

# IMPACT OF COVID-19 ON HEP RESEARCH - Followup Survey

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HEPAP Meeting, December 3-4, 2020

Michael Hildreth (Notre Dame)

Meenakshi Narain (Brown U.)

# The Survey

We administered one follow up [General Survey](#), advertised widely and on the Snowmass Slack Channels

The [General Survey](#) focused on personal and productivity issues, with an opportunity for general responses.

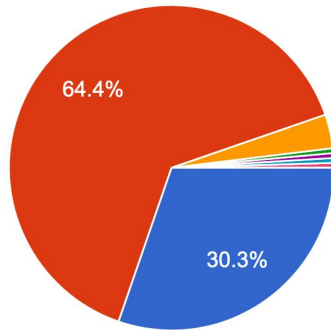
Thank you to everyone who participated - especially over the long Thanksgiving weekend!

# Demographics

## General Survey: 208 Responses

My work in HEP is mostly  
208 responses

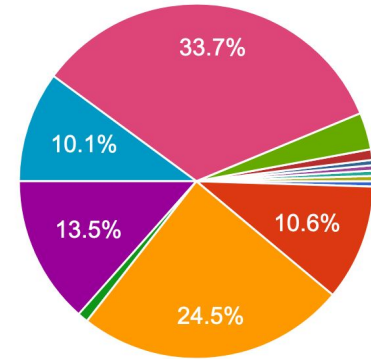
- Theoretical
- Experimental
- Technical
- Observational
- Software Development
- Managerial
- Manager



My career level is  
208 responses

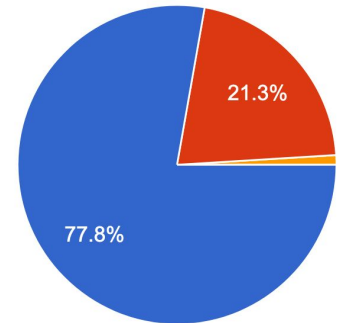
- Undergraduate Student
- Graduate Student
- Post-doctoral researcher
- Other post-degree position or fellowship
- Laboratory Staff
- Assistant Professor
- Associate or Full Professor
- Technical Staff

▲ 1/2 ▼



I am employed by  
207 responses

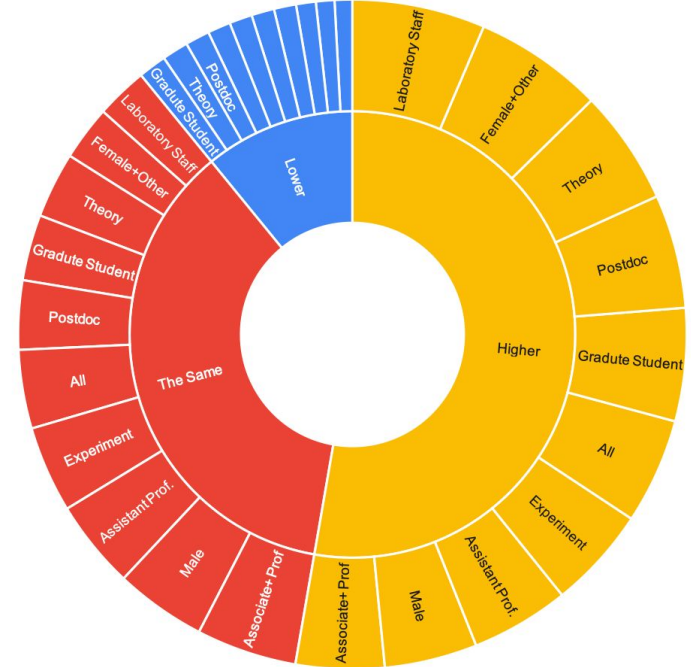
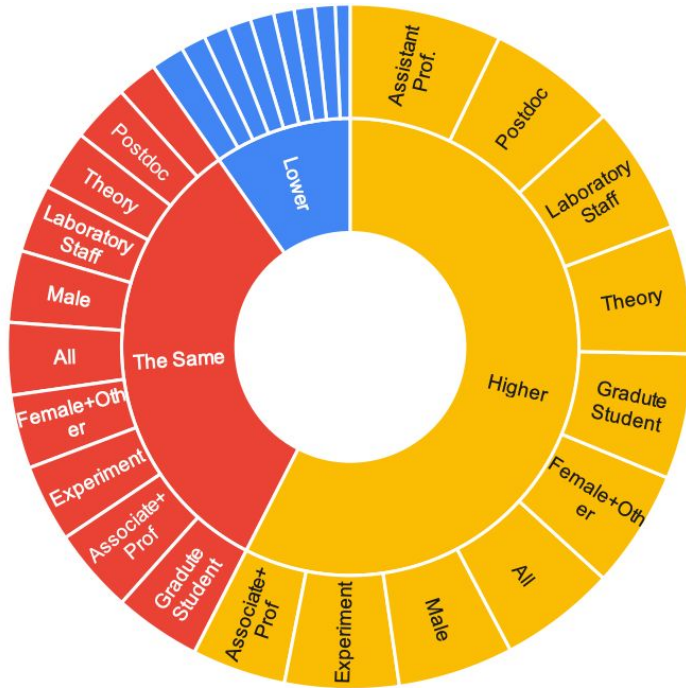
- A College or University
- A regional or national Laboratory
- A research corporation



