Widening the Gap: Gender Differences in Impact of the COVID-19 Pandemic on Early-Career Scholars

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Introduction

Gender Disparities in Academia

- Women experience unequal treatment, respect, and representation in academia, particularly STEM; today, women still face significant challenges to their success over their male colleagues.
- The disadvantages women in academia face makes them more susceptible to job burnout (Pederson and Minnotte 2016), decreasing career satisfaction and increasing likelihood of turnover.
- Increasing turnover perpetuates the issue of representation.

COVID-19 and its Inequitable Impact on Female Scholars

- Gender disparities in academia have been exacerbated by the ongoing COVID-19 pandemic.
- March-June 2020 saw a disproportionate decline in women's publications, especially in first and sole-authored articles (King and Frederickson 2021).
- Female academics had substantial losses in productivity and increased stress over males, in part due to inability to defer child and elder care (Oleschuk 2020).

Hypotheses

- Female academics will experience less productivity and research progress compared to their male colleagues.
- Female academics will experience greater declines in mental health than their male colleagues.

Methods

Online Pilot Survey

- Pilot study of N=199 individuals was conducted using Prolific.
- Participants were early-career scholars asked about the effect of COVID-19 on their research progress and mental health.

Participant Demographics

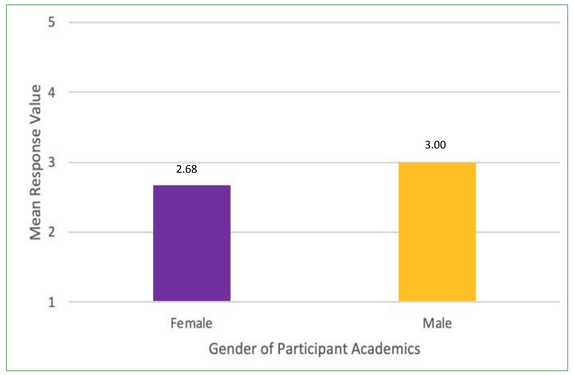
- Academic Position: 126 graduate students, 30 postdocs, 25 assistant professors, 18 other positions across natural and social sciences.
- Gender: 93 Women, 102 Men, 3 Nonbinary, 1 did not respond.

Analysis Method

- Two t-tests were conducted to measure the differing effects of the COVID-19 pandemic on male and female academics in regard to alterations in research progress and mental health.

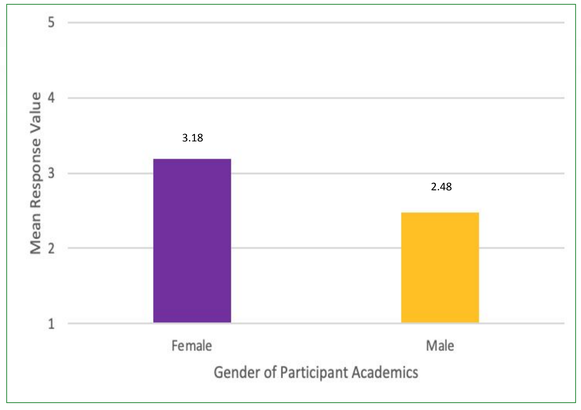
Results

- Female early-career scholars have suffered disproportionate negative effects to their progress and career as a result of the ongoing COVID-19 pandemic compared to their male colleagues.



Numerical Value	Response Category
5	Greatly increased
4	Somewhat increased
3	Stayed the same
2	Somewhat decreased
1	Greatly decreased

Figure 1. Average Change in Research Progress due to COVID-19. While male scholars overall had a mean response of exactly 3.00 (no change), female scholars on average experienced a significant decrease in progression of their research with a mean response of 2.68 (*t=2.04, p=0.042)*.



Numerical Value	Response Category (Mental Health Problems…)
5	Disrupted my work a great deal
4	Quite a bit disrupted my work
3	Somewhat disrupted my work
2	Disrupted my work a little bit
1	Not at all disrupted my work

Figure 2. Average Effect of Mental Health on Disruption of Work due to COVID-19.. Female scholars experienced a greater effect of mental health on work disruption with a mean response value of 3.18, significantly higher than the mean of their male colleagues of 2.48 (*t=-3.87, p<0.001*).

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Discussion and Conclusions

Creating a More Equitable Academic Environment

- Women in academia continue to be at a significant disadvantage to succeed compared to men.
- COVID-19 has greatened these disparities, setting women behind in progress and mental health altering productivity.
- Results are concurrent with other studies also showing disparities in gender career effects in the past 12 months.
- Need improvements in policy and inclusion training at the department.
- Personal responsibility of individuals holding colleagues accountable will be necessary to enact change; may be challenging as male academics struggle to recognize the challenges women in STEM face (Sattari and Sandefur 2018).
- Supporting women's well-being and taking an active role in gender inclusive climate is the first step in creating institutionalized change.

Limitations and Future Directions

- Sample was not randomly selected.
- Global sample without knowledge of country representation.
- Added research into women's promotions/higher level representation rates to see long-term career effect of COVID-19.
- Additional intersectional studies comparing effects in women of varying ethnicity/race and other minority groups may be beneficial.

The Big Picture: CLIMBS UP Climate for Inclusion

- This research is a small portion from the pilot study of a much larger project: CLIMBS UP Climate for Inclusion.
- Investigating how inclusive work climate affects career outcomes of early-career scholars in STEM.
- This study and CLIMBS UP overall serves to bring awareness to factors that put certain groups at disadvantages to succeed in STEM academia.

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