



Parents in the Pipeline

Retaining Postdoctoral Researchers
with Families

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Executive Summary

While the numbers of women in STEM remain abysmally low, the rates of women's academic achievement in other fields have reached or exceeded gender parity.¹ One reason is that research appointments were not designed to be compatible with having a family, and the resulting strain pushes women – and many men – off their career track.² This report, based on the first comprehensive nationwide survey of postdocs who have children, and institutional data provided by the National Postdoctoral Association, highlights the full dimensions of this parenthood leak in the STEM pipeline.

Gone are the days where a tenured male professor leads research while his wife stays at home and raises the children. Gone, too, are the days when postdocs worked non-stop for two years before quickly moving into a professorship of their own. The average postdoc today can't postpone solving the puzzle of work-life fit until tenure; the typical time spent as a postdoc is 4–5 years,³ and most postdocs are nearing 40 by the time they reach their first permanent position.⁴ To add to the challenge, parents of this generation feel the need to be more present for their children.⁵ For postdocs, the buzzers on their biological and research clocks are undeniable – and in conflict. Yet despite these shifts, many institutions make no provisions for parental leave or accommodations for postdoc parents.

The first major concern examined by this study is the climate faced by pregnant women in need of health-related accommodations. Postdocs who requested pregnancy accommodations were provided them 93% of the time, but postdocs, particularly those in university appointments, were less likely than other workers to request accommodations. [Just 40% of postdoc mothers did.] Postdocs' fear of encountering pregnancy discrimination was often reported as a key factor in not asking for accommodations. Said one mother,

“I was too scared to let my colleagues in the laboratory know that I was expecting until I couldn't hide my pregnancy further.”

When postdoc mothers need to take time off for childbirth, some principal investigators with unforgiving timetables push them to put the research first – even at risk to postdocs' health. “He visited me at the hospital” said a postdoc biologist of her principal investigator, “and said ‘So what about 2–3 weeks and you will be back.’” The

postdoc didn't feel she could say no, so she returned to work. “Administration actually had me get a release from doctor because I came back in 4 weeks after a C-section birth with many complications.” Explained another, a lack of leave “left my health in tatters.”

These postdoc mothers continued their research, but other women we surveyed were pushed out because of their pregnancy or their need to take time off to recover from childbirth. One mother lost her postdoc appointment studying crop genomics: “my boss said that he had no more funding and said so sorry about that.” But the PI hired a new postdoc – the alleged lack of funding was just a ruse. Another mother reported that her PI “...prematurely withdrew funding from my contracted position to fund another postdoc soon after I returned [and] to this day, he continues to refer to my children as my ‘constraints.’”

Postdoc mothers aren't the only ones challenged by hostile attitudes toward their new parenthood; fathers who let the birth of their child interrupt research – even for a few days – face their own brand of discrimination. “Peers often phrase paternity leave as if it's a ‘vacation’ or you're at home doing nothing,” commented one father. He added that this prevailing mindset “...can lead to a view that you ‘aren't serious about science’ since you took time off.” Men are less likely than women to have access to leave and family-responsive policies, which adds to the pressures postdoc dads face. “There is no such thing a[s] leave for fathers. They won't even allow use of sick leave,” explained a postdoc father in biochemistry.

Respondents of all genders stressed that family-responsive accommodations, such as scheduling flexibility or the ability to work from home, were essential to their success. If family-responsive accommodations had not

been provided, an engineer would “strongly consider leaving,” a neuroscientist “would not have been able to continue,” and a biochemist “would just have to quit.”

One of the most surprising findings of this study is that postdoc parents of color face hostility due to their new parent status or pregnancy more often than their white counterparts. Postdocs of color are less likely to ask for parental leave or accommodations, and are twice as likely to be discouraged from taking leave when they do ask.

The impact of the hostility and lack of support for new parent postdocs is profound. One in ten postdoc fathers and one in five mothers reported that their PI’s response to their new parent status negatively impacted the quality of their appointment overall. This number is far higher for postdocs of color. For some, the challenge wasn’t worth it; “Don’t bother doing a postdoc,” a neuroscientist advised aspiring postdocs who want to have children. Instead, “Work at McDonald’s, which would pay you equally or more, would give you more respect, and [offer] a ray of hope through promotion.”

The postdocs surveyed for this report each represent the dedication of decades of study and the investment of roughly \$500,000 or more of education⁶ – losing them doesn’t make sense. So what would it take to keep postdoc parents in the pipeline? Simple adherence

to federal law would go a long way. Our study found violations of the FMLA, the ADA, Title VII, and Title IX. Much of what postdoc parents need is common-sense; formal pregnancy and parental leave policies that follow the law, changes in scheduling, and an end to the hostility and stigma that all too often attaches to the basic human need to have a family.

This report provides comprehensive insight into what is working – and what isn’t – to retain and advance postdoc parents. We explore every aspect of a postdoc parent’s experience, from pregnancy accommodations to securing childcare, and offer concrete recommendations on how institutions and research funders can successfully adapt to the new paradigm of postdoc life.

MAJOR FINDINGS

Postdoc mothers reported:

- **High rates of receiving accommodations (when requested), low rates of requesting**
Fear and a sense of isolation made postdoc mothers hesitant to ask for accommodations needed to protect their health. Just 40% of postdoc mothers requested accommodations.
- **No access to paid maternity leave**
Over half of the institutions surveyed (53%) provided no paid maternity leave to postdoc employees of their institution. Postdoc trainees and individually funded postdocs fared worse, with 61% and 62% of institutions providing them no paid leave, respectively. That number climbs to 74% for externally funded postdoc mothers.
- **No access to other paid time off**
Many postdoc mothers were left with no paid time off, including sick or vacation time. Institutions reported providing no paid time off to postdoc mothers who were institutional employees (8%), institutional trainees (27%), or externally funded (53%).
- **No access to unpaid time off**
Many postdoc mothers had no job-protected time off – paid or unpaid – for the birth of their child. The benefits vary greatly by funding source; Institutions provide no time off in any form to 5% of institutional employee postdoc mothers, 23% of institutional trainees and individually funded postdocs, and 44% of externally funded postdocs.



Many postdoc mothers were left with no paid time off, including sick or vacation time.

- **Paid leave terms were too short**

Because postdocs are often unable to afford unpaid leave, many returned to work at the end of their short paid leave term before having recovered from giving birth. **“I was still in physical pain from the childbirth when I returned to work [...] but I could not afford to take time off without pay”** is a representative statement.
- **Being fired or quitting due to PI hostility**

Many mothers reported having to fight for the leave they needed, and a smaller subset actually lost their job as a result of their PI’s hostility to their pregnancy or need for time off. One in five mothers reported that their PI’s response had a negative impact on the overall quality of their appointment.