# Level of stress, relative to April, 2020, is **HIGHER**

Work, career, & work-life balance

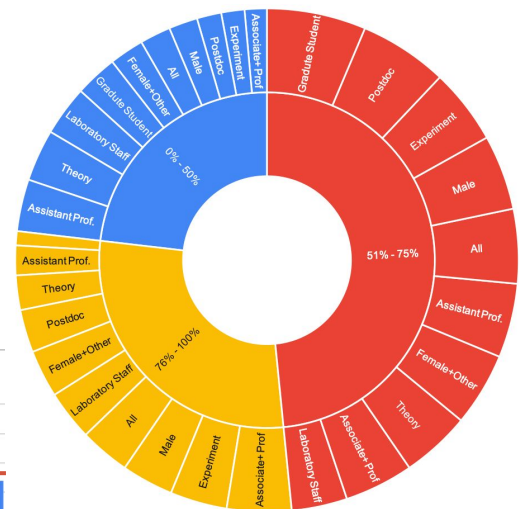
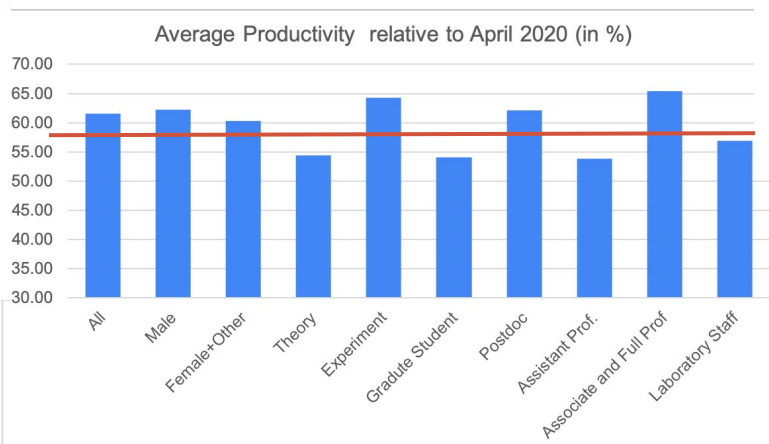
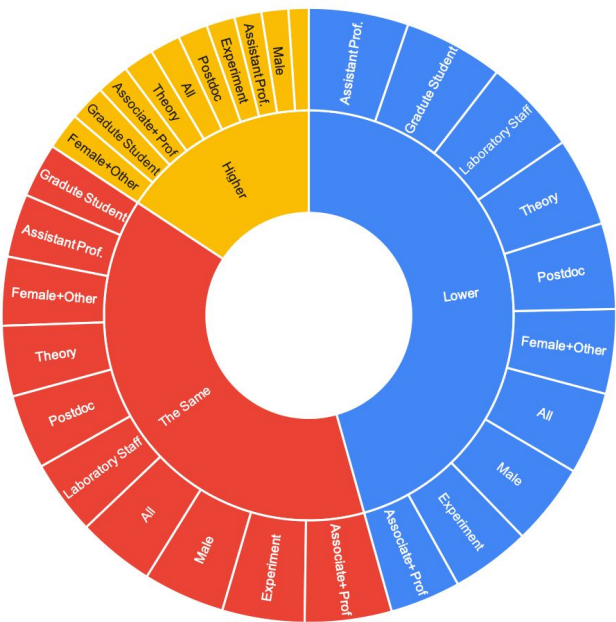
Family and social situations



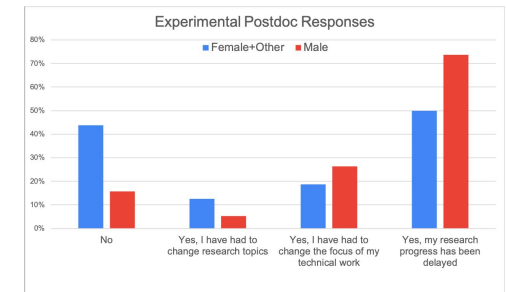
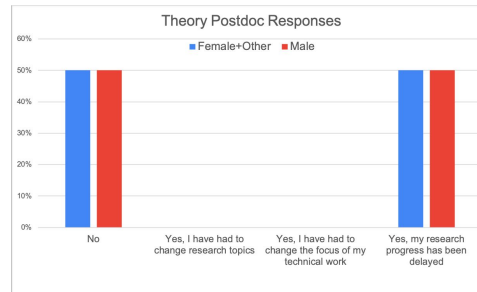
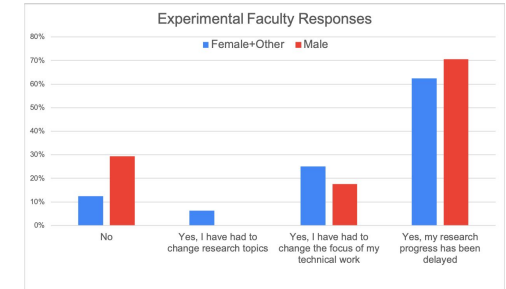
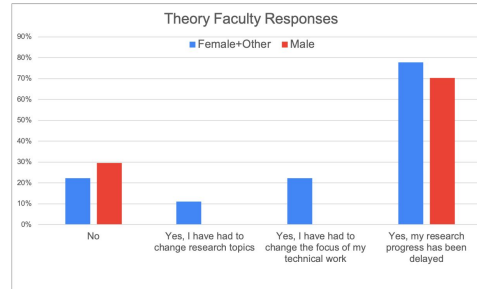
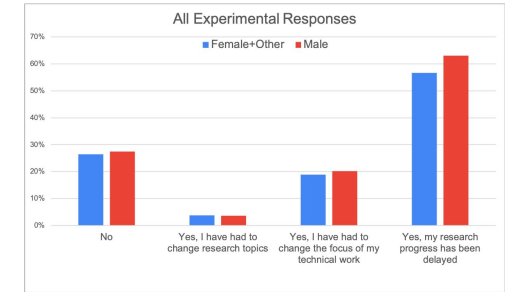
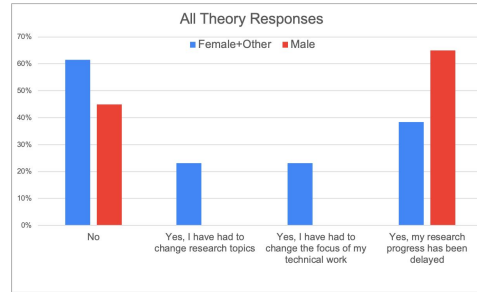
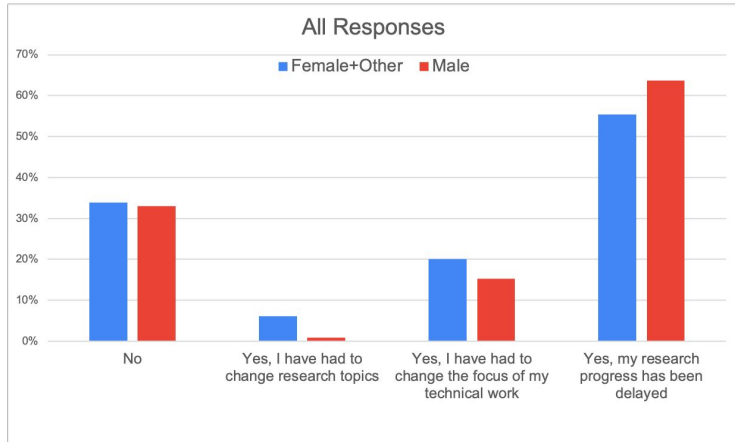
Teaching is more work for a less personal product. Parenting is more work. Mentoring is more work. Everything is more work for poorer outcomes. I am so tired.

