.57
Graph 2.1.2	Postdocs	PhDs	1.04	0.80	1.38
Graph 2.1.2	Early-career group leaders	PhDs	0.82	0.57	1.17
Graph 2.1.2	Mid-career group leaders	PhDs	0.77	0.49	1.20
Graph 2.1.2	Late-career group leaders	PhDs	1.45	0.96	2.18
Graph 2.2.2	Postdocs	PhDs	0.90	0.65	1.27
Graph 2.2.2	Early-career group leaders	PhDs	0.54	0.36	0.83
Graph 2.2.2	Mid-career group leaders	PhDs	0.43	0.26	0.70
Graph 2.2.2	Late-career group leaders	PhDs	0.45	0.29	0.70
Graph 2.3.3	Women	Men	2.16	1.67	2.78
Graph 2.3.4	Women	Men	2.01	1.55	2.59
Graph 2.3.5	Postdocs	PhDs	0.44	0.31	0.62
Graph 2.3.5	Early-career group leaders	PhDs	0.17	0.11	0.26
Graph 2.3.5	Mid-career group leaders	PhDs	0.12	0.07	0.19
Graph 2.3.5	Late-career group leaders	PhDs	0.06	0.04	0.10
Graph 2.3.6	Postdocs	PhDs	0.88	0.65	1.22

Graph	Group	Baseline group	Effect size	CI lower bound	CI upper bound
Graph 2.3.6	Early-career group leaders	PhDs	0.68	0.46	1.01
Graph 2.3.6	Mid-career group leaders	PhDs	0.44	0.28	0.72
Graph 2.3.6	Late-career group leaders	PhDs	0.47	0.31	0.72
Graph 3.1.1	Postdocs	PhDs	2.17	1.13	4.27
Graph 3.1.1	Early-career group leaders	PhDs	44.31	24.89	83.38
Graph 3.1.1	Mid-career group leaders	PhDs	42.54	22.57	84.20
Graph 3.1.1	Late-career group leaders	PhDs	59.91	32.43	116.79
Graph 3.1.2	Women	Men	0.51	0.38	0.68
Graph 3.2.1	Postdocs	PhDs	1.01	0.73	1.38
Graph 3.2.1	Early-career group leaders	PhDs	3.05	1.84	5.28
Graph 3.2.1	Mid-career group leaders	PhDs	2.64	1.43	5.28
Graph 3.2.1	Late-career group leaders	PhDs	3.73	2.05	7.38
Graph 4.3.1	Women	Men	1.44	1.16	1.78
Graph 4.3.2	Women	Men	1.43	1.16	1.76
Graph 4.3.3	Women	Men	1.46	1.19	1.80
Graph 4.3.4	Women	Men	1.24	1.01	1.52

Appendix I

Graph	Group	Baseline group	Effect size	CI lower bound	CI upper bound
Graph 4.4.1	Postdocs	PhDs	0.83	0.65	1.06
Graph 4.4.1	Early-career group leaders	PhDs	1.60	1.14	2.27
Graph 4.4.1	Mid-career group leaders	PhDs	0.91	0.60	1.38
Graph 4.4.1	Late-career group leaders	PhDs	0.75	0.52	1.08
Graph 4.4.2	Postdocs	PhDs	1.05	0.83	1.34
Graph 4.4.2	Early-career group leaders	PhDs	2.26	1.63	3.12
Graph 4.4.2	Mid-career group leaders	PhDs	1.48	0.99	2.21
Graph 4.4.2	Late-career group leaders	PhDs	1.10	0.77	1.57
Graph 4.4.3	Postdocs	PhDs	0.78	0.61	1.00
Graph 4.4.3	Early-career group leaders	PhDs	0.88	0.63	1.22
Graph 4.4.3	Mid-career group leaders	PhDs	0.82	0.55	1.22
Graph 4.4.3	Late-career group leaders	PhDs	0.49	0.34	0.70
Graph 5.2.4	Women	Men	0.77	0.61	0.95
Graph 5.2.5	Postdocs	PhDs	1.02	0.78	1.33
Graph 5.2.5	Early-career group leaders	PhDs	2.62	1.87	3.68
Graph 5.2.5	Mid-career group leaders	PhDs	2.02	1.32	3.07

Appendix I

Graph	Group	Baseline group	Effect size	CI lower bound	CI upper bound
Graph 5.2.5	Late-career group leaders	PhDs	5.25	3.54	7.80
Graph 6.1.3	Women	Men	1.28	1.03	1.58
Graph 6.1.4	Postdocs	PhDs	0.95	0.75	1.22
Graph 6.1.4	Early-career group leaders	PhDs	0.68	0.49	0.94
Graph 6.1.4	Mid-career group leaders	PhDs	0.90	0.60	1.34
Graph 6.1.4	Late-career group leaders	PhDs	1.34	0.93	1.93

Question	CS1	CS2	X²	N	df	p-value	Adj. p-value
Impact_draining	Group leaders (<5yr)	PhD students	7.269973	680	1	0.0070116865	0.02775314
Impact_draining	Group leaders (<5yr)	Postdocs	12.494864	507	1	0.0004080724	0.001631291
Impact_draining	Group leaders (<5yr)	Group leaders (5-10yr)	4.776699	244	1	0.0288473645	0.110491767
Impact_draining	Group leaders (<5yr)	Group leaders (>10yr)	10.288929	273	1	0.0013383071	0.005342492
Impact_work	Group leaders (<5yr)	PhD students	23.078118	680	1	1.56E-06	6.22E-06
Impact_work	Group leaders (<5yr)	Postdocs	18.083088	504	1	2.11E-05	8.46E-05
Impact_work	Group leaders (<5yr)	Group leaders (5-10yr)	3.208835	238	1	7.32E-02	2.62E-01
Impact_work	Group leaders (<5yr)	Group leaders (>10yr)	10.020563	272	1	1.55E-03	6.18E-03
Confident_withMH	Group leaders (<5yr)	PhD students	5.384519	686	1	0.0203161888	0.07882164
Confident_withMH	Group leaders (<5yr)	Postdocs	3.810071	511	1	0.0509452996	0.18873081
Confident_withMH	Group leaders (<5yr)	Group leaders (5-10yr)	1.312923	245	1	0.2518660566	0.68673099
Confident_withMH	Group leaders (<5yr)	Group leaders (>10yr)	8.892148	274	1	0.0028639966	0.01140686
Practical support	Group leaders (<5yr)	PhD students	8.706275	552	1	0.0031711165	0.01262445
Practical support	Group leaders (<5yr)	Postdocs	4.909109	406	1	0.0267154155	0.10265514
Practical support	Group leaders (<5yr)	Group leaders (5-10yr)	4.326939	217	1	0.0375136455	0.14182013
Practical support	Group leaders (<5yr)	Group leaders (>10yr)	8.922114	248	1	0.0028173822	0.01122199