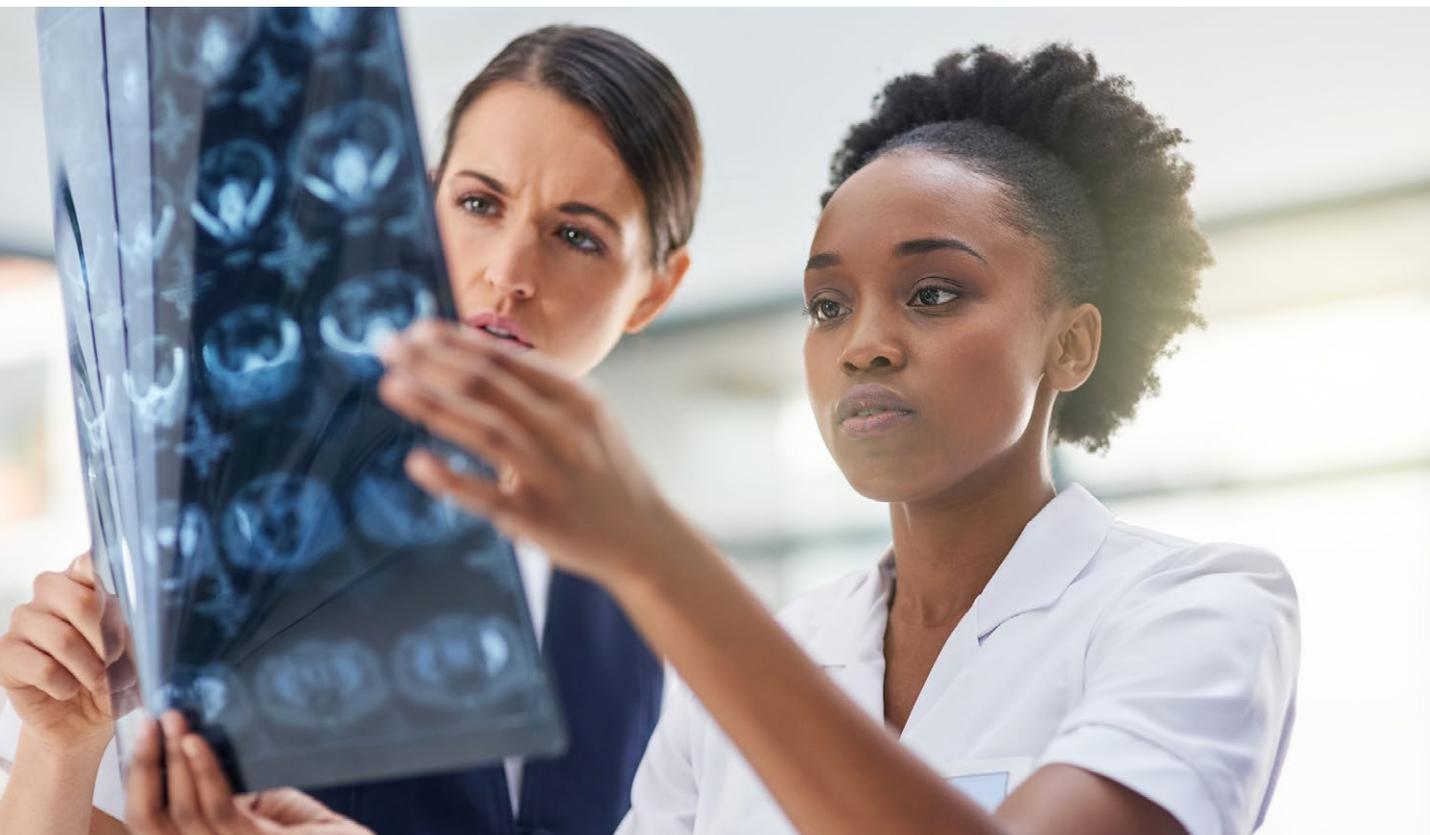
Postdoc fathers reported:

- **No access to paid paternity leave**

Well over half of the institutions surveyed provide no paid leave for postdoc fathers who were institutional employees (61%) or institutional trainees (67%). That number climbs to 85% for externally funded postdoc fathers.
- **No access to other paid time off**

Many postdocs were left with no form of paid time off, including sick or vacation time, to support their families while welcoming a new child into their home. Institutions reported offering no paid time off for postdoc fathers who were institutional employees (9%), institutional trainees (27%) and over half of externally funded postdocs (53%).
- **No access to unpaid time off**

Many postdoc fathers had no job-protected time off – paid or unpaid – for the birth or adoption of their child. Institutions reported offering no time off in any form for postdoc fathers who were institutional employees (8%), institutional trainees (23%), individually funded (26%) and externally funded postdocs (44%).



- **Facing gender bias**

Fathers reported having to fight outdated beliefs about family in their efforts to obtain leave. Even when postdoc fathers desperately needed to support their partner's recovery or care for their newborn, they reported facing the belief that fathers do not play a caretaking role or hostility to the notion that a father should take time off for the birth of his child.

- **Negative experience due to PI response**

One in ten fathers reported that their PI's response to their new parent status had a negative impact on the overall quality of their appointment. Fathers of color were far more likely to have negative experiences: one in five of them reported a negative impact.

For all parents:

- **Postdocs of color face more hostility**

Non-white postdocs were discouraged from taking leave at nearly twice the rate of white postdocs. And one in four postdocs of color reported a negative impact on their overall postdoc experience as a result of their PI's response to their new parent status, compared to just 14% of white postdocs.

- **Confused HR offices and confused postdocs**

One in ten postdoc mothers and four in ten fathers responded that they were not sure whether their institution had a maternity or parental leave policy that covered them – even after having gone through the process. Human resources (HR) offices reportedly often misinterpret the law and struggle to navigate the varying grant-related policies that apply to postdocs.

- **Different funders result in different policies**

Institutions typically offer different leave options based on the postdoc's funding source – resulting in confusion and frustration among postdoc parents. And because some grantors only provide supplemental funding for parental leave when there is an institution-wide policy in place, this practice also results in missed opportunities to secure funding.

- **Pressure to return early**

Even when postdocs were able to secure leave for the birth of their child, they were often pressured to return before the expiration of their leave term. Postdocs describe PIs using “guilt,” “insulting remarks,” or even “open threats” of cutting funding and other adverse consequences to compel them to return.

- **Unable to negotiate schedules that work with family commitments**

Postdocs often request small scheduling changes to accommodate their schedule, such as the ability to work from home until their baby is old enough to be in childcare, or permission to work on different days of the week. When these needs weren't met, several postdocs reported leaving their positions.

- **No access to on-campus childcare**

On-site childcare would ease the workload and scheduling challenges of postdoc parents. However, postdocs commonly reported being on childcare waiting lists for years, and being unable to pay high childcare costs of 50–100% of postdoc salaries.

IN SHARPER FOCUS

Postdoc Classifications

Institutions typically apply policies differently based on a postdoc's classification. To account for this variation, institutional data within this report is broken down into funding type:

Institutionally Funded Postdoc Employees (“Institutional Employee Postdocs”)

Postdocs employed by the institution directly, typically a postdoc funded on a principal investigator's grant (e.g. R01 grant).

Institutionally Funded Postdoc Trainees (“Institutional Trainee Postdocs”)

Postdocs who may be funded by the institution but aren't considered employees of the institution. Typically, this is a postdoc funded on a principal investigator's grant (e.g. T32 training grant).

Individually Funded Postdocs

Postdocs funded by a fellowship paid to the institution (e.g. American Heart Association fellowship).

Externally Funded Postdocs

Postdocs receiving pay directly from an external funder (e.g. fellowship paid by the postdoc's home country).