# Scientific Productivity

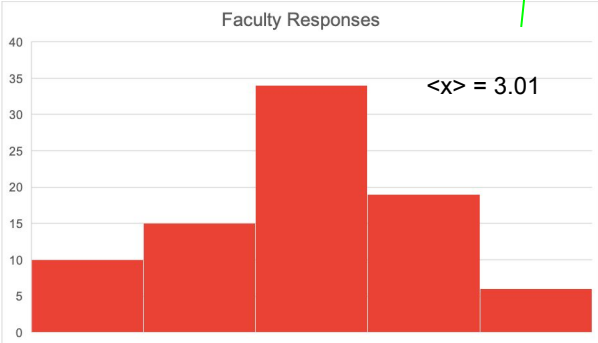
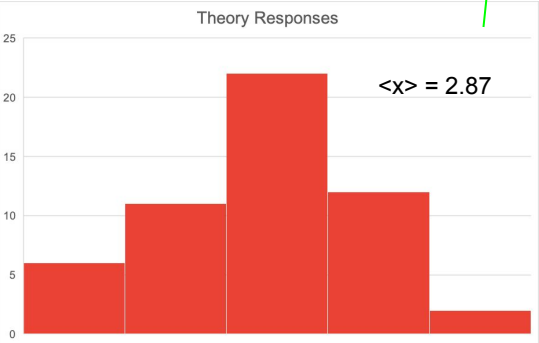
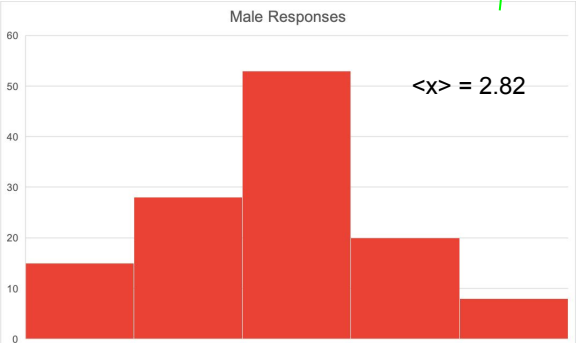
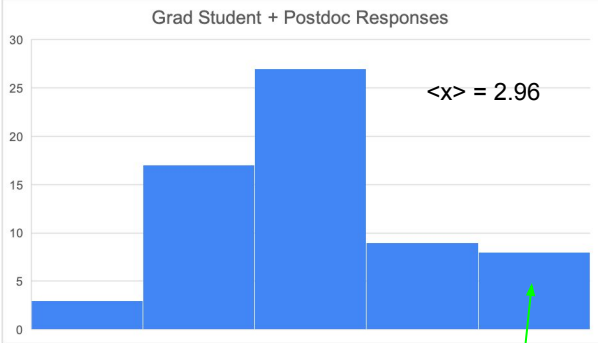
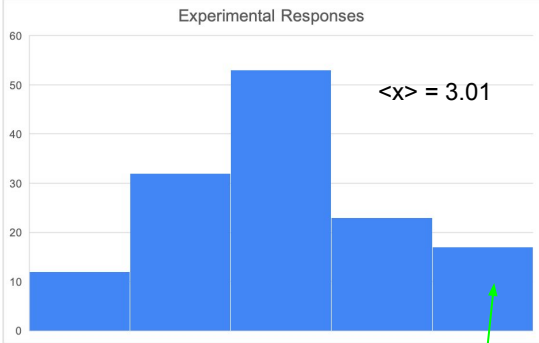
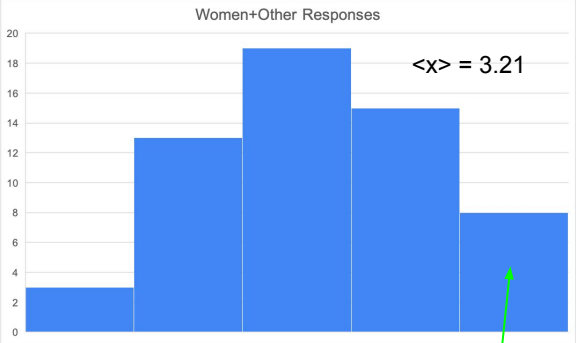
Lower relative to pre-pandemic productivity mostly in the range of 51-75%



# “I have been adversely affected by the pandemic”



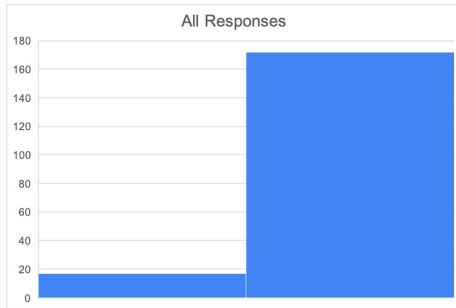
# I have been able to participate in all scientific activities necessary for my career advancement



strongly agree ← → strongly disagree

# Virtual Conferencing

I have attended one or more virtual conferences or workshops since the start of the pandemic

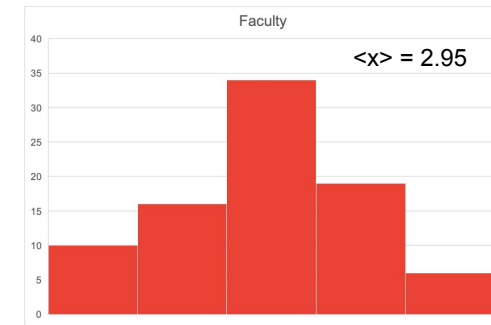
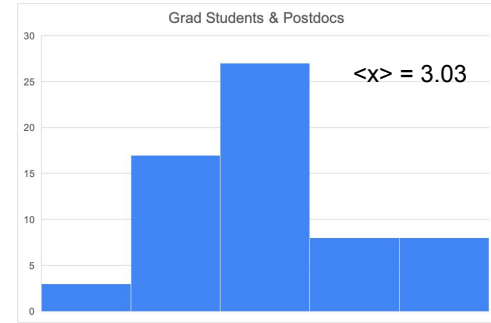
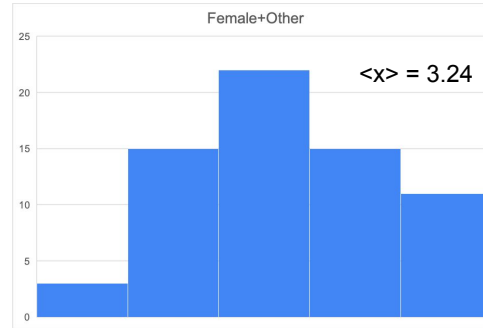


No Yes

"In big conferences or meetings, the video strategy has been to prize security over any kind of interaction, thus really curtailing any of the positives of these meetings. Most "webinars" are a waste of time, except to let the organizers celebrate the great job they're doing."