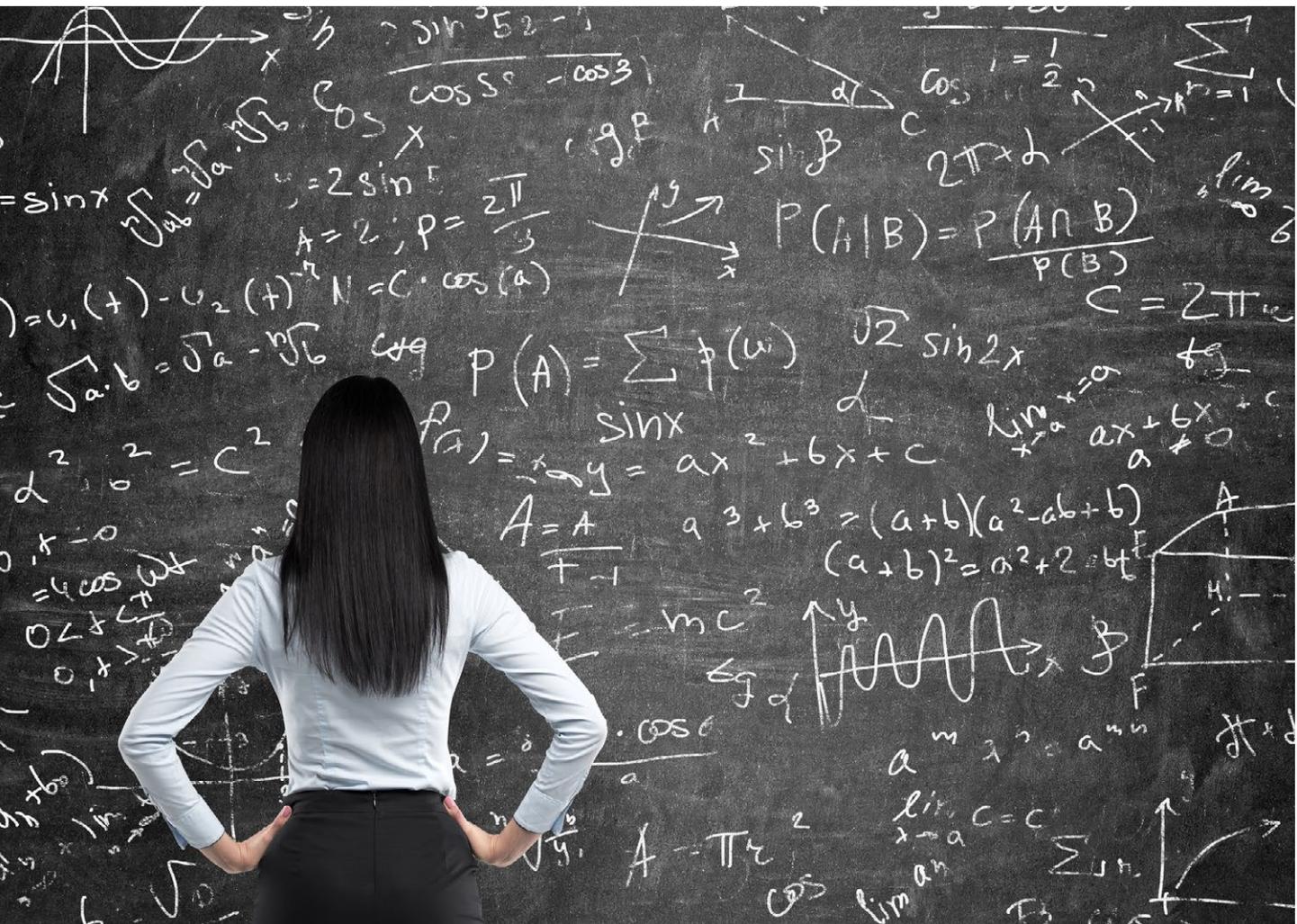
Methodology

This report is based on two sets of data. First is data from an online survey of postdocs, which was distributed through the National Postdoctoral Association (NPA) in March and April of 2016.⁷ The NPA requested member Postdoctoral Offices at 63 institutions distribute the survey to their postdocs. The survey included multiple choice and open-ended questions. Data from over 800 births/adoptions were collected through responses from 741 qualifying postdoc respondents. Six survey participants participated in follow-up phone interviews to clarify experiences reported in the survey. All postdoc level data and quotes in this report were collected from this survey and follow up. Please see the methodology Appendix I for the summary statistics of the main variables analyzed in this report.

The second set of data referenced in this report is a new and comprehensive analysis of NPA data on postdoc benefit policies. This data was originally collected from 66 member Postdoctoral Affairs Offices in 2014, and partially reported in the 2014 NPA Institutional Policy Report.⁸ Institutional level figures herein were derived from this data.

Limitation of the sample:

We do not have a randomly selected sample of postdocs or institutions for this study: therefore, the results herein may not reflect the experiences of the nationwide population of postdocs. First, recruitment included only institutions that have offices specializing in postdoc affairs. The NPA recommends creation of Postdoctoral



Offices to facilitate communication with postdocs and advance structures to support the researchers. One can infer that institutions with these offices are typically more well-suited to support their postdoctoral researchers, and may be more proactive about doing so. They may also exhibit some self-selection bias; those institutions with positive practices to report may have been more likely to complete the institutional survey.

Similarly, the selection of postdocs for the individual survey may have been impacted by this skew. Institutions with positive practices, or a desire to improve practices, may have been more likely to distribute the survey to their postdocs. Moreover, although the survey was open to those who have been in a postdoc appointment within the last 3 years, because recruitment was conducted primarily through postdoc offices, those who have finished or quit their appointments may be underrepresented.

Postdoc respondents to the survey were disproportionately women, U.S. citizens or permanent residents, and biologists, as compared to the general population of postdocs.

For more details regarding the sample population and methodology, see Appendix I.

IN SHARPER FOCUS

Key Laws

The following federal laws are referenced in this report:

Title IX of the Educational Amendments of 1972 (“Title IX”) is a federal law that prohibits sex discrimination in educational institutions, including discrimination against trainee and employee postdocs. This includes discrimination based on pregnancy or related conditions. Under Title IX, pregnant mothers (and those with pregnancy-related conditions) are entitled to the same protections as people with temporary disabilities, including coverage under disability accommodations and leave policies. The law also requires institutions to provide maternity leave for “as long as medically necessary” for trainees, or for a “reasonable period of time” for employees.

Title VII of the Civil Rights Act of 1964 (“Title VII”) is a federal law that prohibits employers from discriminating against employees on the basis of sex. This includes discrimination based on pregnancy or related conditions. The law requires that pregnant women (and those with pregnancy-related conditions) be provided with the same opportunities and accommodations as other similarly situated employees.

The Americans with Disabilities Act, and Section 504 of the Rehabilitation Act and protect people with disabilities. Under these laws, trainees and employees are provided with accommodations needed for their health.

The **Family and Medical Leave Act (FMLA)** provides eligible employees with 12 weeks of unpaid, job-protected leave for illness, the birth of a child or other caregiving responsibilities. Employees are eligible if they have worked at least 12 months for the institution (need not be consecutive), have worked 1250 hours for the institution within the last 12 months, and haven’t already used their FMLA leave for the year.

“Once I announced my pregnancy things changed in the lab. Eventually, [I] quit my first post-doc position...”

MOTHERS' EXPERIENCES

The Hostility Leak in the STEM Pipeline

Some principal investigators blatantly – and illegally – drive scientists out of their positions because they are new mothers.

“I was told i[t] was hard for them to put me on leave due to the way the money came in, but I should take time. I did, and then when I came back they used my absence and 'lack of productivity' to try to fire me. When I went to HR, they basically told me it would go better for me if I went quietly.”

When asked about her maternity leave, one postdoc mother commented that she didn't have the opportunity to take it: “my last postdoc contract was not renewed because I was about to give birth.” A postdoc in biology explained, **“I had to fight for [leave]. Although I was granted a leave, my employment was terminated with an excuse of lack of funding 4 months after I gave birth.”** Before the postdoc revealed that she was pregnant, she was a valued member of the team, and the PI was reportedly considering giving her a raise.

Another postdoc mother reported that her PI,

“prematurely withdrew funding from my contracted position to fund another postdoc soon after I returned from work. To this day, he continues to refer to my children as my ‘constraints.’”

One mother lost her postdoc appointment studying crop genomics: **“my boss said that he had no more funding and said so sorry about that. [...] I was actually fired and could not come back after the delivery.”** But the PI hired a new postdoc – the alleged lack of funding was just a ruse.