"I am amazed by the amount of international communication that is possible using only internet resources. Attendance at meetings is larger and draws a more international community. On the other hand, these meeting have more information pushed outward, but less back-and-forth playing with ideas. We will change our way of working in the post-COVID era, but renewed travel is essential."

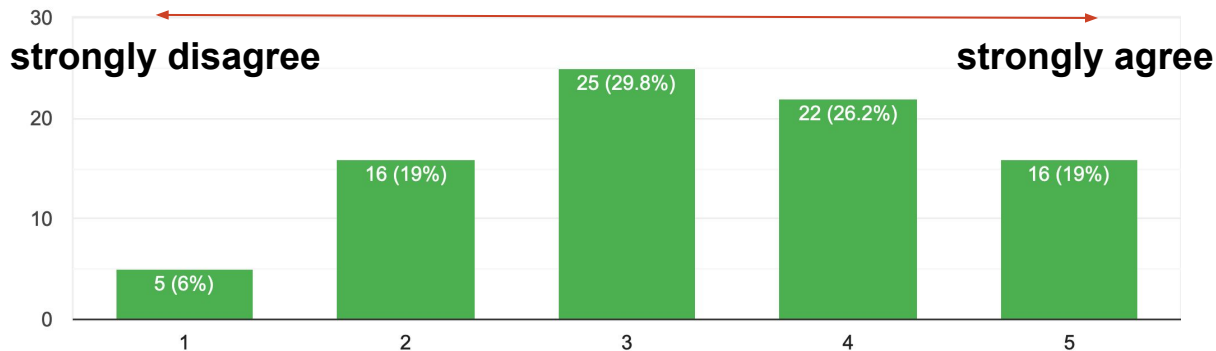
My overall rate of satisfaction with virtual conferences and workshops, compared to attending in person, is



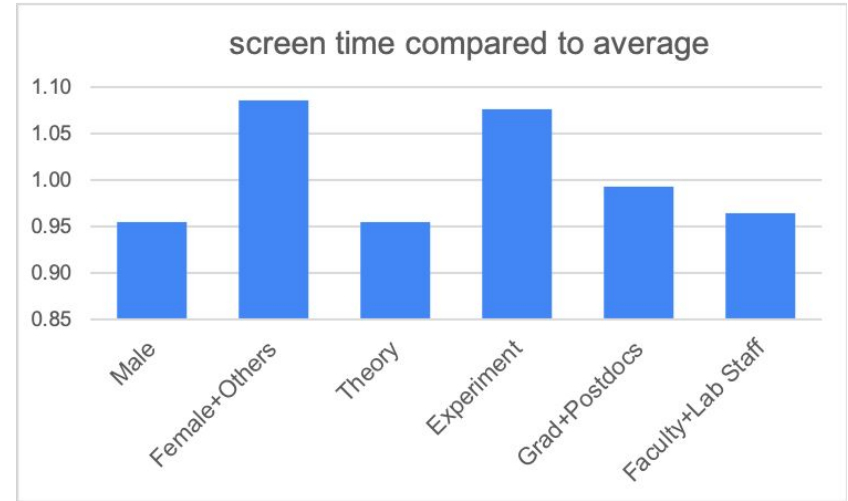
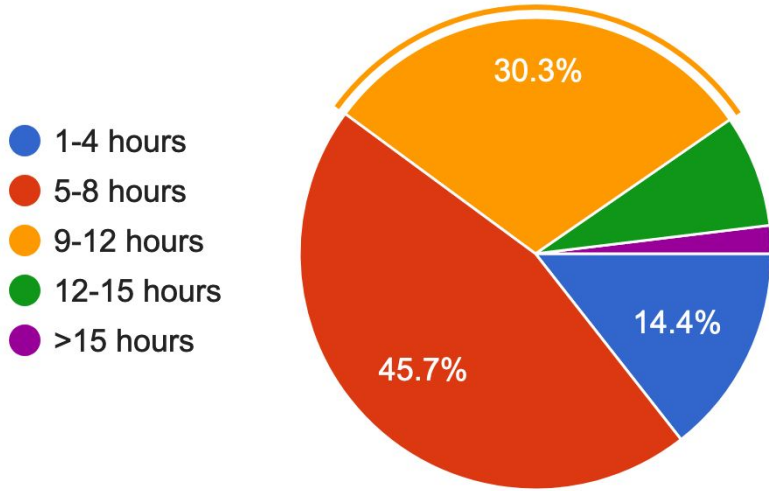
Very satisfied ← → Very dissatisfied



# Students and postdocs effective communication regarding research expectations with PI/advisor



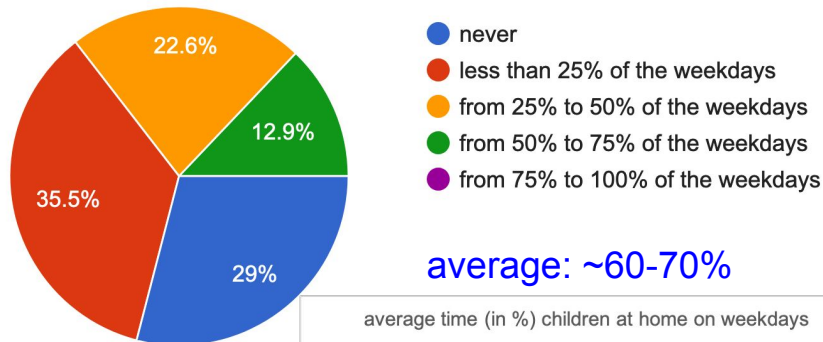
# Approximate number of hours I spend each day online related to professional activities