Such bias faced by mothers is well known among postdocs. A postdoc mother shared, “I know of some PIs who created hostile environment for the pregnant employees hoping for them to quit or not hiring young women who might get pregnant.” And of course, she also knew “those who had to quit due to inflexible/supportive workplace.”

This environment perpetuates a sense of vulnerability among many postdoc mothers. One postdoc wrote that they were not satisfied with the leave provided because “I feel my job is at risk” and is still “very afraid to reveal”

their status as a new parent. Another commented, “I did not take maternity leave because I felt it would hurt my career opportunities.” These postdocs, like many others, asked to remain anonymous in this report.

Even if a postdoc isn't fired, the impact of a negative response from a postdoc's PI or institution can be profound. Several postdoc mothers shared that they left their position – or academia entirely – as a result of their negative experience.

“At times I am very discouraged from pursuing a career in academia as I feel there is no support from the university.”

(Mother, NIH funded biologist)

“I left research after my child was born.”

(Mother, Scientific computing)

Without prompting, many postdoc mothers shared their conclusions on the relationship between parental issues and the attrition of women from science:

“I feel like this is the MOST critical time in your career and also the most likely time for women to start a family. I feel like the scientific community is failing women when starting a family makes you less competitive on the job market.”

(Anonymous, Genetics and Genomics)

“Women with children are not highly regarded in academia. It is also difficult to have a work/life balance; we have guilt at work and at home. [Balance] almost doesn't exist, and you have to honestly choose work or an academic career.”

(Mother, NIH funded biologist)

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MOTHERS' EXPERIENCES

Pregnancy Accommodations

Hesitance to request accommodations or reveal pregnancy

Just 40% of postdoc mothers surveyed asked for accommodations related to their health during pregnancy. This rate may be low: one study of employees found that 71% of employees needed at least one pregnancy-related accommodation, and the significant majority asked for the accommodation they needed.⁹ Postdocs' fear of facing pregnancy discrimination was often reported as a key factor in not asking for accommodations.

It doesn't make sense that the source of a postdoc's funding would impact her likelihood of asking for accommodations, but it does; university-funded

postdocs were the least likely to ask for accommodations during pregnancy – just 32% did – compared with 45% of postdocs funded by other sources ($p=.026$).

Seeking pregnancy accommodations can be a major source of stress for postdoc women. When one postdoc sought accommodations for morning sickness, her PI responded by saying “**well I didn't have any morning sickness**” [when the supervisor was pregnant] **sort of implying that I was lying.**” As a result, “I'm really worried about that,” the postdoc said, “Whats going to happen? I don't know.”

Several postdocs reported being reluctant to ask for accommodations because they were afraid of revealing



“I was too scared to let my colleagues in the laboratory know that I was expecting until I couldn't hide my pregnancy further.”

their pregnancy:

“you know not to ask in this environment because you may lose projects or because of retaliation.”

(Mother, Biomedical scientist)

“I was too scared to let my colleagues in the laboratory know that I was expecting until I couldn't hide my pregnancy further.”

(Mother, NSF-funded immunologist)

Postdocs of color less frequently request pregnancy accommodations

The sample of postdocs of color who explained why they did not ask for an accommodation was too small to deliver a statistically reliable result on the relationship between fear of retribution and race, however, it is noteworthy that all of the women who described not requesting an accommodation for this reason were from underrepresented racial groups.

Overall, postdocs of color reported requesting pregnancy accommodations less often than their white counterparts. Among white postdocs, 41% requested pregnancy accommodations, compared with just 35% of Asian postdocs and 38% of postdocs from underrepresented racial groups.

Avoiding toxics and other health risks

The most commonly requested accommodation, sought by 54% of the women who provided details on their accommodation requests, was to avoid exposure to potentially dangerous chemicals or procedures.

Several mothers reported struggling to get the accommodations they needed, like the postdoc who described herself as a “mother and surviving post-doc in Neuroscience.” She needed venting of the formaldehyde

used in her lab to protect her baby's health. Yet although some ventilation was provided, it “was NOT correct. The pressurization of the rooms actually made my space a sink for the chemical.”

A postdoc biologist shared a similar story; she sought accommodations to avoid chemicals but reported that “some people in the lab were not very supportive and went on using dangerous chemicals around me without taking the appropriate precautions.”

Other accommodations requested and denied included simple changes in work to avoid other health risks – at no cost to the research. For example, one postdoc mother reported:

“I also did not go out on a boat for one research cruise while 8 months pregnant. My [institution] supervisor was NOT supportive of this decision, though the ship captain had decided that he would not take me, and I had arranged for a substitute.”

Another expecting mother simply sought to use the air conditioner but was unable because a senior staff member refused to turn it on. As a result, “I was sweating and feeling dehydrated all the time that I was at the office during the summer.”

Heavy lifting, heavy workload

After avoiding exposures, the next most frequently requested accommodation, sought by 23% of the postdoc mothers, was changes to physical aspects of the job. Most were simple – assistance lifting, help with tasks that required bending, or sitting more often.

Next, pregnant postdocs requested schedule changes or flexibility. Postdoc mothers reported using a variety of schedule changes including “Excused absences from

“Some people in the lab were not very supportive and went on using dangerous chemicals around me without taking the appropriate precautions.”

work due to number of doctors appointments for high risk pregnancy”, “...bedrest for about a week in mid-pregnancy...”, and the ability to work from home. While some postdocs were able to arrange time off during their pregnancies, a number reported working *more*. A postdoc in cell biology explained that she did so because, “I did not feel like I could take more [time off] because that would not be good for my career.”

Often, postdoc mothers bear a heavy workload in an attempt to mitigate the future impact of taking maternity leave; mothers were fearful of the consequences of taking time off on their professional standing or needed to work as long as possible to avoid having to take unpaid leave. One postdoc who was unable to arrange for an

official leave planned in advance to take only minimal time off. **“I literally worked until I gave birth”** explained the postdoc, who called herself lucky that her health allowed it. **“My water broke while I was on my lunch break.”**

Getting it right

When mothers asked for the accommodations they needed, 93% had their request approved. What does it take to provide appropriate accommodations for postdoc mothers? Studies have shown most workplace accommodations cost nothing, while the rest cost under \$500.¹⁰ Often, postdocs report that providing accommodations successfully took small efforts from the whole lab. Buy-in from colleagues was frequently mentioned – and appreciated – by postdoc mothers:

“My co-workers helped with lifting a chemical preparation whenever I asked.”

“My PI and coworkers were very helpful in taking over duties that they knew I should no longer be doing.”

One postdoc mother described using a variety of peer-provided accommodations:

“I moved my entire workbench of chemicals/solvents/samples and equipment into a fume hood and ALL my work was conducted in the hood. No one else used the hood during that time so I always knew exactly what was there and the hazards associated. Colleagues informed me of work that was going to be done near me so I could decide if I was comfortable being around it. Colleagues did a lot of lifting and other duties for me, such as standing on stools or ladders to reach stuff. Most of these things I didn’t have to ask for, my colleagues were very aware and conscientious and even protective of me while I was pregnant and offered to do many of these things for me.”

“Colleagues did a lot of lifting and other duties for me, such as standing on stools or ladders to reach stuff.”



MOTHERS' EXPERIENCES

Leave

The availability of leave for postdocs varies greatly by funding source as well as the postdoc's status as an employee or trainee, with many postdocs having no access to the time off that they need. Although they've reached the highest levels of education and work at some of the nation's most esteemed institutions, many postdocs are no more likely to have paid time off than the average American worker.¹¹

In 2014, the National Postdoctoral Association (NPA) surveyed sixty-six institutions about their parental leave policies. The findings herein represent a new analysis of the NPA survey data to reveal the overall trends in postdoc parental leave and how the various time off policies intersect. This institution-level data is supplemented by our survey questions on postdocs' experiences with family leave. Survey participants were recruited from the same institutions that responded to the NPA institutional survey.

Postdoc mothers often have no access to paid maternity leave

Even among those postdocs fairing the best, postdoc mothers considered institutional employees, paid leave was available at just under half of the institutions surveyed. In comparison, externally funded postdocs were overwhelmingly left out; only 26% had access to paid maternity leave.

“I had been working myself to death for very low pay for over two years, and the university chose to treat me like a farm animal. It's incredibly cruel and obviously detrimental to the health of mother and baby.”

% of institutions that do not provide paid maternity leave, by postdoc funding type	
Institutional Employee	53%
Institutional Trainee	61%
Individually Funded	62%
Externally Funded	74%

No access to other paid time off

A sizeable portion of postdoc mothers weren't eligible for paid time off (“PTO”) in the form of vacation, sick, holiday or personal days to help fill the gap of not having a paid maternity leave. Non-employee postdocs were the most widely impacted; 53% of institutions provided no such paid time off for externally funded postdocs, compared with 30% for individually funded postdocs, 27% for institutional trainee postdocs and 8% for institutional employee postdocs.

Because short term disability benefit programs have dramatically different pay rates, waiting periods, and policies, it is challenging to use the available data to assess the impact they have on postdoc mothers. Regardless, short term disability policies were infrequently offered by institutions that did not also provide other paid leave.

% of institutions that do not provide paid time off (neither maternity, short-term disability, vacation, personal, holiday or sick leave), by postdoc funding type	
Institutional Employee	5%
Institutional Trainee	26%
Individually Funded	27%
Externally Funded	52%

With infant childcare costs in some regions reaching or exceeding 40% of NIH-level postdoc starting salaries,¹² and one in four renters nationwide reporting that rent takes up over half of their incomes,¹³ it is no surprise that several postdocs simply categorized the prospect of taking unpaid leave as “impossible.”

Being forced to take unpaid leave was an untenable burden for many cash-strapped postdocs:

“Many postdocs (including myself) feel the need to cut their training short due to the financial strain of family expense matched with the low post-doc salary.”

“Our salaries are low, so taking the FML unpaid leave is a struggle and will lead to less productive (and happy) postdocs in the long run.”

One mother argued that universities should provide paid maternity leave and similar financial supports because, **“Otherwise, they would risk losing women who can't afford to have a baby in their postdoc years or choose to dropout [to do so].”**



“I still think back in disgust that I was relieved that I had to have a cesarean because that allowed us [two] extra weeks to spend with my baby”

When paid leave is not available, birth mothers' compensation suffers. One study of fathers found that 86% of men reported they would not take leave unless it provided at least 70% of their salary.¹⁴ Women who give birth, on the other hand, *must* take some time off, regardless of whether it is compensated. As a result, unpaid or underpaid leave policies serve to further the gender gap by disproportionately impacting women.

Postdocs often perceived the lack of paid leave as a message of their institution's values. One employee postdoc was told she must use vacation days to cover the time off she needed for childbirth, excluding roll-over days from previous years. The postdoc was only able to take the leave because her advisor “looked the other way.” “I was horrified by this policy,” she exclaimed. “I had been working myself to death for very low pay for over two years, and the university chose to treat me like a farm animal. It's incredibly cruel and obviously detrimental to the health of mother and baby...The university should be ashamed of treating parents the way it does.”

Mothers exhaust their sick and vacation time for maternity leave

Many postdocs who were eligible for paid vacation or sick days (“paid time off” or “PTO”) used them to support their families as they recovered from childbirth. Others used their PTO to extend their short maternity leave or to make ends meet because they could not on the reduced pay provided by maternity leave.

Sick leave was often insufficient to provide for postdoc mothers' recovery from childbirth. For example, one postdoc mother gave birth six weeks early, and found her sick days were exhausted early, too. Her baby was still in neonatal intensive care when the leave ran out. Another mother lamented that she was only able to take 3 weeks off after birth, which was “too short to recover” but was all the time that she had accrued.

"I still think back in disgust that I was relieved that I had to have a cesarean because that allowed us [two] extra weeks to spend with my baby," remarked a postdoc geneticist. The mother had to use all of her sick and vacation days for maternity leave not covered by her university's disability policy. But extensions for medical needs are not guaranteed: "only 7 days of maternity leave were allowed..." said one biologist. **"This means that although I had twins a month early...and a C-section, I was only able to stay home with them for the 6 weeks of vacation [and] sick leave I had saved up."**

The use of sick days as a replacement for parental leave can create problems for postdocs – and their institutions – down the line. Even postdocs who have been able to accrue enough sick or vacation days to cover an initial six weeks of leave must make arrangements for childcare, often in a group daycare center, when their baby is very young. This results in postdoc parents needing to take additional sick days to care for their infant:¹⁵ "you have a kid that you have to get into childcare, who will be getting sick, and you will need to be gone [from work]," explained one mother. Said another postdoc parent, "putting a tiny infant in daycare means lots of infections." Said another, that's "more days off work."

Some postdocs have no leave of any kind

At many of the surveyed institutions, there was no policy providing time off – paid or unpaid – for postdoc mothers who had just given birth. This means that postdocs have no institutional guarantee that their job is protected while they are away recovering from childbirth.

% of institutions that provide no time off of any kind, by postdoc type	
Institutional Employee	5%
Institutional Trainee	23%
Individually Funded	23%
Externally Funded	44%

Failing to permit time off for childbirth violates federal laws, such as the Family and Medical Leave Act (for eligible postdoc employees) and Title IX (for childbearing postdoc trainees and employees).

"He visited me at the hospital and said 'So what about 2–3 weeks and you will be back?'"

With no leave policy, mothers depend on informal arrangements

In the absence of a parental leave policy, or in the face of a confusing policy, many postdocs relied on their PI to grant time off. Said one postdoc, "No one seemed to know if my employer-provided health benefits would continue during [leave]. I gave up and worked it out directly with my boss to take 4 weeks off, with full pay." Although this was a welcome solution, "This effectively used my allotted vacation time for one year..."

This sort of informal arrangement can be a double edged sword; a supportive PI can go above and beyond the typical university policy to give the postdoc the time they need, but an unsupportive PI can make maternity leave impossible.

Many postdocs reported being able to take time off for the birth of their child as a result of the flexibility provided by their supervisor:

"My advisor allowed me to propose a leave and part-time work schedule that worked for both of us (outside the university's HR system, which only allowed 6 weeks of paid leave)."

"My advisor was very considerate and I consider myself lucky. Though some of my friends were not so lucky and were not granted leave or pay during maternity leave."

Postdocs using informal arrangements also expressed feeling guilty for taking leave, and reported difficulty arranging leave that could've been avoided had there been a policy on the books. Said one mother,

"I was injured during childbirth, and only recently [over a year later] regained almost full use of my right arm. Since there was no official policy, I had worked out with my supervisor to take 6 weeks off, but ended up taking 8 to try

to recover. I felt guilty/like I was putting my advisor out by taking extra time. If there was an official policy for leave or unpaid leave while keeping insurance, I would have taken more time to recover.”