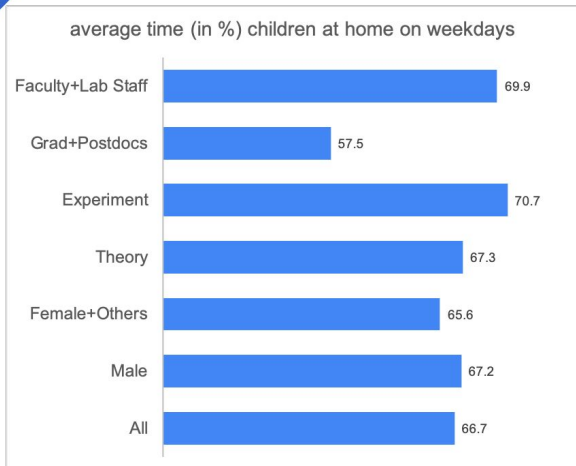
# Childcare Commitments

I/we have children in the house

(~37% respondents)

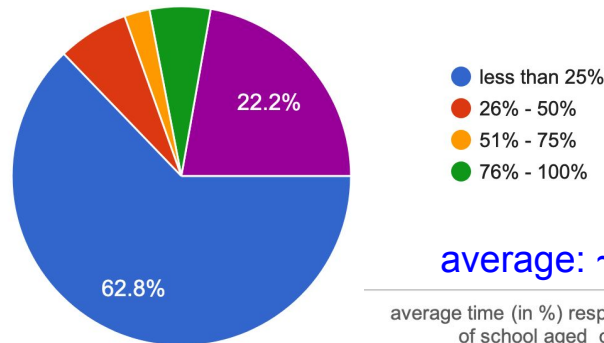


average: ~60-70%

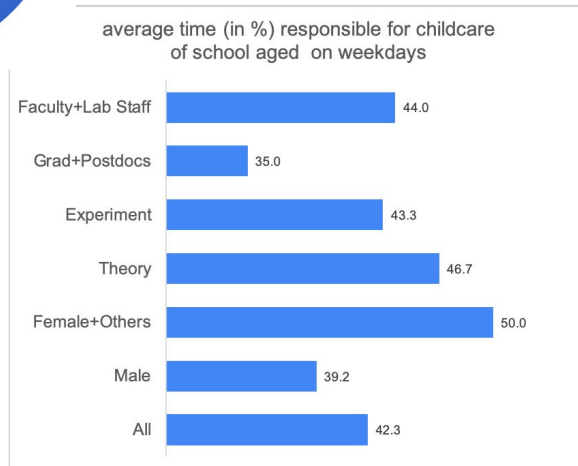


fraction of each day responsible for

school-aged children (~30% respondents)

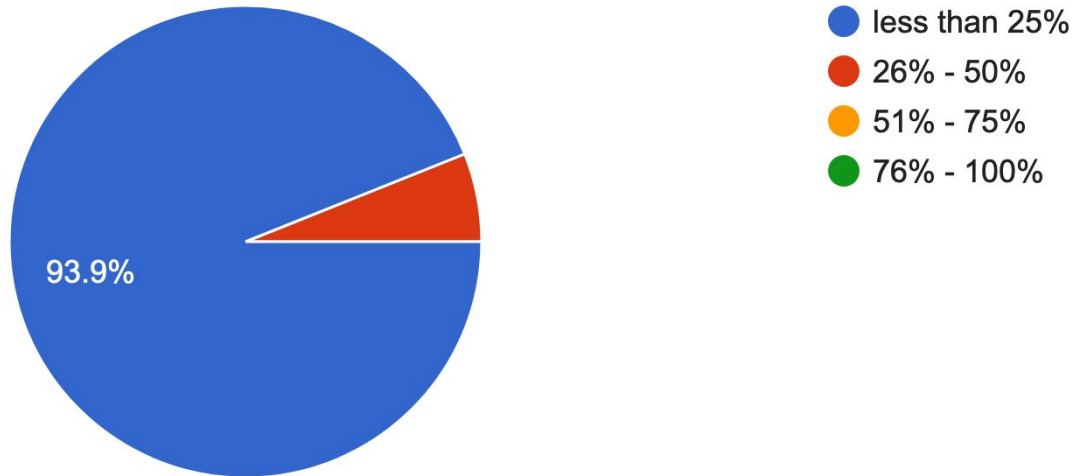


average: ~35-50%



If you spend a significant amount of time caring for another person who is not a child, what fraction of each day is spent in this activity?

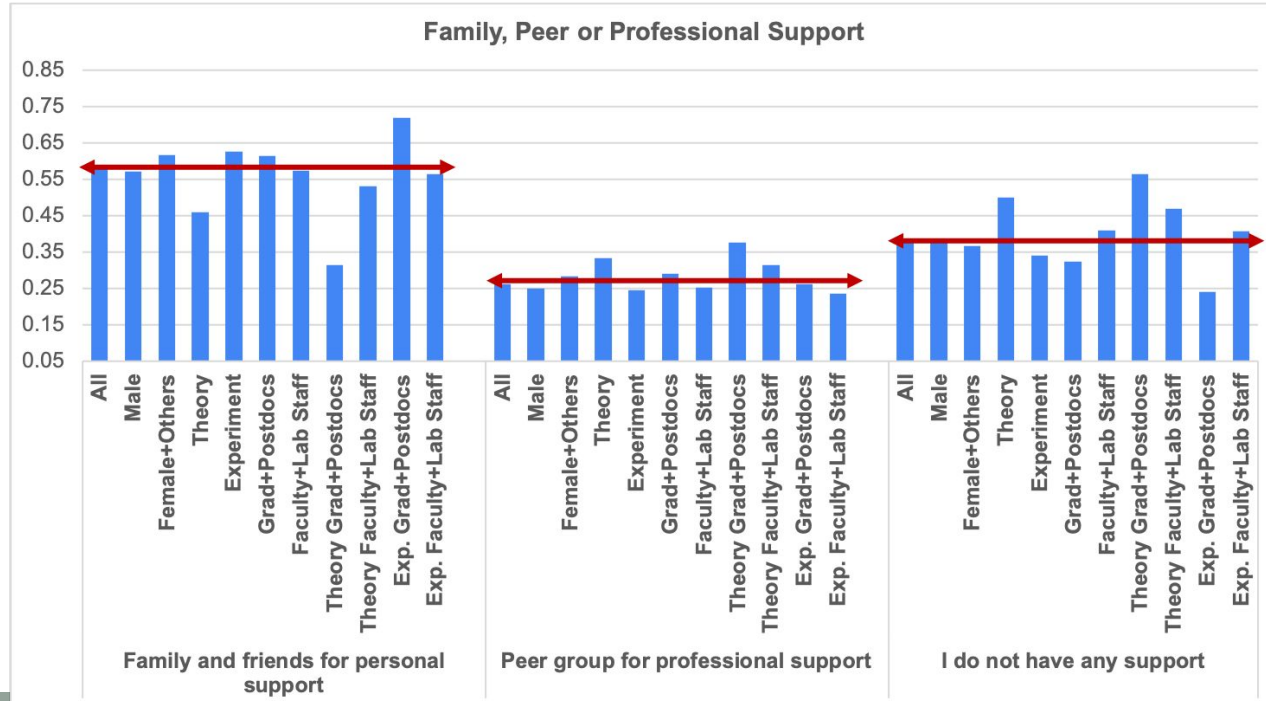
33 responses



# Access to personal/professional support

- No support reported by ~38% of respondents
- Peer groups for professional support: ~ 25%
- Most rely of support of family and friends: ~59%

	# of Respondents
All	172
Male	112
Female+Others	60
Theory	48
Experiment	115
Grad+Postdocs	62
Faculty+Lab Staff	103
Theory Grad+Postdocs	16
Theory Faculty+Lab Staff	32
Exp. Grad+Postdocs	46
Exp. Faculty+Lab Staff	64



# Accommodations

## University Faculty:

Type of Accommodation	Fraction of Responses
Delay in tenure clock	56%
pass-fail options or other lower-stress grading in courses	53%
Delays in deadlines for exams, qualifying exams, or graduation	39%
Internal Grants to offset losses in research productivity and other expenses	6%
Reduced expectations on publications and external presentations for promotion	6%

## Lab Scientists:

Type of Accommodation	Fraction of Responses
Extended time for promotion	8%
Reduced expectations on publications and external presentations for promotion	16%
None - everything is expected to be normal, or no answer	80%

# Some suggestions APS/DPF to help

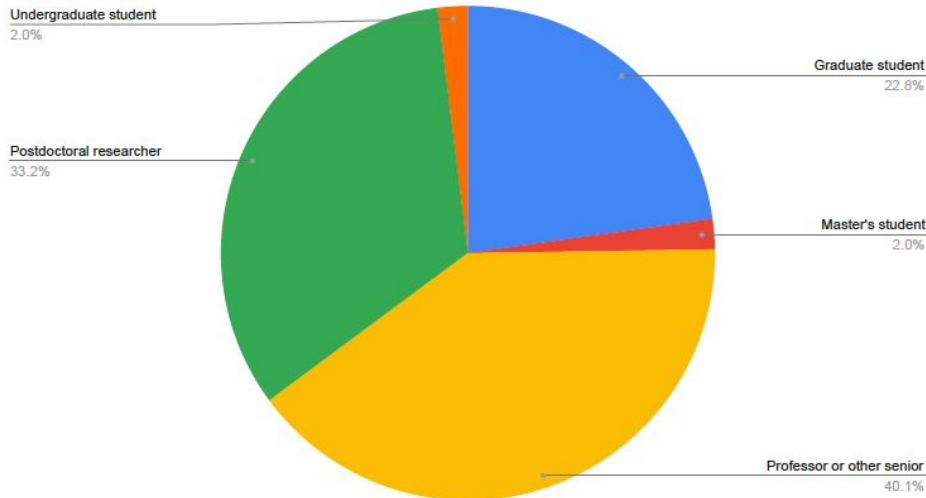
In July 2020, we presented our earlier findings at the DPF executive committee meeting and discussed suggestions on how to help our community through the pandemic

- Develop an advocacy plan to help early career scientists
  - Lobby for research personnel support on stimulus/emergency funding.
  - Mitigate impact on postdocs and graduate students.
- Help with social issues, bringing people together, etc:
  - Fun with physics nights with home made experiments/demos
  - An example: establish “Community Circles”
    - e.g USCMS has started a facilitated conversation twice monthly via Zoom for approximately one hour. Individuals can come, spend time together, and share if they choose what is on their hearts and minds; discuss a book relating to current global dynamics.
  - Invest in consultants to assess environment and develop mitigation?
- Tone down our expectations about productivity and measures of achievements
  - maybe starting with the Snowmass exercise?
  - memo from DPF to all collaborations to revisit their meeting schedules and expectations?
  - work with universities to help reset expectations for junior faculty tenure dossiers.
-

# Snowmass Early Career - Coffee Collisions

- Match participants with different career levels for one-on-one coffee chats over video.
- Aims to help fill networking, mentorship, and/or social niche left open by current lack of in-person meetings and workshops.
- ~200 participants

Career stages for participants in Coffee Collisions



## Snowmass Early-Career Inreach presents ... **Coffee Collisions!**



Collide with another Snowmass participant for a coffee to build a new connection. We'll find you someone to talk to, so you can just think about the future of physics!

Participants will be matched based on common interests, but across career stages, institutes and experiments.