Principal investigator's response to maternity leave

Postdoc respondents were asked to characterize their PI's response to their taking or requesting leave. The majority were encouraged to take leave:

PI's response to maternity leave request	
Discouraged	12%
Neutral	24%
Encouraged	64%

Although most postdoc mothers were encouraged to take leave, others were discouraged from taking leave or urged to cut their leave short. A postdoc in biology recalled her PI's astounding reaction to her giving birth: "He visited me at the hospital and said 'So what about 2-3 weeks and you will be back.'" So she cut her leave short: "Administration actually had me get a release from doctor because I came back in 4 weeks after a C-section birth with many complications." This incident is a hint that some survey responses from postdocs characterizing their PI's response to leave may have actually been generous; this mother had labeled the response from her PI as "somewhat encouraged leave."

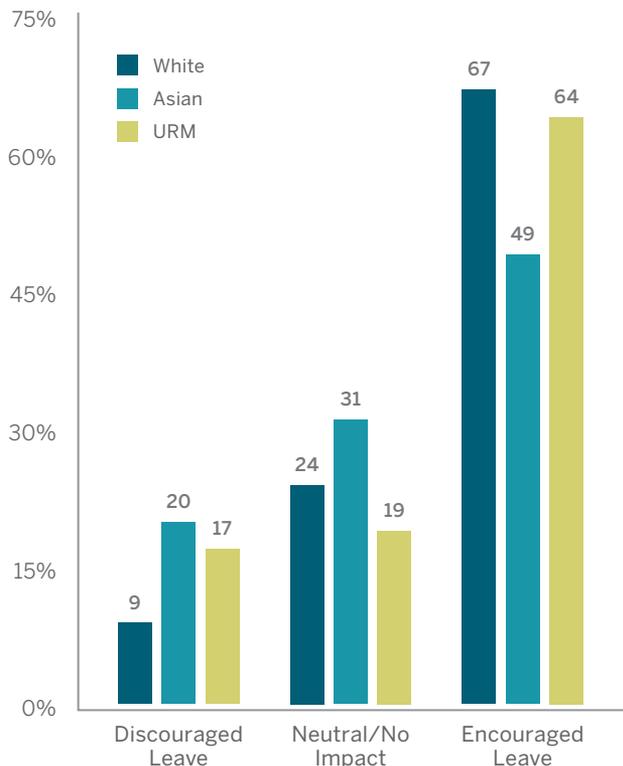
Such pressure to take shorter leaves was common:

"My PI asked me to come back for lab meetings (with my baby) before my leave was officially up."

"The department head wouldn't let me apply for university funding for my maternity leave. My PI still gives me a hard time about having taken 8 weeks off (I had a c-section) even though [others] regularly go home for 6 weeks for visa issues."

Blatant interference with the right to take maternity leave was infrequently reported, but subtle tactics can have similar effects. "No one explicitly said 'Do not take leave'" recalled a postdoc mother. Instead, this researcher faced "...threats of pulling funding,

Response of the PI to postdoc taking/requesting maternity leave



constant pressure and reminders mere weeks after birth, that 'I understand you had a baby, but this report is due RIGHT now', insulting remarks about my inability to complete deadlines and astonishing hostility as if having a child equals slacking off."

"No one explicitly discouraged me from taking leave," echoed another mother, "but it was clear by the attitudes of some of my faculty mentors that I would be moved off of important projects because of my pregnancy/leave and that generally expectations for my performance/achievement leading up to and after leave were lowered compared to before my pregnancy/leave."

Limiting a postdoc's educational or employment opportunities because of her pregnancy, or threatening to take adverse actions if she uses legally protected leave, would violate laws against sex discrimination, such as Title IX.

Postdocs of color are less likely to ask for leave, more likely to be discouraged from taking leave

Postdocs of color were less likely to ask for time off work to give birth. Among white respondents, 91% of mothers requested maternity leave, compared with just 80% of postdoc mothers from underrepresented groups and 84% of Asian postdoc mothers ($p=.038$). The gap between the postdocs of color and their white counterparts was statistically significant and holds even when holding other variables constant, including immigration status, funder, and institution type. More research is needed to understand why these racial disparities exist.

One potential cause for a racial disparity in the rates of requesting leave is the attitude of the PI; postdoc mothers of color were more likely to report that their PI discouraged taking leave ($p=.004$). Postdocs of Asian descent were over twice as likely as white postdocs to report they were discouraged from taking leave: 9% of white postdocs were discouraged, compared to 20% of Asian postdocs and 17% of postdocs from underrepresented groups ($p=.036$).

Short leave terms place postdocs' health at risk

The most common complaint about leave was that it was too short. Our survey did not ask what length of time was provided for maternity leave, though comments indicate that the typical leave term for postdoc birth mothers is 6 weeks. This is the commonly accepted period of presumed disability for mothers who undergo a vaginal delivery. But there was significant variation in leave terms; reported time off ranged from one to twelve weeks.

One postdoc mother described the pressure to take a brief leave as, **“the pressure to – essentially – be a man. [...] I was expected to perform exactly as I would've had I not given birth a month prior.”**

This paradigm doesn't benefit postdocs or their institutions. As one postdoc mother explained,

“...six weeks is *nowhere near enough* to adjust to having a child. [...] I was trying to publish papers within a couple of weeks after my child was born and I look back and see that a) the papers weren't that great, because I was sleep-deprived [...] and b) what

“The lack of leave and therefore time at home severely impacted my ability to breastfeed my premature and underweight child and left my health in tatters.”

in the world was I doing? I was a new mom, and I should have been bonding with my baby rather than trying to be ready to re-enter the workforce weeks after his birth.”

A postdoc mother in neuroscience commented,

“[I] took less leave than I was allotted, was extremely inefficient (sleep deprivation, etc.) for at least four months following my return, and eventually went on medication to deal with the stress of being a parent and postdoc.”

A postdoc mom in chemical engineering describes a common experience. “I was a zombie,” she said; and if she would've been able to take more time off to recover, “I don't think it would've set me back at all.” When she returned to work roughly six weeks after giving birth, “I was still sleep deprived and still in physical pain... not ready to meet the intense demands.” On her first day back from maternity leave, the eager postdoc was scheduled to meet with her adviser to set work priorities. “I remember the short walk just from my office to her office” she recalled this moment vividly, years later. **“I had to walk incredibly slowly. I was in a lot of pain. And I remember thinking to myself, I shouldn't be here.”**

Postdocs' experiences challenge the common perception of six weeks as an acceptable (or even ideal) standard period of leave for birth mothers. A postdoc mother exclaimed, “6 weeks is just not enough for maternity leave. [...] The only other option one has is to take *unpaid* leave and to do that at the moment one is starting a family is simply impossible.” Many postdocs agreed with the sentiment that six weeks of paid leave “... is pretty good considering what is common for postdocs, however **I was still in physical pain from the childbirth when I returned to work [...] but I could not afford to take time off without pay.**”



Short leave terms take a big toll on mothers who have childbirth complications

One mother noted what most already know about maternity leave; “four weeks is too short.” While uncomplicated vaginal births typically require a recovery period of at least six weeks, the presumed disability period for cesarean deliveries is 8 weeks and some complications require even longer recoveries.¹⁶ University policies often don't account for these complications.

Said one mother, **“I had a rough birth/recovery and was barely physically able to go back to work at 6 weeks postpartum”** – but her only options were to return or quit. A biochemist wrote, “I only got 6 weeks to recover after a C-section...I had my second child after a 5 year gap, again a C-section and again only 6 weeks.” The

“I had to walk incredibly slowly. I was in a lot of pain. And I remember thinking to myself, I shouldn't be here.”

mother didn't have a choice; **“If I took a longer leave I would lose the health benefits for me and my family. So I had no option, but to return to work.”**

Another postdoc who also struggled with a six week leave term explained a common frustration shared by those who delivered via C-section; “C-section is a major abdominal surgery that is often not treated as such. People can get longer time to recovery from other types of surgeries

that don't involve the extra stress of trying to establish a routine with a new baby and the need of bonding with your child." Note that such a disparity between an institution's treatment of this surgery and others would be a violation of federal laws against sex discrimination; women recovering from childbirth should be eligible for short term disability benefits (if provided) and equally to others similar in their ability or inability to work.