Sign up here for a 1-on-1 chat, before 30 September :  
<http://cern.ch/go/D7B6>

*"What proposed accelerators are you interested in?"*

*"What's it like to work at your facility?"*

*"What questions do you want to answer in the next 40 years?"*

*"Want to hear about my sourdough starter?"*



# Some examples of other Experiences

## from BNL

- Focus on Postdocs:
  - Promote social interaction online to alleviate social isolation
  - Career path - Bridge gaps between jobs
  - Difficulty getting new hires on board – all levels
  - successful with future placements for those ending their terms!
- Staff members:
  - with young children experience reduced productivity

## at LPC/FNAL

- Established “Community Circles”:
  - USCMS has started a facilitated conversation twice monthly via Zoom for approximately one hour. Individuals can come, spend time together, and share if they choose what is on their hearts and minds; discuss a book relating to current global dynamics. [started summer 2020]
- Matched Mentorship
- graduate students/Postdocs w/ senior members and peers [started Spring 2020]
- “Check-in” with the community [started July 2020]

# Mitigating Impacts of COVID-19 pandemic

- Consciousness-Raising on COVID-19 impacts
  - Highlight impacts (career, social, childcare, mental health)
  - Let community know that everyone feels some sort of impact from this.
  - Communicate that “you are not alone”
- Continue to focus and find creative ways to help with social issues, bringing people together, etc.
- Continue advocacy for “research” stimulus funding

# Compilation of Comments Follows

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# Backup: Gender Disparity / childcare

- Reading about the experiences of parents in HEP from the previous COVID survey and a recent study published in Nature comparing the number of papers published by Men vs Woman, has brought to light the gender disparities in academia. I hope to see this topic addressed by the HEP community and to set an example for other academic fields.
- ***working as a women with young kids during a pandemic with no support is not sustainable and makes me want to quit my job.***
- Child care remains an enormous and largely unrecognized burden on physicists with dependent children. While school reopening provided some improvement relative to last spring, it remains tenuous and seems likely to disappear again as COVID cases spike, making it impossible to make long-term research commitments. Even child care that is available comes with far greater burdens than pre-COVID, e.g. considerable time expended taking kids for COVID tests, keeping them home for colds/allergies, etc. ***The number and frequency of remote seminars and events is constantly increasing, exacerbated by the proliferation of meetings associated with the Snowmass process; as a physicist with dependent children, missing these events contributes to a feeling that I am being left behind by the field.***
- I now spend more time helping children, for example with care of young grandchildren, since safe alternatives are hard for them to find, and interacting during work hours with my wife, who is also working from home. Almost everything, such as teaching, takes more time and effort. My research has been hurt by the paucity of interactions with undergrads. The one gain is in no need to walk to teaching or committee meetings - I do everything from a laptop at home.
- ***It is critically important to recognize that child care falls on both parents.*** I am dismayed by the abject gender discrimination against men, many of whom like me are shouldering more than 50% of child care, and yet are bombarded by messages from the media, the American Physical Society, and administrators at my own university that focus solely on women shouldering the child care burden. Let's be very careful not to conflate choices that parents make concerning child care versus the generalized notion that child care takes substantial time away from working parents -- men and women.

# Backup: Concerns about Career Impacts

- ***The biggest impact on our field and others is the halt in hiring of new tenure-track faculty. Perhaps the DOE could encourage this by offering a few years of salary support for new faculty hired in the next 1-2 years. Deans often go for that kind of thing.***
- 
- My supervisor will unlikely extend my current postdoc term, which becomes a significant source of stress, and also prompt me to spend time looking for jobs that I would not have looked for in the current stage.
- While I have quite a few issues myself, I'm more concerned with my postdoc, who is on the job market now. He's great but has limited visibility in the community. He is working hard to produce more papers at the same time taking care of a new baby. The pandemic makes it very difficult for him to improve his visibility and more challenging for him to get a decent position to continue his career.
- I am unable to figure out how to support one of my very productive postdocs, who is timing out after 5 years, till the permanent position market opens up.
- I've had some trouble because of a delayed phd defense and no coverage with a scholarship (not in the US). Now I'm unable to move to the US or switch groups effectively due to the lack of face to face interaction.
- Uncertainty around my immigration status and start of a new job significantly impacted my motivation and productivity over the summer and beginning of the fall. I would say that the effect on productivity compares to taking a gap from work of at least 3-4 months.
- As a foreign in USA, it was difficult to see that no flexibility in the visas status regulations were applied. Many people couldn't leave their work location region to spend the quarantine with significant ones or family because they have to keep visas status, which doesn't allow us to work from a different region other than the one in our immigration documents. I believe that was a cause of much stress for foreign people here in USA, myself included.

# Backup: zoom/meetings/ conferences

- The higher fraction of video conferencing and online checks on people (instead of in-person discussion) is the cause of higher stress, less productivity, and slower progress.
- I feel like I am drowning. Internal collaboration deadlines have proceeded as if the world has not fallen apart, and as if productivity has been retained. I am barely half as effective at the analysis portion of my thesis, and since I am stationed abroad, the technical load has increased ten-fold. I feel like since I am one of the few that can actually remain onsite at CERN and work, that I should step up and make sure the detector still operates, but absolutely no grace has been extended by the Physics Analysis Groups of CMS to account for that some of us have to make sure the detector still operates, while others are stuck at home and can only do analysis.
- I feel as though work expectations in my research group have not changed much, in spite of the situation that has arisen because of the pandemic. My advisor has significantly increased the number of weekly meetings that group members are required to attend, but still wants research productivity to be as high as it was pre-pandemic. My experimental collaboration's management is clearly struggling (more than usual) to maintain good communication with the analyzers and also does not seem to be accounting for adjusting expectations on research productivity in any meaningful way.
- Expectations of availability for meetings is becoming higher despite available resources dwindling due to the extreme length of the pandemic status

# Backup: zoom/meetings/ conferences

- In big conferences or meetings, the video strategy has been to prize security over any kind of interaction, thus really curtailing any of the positives of these meetings. Most "webinars" are a waste of time, except to let the organizers celebrate the great job they're doing.
- I am amazed by the amount of international communication that is possible using only internet resources. Attendance at meetings is larger and draws a more international community. On the other hand, these meetings have more information pushed outward, but less back-and-forth playing with ideas. We will change our way of working in the post-COVID era, but renewed travel is essential.
- Thanks for doing this survey. One thing that is missing is the ability to focus... the constant zoom meetings and workshop attendance has killed quiet time. Claiming the time back has been rather difficult.
- The absence of acknowledgement that WFH is inefficient, coupled without an easing of expectations or reduction in workload, is causing much stress.
- "I have found that I am considerably more tuned out to the following of collaborative events (e.g. conferences and collaboration meetings) than when they were in person.
- I spent a significant amount of my worktime in online workshops/conferences/snowmass meetings. In many cases these are an absolute waste of time, since nobody listens to these talks. We should be honest to ourselves and reduce the amount of unnecessary meetings, both online and in-person.