Principal investigator's response to pregnancy impacted overall quality of appointment

Postdocs were asked to characterize their PI's response to their pregnancy or new parent status overall. Overall, 13% of postdoc moms reported their PI to be unsupportive. Postdoc mothers of color were more likely to find their PI unsupportive of their family status ($p=.03$). The responses varied by race; 10% of white postdoc mothers found their PI to be unsupportive, compared with 14% of postdoc mothers from underrepresented racial groups, and 22% of Asian postdoc mothers.

When asked how their PI's response impacted their postdoc experience overall, 21% of postdoc mothers reported that it had a negative impact. Again, there was a significant gap between postdocs of color and their white counterparts ($p=001$). **Over one in four postdoc women of color reported that their PI's response to their pregnancy had a negative impact on the quality of their appointment overall.**

"My PI's response made me feel like I could stay and in science while having a family. He told me I could, over and over again; even when I doubted myself."

Patching the leak

What does it take to keep these women in STEM? Again and again postdocs reported that it was positive messages from colleagues and supervisors that kept them in their career path. Said a postdoc mother, "My

PI's response made me feel like I could stay in science while having a family. He told me I could, over and over again; even when I doubted myself."

Postdocs with supportive PIs explained the impact:

"An unsupportive PI would absolutely have driven me out of academia entirely. I still consider leaving as I contemplate the cost/benefits of seeking a tenure position and then trying to get tenure. But the one thing academia can offer is the incredibly flexible schedule so we ought to be allowing it and celebrating it as parents!"

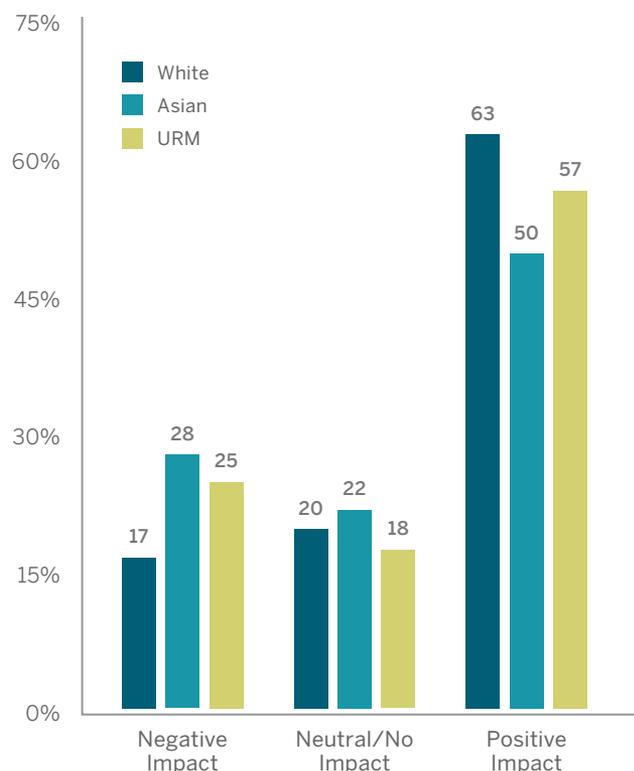
IN SHARPER FOCUS

Short Leave Terms Make It Difficult for Mothers to Breastfeed

Early cessation of breastfeeding "is associated with adverse health outcomes for the woman and her child, including higher maternal risks of breast cancer, ovarian cancer, diabetes, hypertension, and heart disease, and greater infant risks of infectious disease, sudden infant death syndrome, and metabolic disease" among other concerns.¹⁷ Despite the health benefits, mothers often struggle to continue to breastfeed after returning to work, and an early return to work is associated with shortened breastfeeding duration.¹⁸ "Continuing to breast feed after returning to work too soon is extremely challenging," said a postdoc mother. **"The lack of leave and therefore time at home severely impacted my ability to breastfeed my premature and underweight child and left my health in tatters"** said another mother, a NIH funded biologist.

"Once I cam[e] back to work I immediately suffered from breast infection, which ended up me taking antibiotics and basically leaving work for another week to recuperate." Infrequent or delayed expression of milk, common in mothers without adequate workplace accommodations, are risk factors for such infections (mastitis).¹⁹

Impact of PI response on overall experience



“I was very unhappy with my first appointment after having my child. The lack of support from my PI was a big part of that. So I left and am finding my new appointment much more supportive, and as a result I have become more productive (even in a shorter amount of time and hours spent at work per day) and more successful.”

Another postdoc mother explained,

“A happy pregnant postdoc is an even harder working postdoc! [...] She’ll be happy and eager to return after maternity leave if she left on a positive note.... Being in such a positive environment for my pregnancy/ birth really made me feel happy...It actually has made me work harder.”

This postdoc’s PI and colleagues “were excited for my pregnancy and birth.” She continued, “They gave me a lab baby shower and requested that I bring my son to work afterwards...My PI also emailed/texted me when I was on maternity leave to see if I needed him to bring

anything (e.g., food).” Now that she is back at work, this neuroscientist does come in later than usual two days a week – but she makes up for it by coming in on weekends and staying late.

Other postdocs commented that small shows of support went a long way. A mother in chromosome biology wrote, **“As the pressure to produce is so omnipresent, it feels [a] few well-intended responses would negate dealing with the work load and pressure.”**

Again and again postdocs reported that it was positive messages from colleagues and supervisors that kept them in their career path.



“Peers often phrase paternity leave as if it’s a ‘vacation’ or you’re at home doing nothing.”

Fathers' Experiences

Fathers are left out of university family leave policies

All too often, university leave policies leave fathers out. Only two out of five institutions provide paid paternity leave for their postdoc employees, and those who are not institutional employees fare worse.

% of Institutions providing paid parental leave, by postdoc type	
Institutional Employee	39%
Institutional Trainee	33%
Individually Funded	29%
Externally Funded	15%

Where there was no formal policy for parental leave, the practice sent the message that parental leave is not acceptable:

“Paternity leave isn’t done and there is no mechanism for it. I took a few vacation days, but without a formal mechanism and encouragement from the top down, it simply isn’t a possibility.”

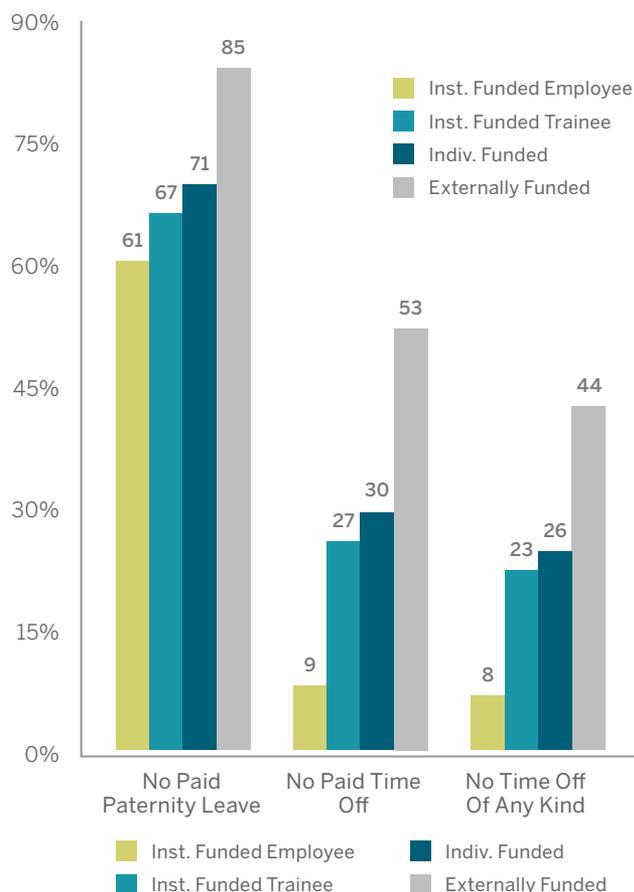
“There is no such thing a[s] leave for fathers. They won’t even allow use of sick leave. My personal boss is great about family matters, but the University strongly discourages leave for fathers and **what retributions you suffer for taking time off is up to your supervisor.**”

No access to other paid time off

Said a postdoc father, “The policy of unpaid (FMLA) leave was entirely pointless since when having a child results in more financial stresses, not less.” But many institutions still offer only unpaid time off – if they provide any time off at all – for postdoc fathers or adoptive parents. Nearly one in ten institutions did not provide paid time off for employee postdoc fathers in any form. Others have restrictions on using sick time for caretaking.