# Backup: Mental health/work-life balance/interactions

- I'm so tired
- The mental health toll the pandemic is taking on both early career researchers and professors is somehow being underestimated by large collaborations, and potentially also by the Snowmass process.
- I am done worrying about the pandemic and am trying to return to some kind of normal life personally and professionally.
- The pandemic has changed so many aspects of life, from the personal to professional, and all at the exact same time. Any one change could be dealt with, but all of them piled up have made the last 9 months extremely trying and incredibly difficult to manage.
- Money is tight. I work a lot more now than I did before, because there isn't much else to do, and I feel pressured to work more.
- The worst part is the great reduction in person to person interactions.
- Spending most of the day on the computer is very tiresome!
- I've been relatively fortunate in that I've been able to carry on most of my duties remotely at a productivity level fairly close to what it was before the pandemic. The main thing that's changed is lack of in-person meetings, which has its own set of consequences.
- My supervisor has all but disappeared. I feel like I am drowning trying to keep up. My family life is suffering.



# Backup: Mental health/work-life balance/interactions

- Also, the second lock down is worse than the first. I'm quite ""quarantine-fatigued"" and my attention span is considerably lower and I am feeling very irritable which has affected my professional relationships.
- My productivity has not been affected so badly because I work all the time because I am stuck at home. What has happened is I have essentially no time off and no vacation and no downtime. Also a tremendous amount of time is spent making sure the family has sufficient resources (food etc.)
- I changed jobs during this time (postdoc -> faculty) so it's a bit hard to assess my "scientific" productivity since I've gone from full time research to a much more varied job description.
- Separately from the above issue is the difficulty of networking, especially in my situation as just switching experiments and positions. Although for physics workshops the virtual material is good enough to convey the information we want to get out of it, the networking part of these workshops are almost impossible. I don't have a good solution, but I wish there was some sort of supplement to this problem.
- In the spring, I think I was doing well with virtual research. Now, I am exhausted and burned out, even though I try to maintain an acceptable work-life balance. My projects feel stagnant and uninteresting, and I feel like I do more work because I am obliged rather than out of love for research as previously. I miss interacting casually with my colleagues and being inspired by them. I have begun to question whether a future in a tenure-track position is what I want, as it seems much less appealing than before.
- I miss personal interactions, but I have learned a lot about using online communication tools, which I plan to keep on using after the pandemic is over

# Backup: Mental health/work-life balance/interactions

- I really wish that PIs would have done something to more constructively repurpose travel grants this year. I do not manage a grant so don't know the ins and outs of this, but we in the Early Career contingent and others, have been asking many times to support captioning. So with no travel happening, why the heck has this not happened. This could have at least been a cultural pragmatic ""win"" that shows we are actually caring for those in our community. Instead, it seems to me that grants are just not being spent for travel costs. This has been very disappointing to me and contributed to my stress and irritability."
- My productivity has significantly increased during the whole pandemic, largely due to the absence of commuting to go to work. This points toward deficiencies in work-life balance in normal circumstances. Pandemic will not last forever, so this problem is a much more long term issue that would strongly benefit from being addressed.
- I definitely sleep much less than usual.
- *I'm also an academic administrator and have observed VAST inequities in how the pandemic affects people from the same subfield - it largely depends on their family status: number, age, and needs of children; availability of additional support from a family member or hired domestic support person; etc. There are also extreme regional differences: In some places colleagues are able to attend conferences and meet in person on campus, while for others the lockdowns are strict and even private offices on campus are completely forbidden.*
- Got cabin fever, tried getting work done but its slightly better than before the pandemic, weirdly..
- I moved positions mid-pandemic and it has been incredibly difficult to make the connections I need at my new institution to be productive. It is very isolating.

# Backup: More comments

- It's surprising nobody seems to want to tackle this based on data.
- A lot can be done from home. Just keep the morale high... "
- continually reduced university funding from DOE exacerbates the damage from COVID
- Severe delays, due to COVID, in acquisition of necessary parts has put us far behind schedule. We have no control over this. Missed deadlines means funding penalties.
- Research institutes should be ready to take in more researchers once the measurements from the government have loosened
- The pressure is too much. My Lab is more concerned about money and appearances than employee health and setting reasonable expectations.
- Biggest stress has been that my time is more taken by adapting lectures for virtual delivery, so I cannot help students as much and therefore all progress is slower. Proposed deadlines for papers, etc, are being missed.
- Teaching is more work for a less personal product. Parenting is more work. Mentoring is more work. Everything is more work for poorer outcomes. I am so tired.
- The hardest part has been the continually changing situation -- there has not really been a "routine" since March. That definitely impacts the overall ability to plan/think/make progress. I think it would've been useful to collect information on financial and health stresses from the pandemic, which I imagine could have similar repercussions to lack of access to childcare. For example, my partner got laid off because he was splitting childcare with me and his business contracted due to the pandemic. I know people who got covid themselves and couldn't work for weeks/months or who had family members who got it which gave them a lot of stress.
- **We must not spend 100% times at home. Visiting the lab/university, a few days a week, and meeting with colleagues, is a must**

# Backup: More comments

- I'm very pleased with the effectiveness of my online teaching. I have flipped my classes, and by the metric of tests I've previously given, my COVID era students are doing better! The cost is hours to prepare small group activities and problems that are used during scheduled class times that students work online in small groups. It's more work than a traditional class.
- From what I've seen universities have done very little to mitigate for the effects of the pandemic on their students and researchers. My university is very willing to risk the health and safety of their students and researchers to ensure they can turn a profit, without giving almost any additional support.
- Online resources have been great for replacing in person events. But maybe now is a time to have frank discussions about psychological impacts of how we conduct research and its costs not only in terms of people but in terms of science. Also it's too bad that this survey mainly compared productivity but not service work or outreach changes compare to the beginning of quarantine.
- I tested positive for COVID as part of an asymptomatic testing program from the university. This was almost certainly a false positive as all contacts tested negative and I have no COVID anti-bodies (from blood tests). My family rigorously enforced the quarantine windows (I isolated for 10 days and my family isolated for 14 days). This is a huge stress on my partner as the kids were out of daycare for their 14-day quarantine. I took some time off after my isolation ended to do some childcare as well.
- This is quite specific to my situation, but I just wanted to share. Due to COVID restrictions, the burden of technical work on researchers on-site has been higher than normal. There isn't a good solution to this. Because travel is restricted and less people are available for work, then rotating the burden is difficult to do and research focus shifts. In my case, my analysis work was significantly impacted since I was needed full-time for on-site work.