The lack of paid leave for fathers is a burden on postdoc families. “[L]osing both incomes would have not allowed us to support our family,” a postdoc epigeneticist

Institutions providing no paternity leave, by leave type and postdoc type



explained. “Alternatively, at least one of us would have had to return to work, and losing important bonding time with baby and support.” Because no paid parental leave policy was on the books, this postdoc dad made an informal arrangement with his supervisor so that he could continue to support his family – both with his caretaking and his salary.

Fathers face pressure to forgo taking leave

Postdoc fathers often face a unique type of discrimination – the stereotype that men cannot, or should not, provide caretaking. One postdoc father

“...the University strongly discourages leave for fathers and what retributions you suffer for taking time off is up to your supervisor.”

recalled that although he had premature twins in the neo-natal intensive care unit, “[t]hroughout the entire ordeal of my babies’ stay in the hospital and when they first arrived home I felt responsible to continue performing as if nothing had changed in my personal life.” In fact, his PI never even addressed the issue of leave. Then, “[w]hen my babies came home from the NICU I said I would not be in the office the following week.” Even during that week, “I continued to be

scheduled into meetings which tacitly signaled to me that my presence was expected.”

An NIH-funded psychologist found that it wasn’t just his institutions’ leave policy that discouraged taking time off, but also the biased reactions he encountered; “Despite only taking one of the two offered weeks, **multiple mid-level and senior level faculty made demeaning comments....**”

Another father requested a week of time off for the birth of his daughter. In response, the PI “started to overload me with work as the due date of my wife was getting closer.” Once his daughter was born, the PI told this father that because he had other family support “I did not have to take care of my wife and that I should continue working my regular hours (10 to 11 hours per day).” This postdoc suggested that parenting leave be mandatory, because, “if not principal investigators are going to be threatening employees about losing the job for taking the parenting leave.”



IN SHARPER FOCUS

Immigration Status and Parental Leave

Data collected from postdocs in this survey revealed few statistically significant differences between postdocs who were citizens or permanent residents during their appointments, and those who weren't.

Postdocs who were not a citizen or permanent resident of the US were significantly more likely to report that their PI discouraged taking leave: 19% of non-resident postdocs reported being discouraged, compared with 12% of resident postdocs. Similarly, only 55% of non-resident postdocs were encouraged to take leave, compared with 62% of residents. ($P=.039$) Overall, the majority (68%) of non-resident postdocs found their PI to be supportive of their status as a new parent, but at a rate less than citizen postdocs (78%). Among non-resident postdocs, 14% found their PI to be unsupportive, compared with 10% of citizens. ($P=.014$)

Despite these disparities, there was no statistically significant impact between residents and non-residents' assessment of the impact their PI's response to their parenthood had on their overall experience in their appointment. One in five non-residents reported a negative overall impact, compared with 18% of residents. ($P=.387$)

This sample is not representative, and additional research is needed to fully understand the experiences of non-resident postdoc parents.

This reflects an all-too-common stereotype that fathers who take time off are not legitimate caretakers, and their leave is a luxury. **“Peers often phrase paternity leave as if it's a 'vacation' or you're at home doing nothing,”** commented one postdoc father. He added that the prevailing mindset “...can lead to a view that you 'aren't serious about science' since you took time off.” Some postdocs aren't able to withstand the pressure. Said one postdoc father, “...my boss kept calling me [to] ask all kinds [of] things, and I got annoyed and decided not to take leave anymore after less than 10 days leave.”

Even when leave is technically available, postdoc fathers report PIs used their discretion to keep leave terms short. Said one postdoc, “[my] boss thought fathers did not get time off, when in fact, parents can get 6 weeks. I ended up taking about 3, but it would have been nice to get the full amount.” This discriminatory behavior can impact a postdoc's entire family. “I requested 3 weeks from my advisor very early in my wife's pregnancy” said one postdoc father. “He agreed to this but when the time came I was only allowed one week” and as a result, the postdoc's family suffered “major problems with finding a daycare before we had planned to.”

“Departmental personnel have been known in the past to use open threats to prevent leave” said another father. “While official rules are in accordance with the law at the departmental level and below they are completely flaunted.”

“I felt responsible to continue performing as if nothing had changed in my personal life.”

Postdoc fathers of color were less likely to ask for and be granted leave

As with mothers, there was a significant racial disparity in the rates of asking for and taking parental leave between white postdoc fathers and fathers of color ($p=.007$). Among white postdoc fathers 60% asked for parental leave, compared with just 36% of Asian postdocs and 50% of postdocs from underrepresented

groups ($p=.013$). On average fathers requested leave just over half of the time (51%).

White postdoc fathers and postdoc fathers from underrepresented groups who requested leave reported their requests were granted at high rates, 95% and 94% respectively. In contrast, postdoc fathers of Asian descent who requested leave were only granted leave 88% of the time.

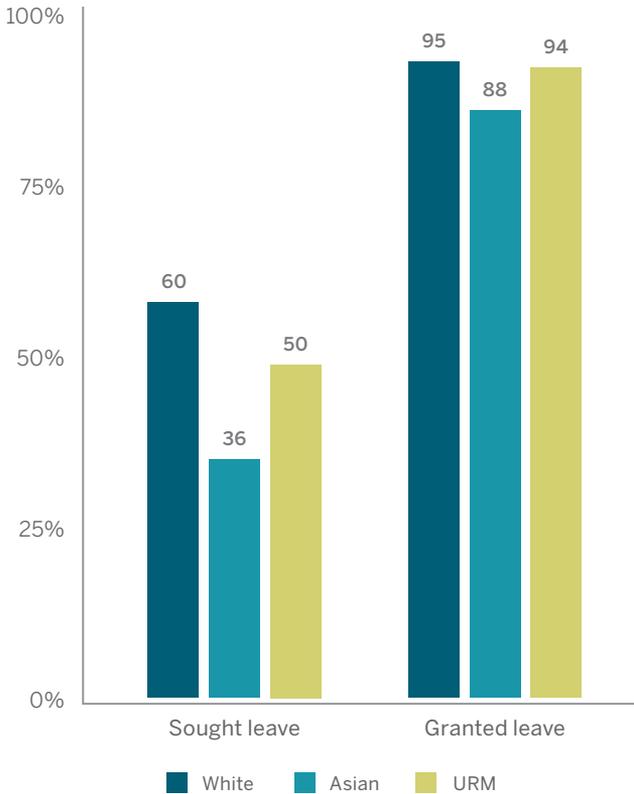
The PI's response to their postdoc taking parental leave also varied, although not statistically significantly, by race. Of white postdocs, 11% reported their PI had an unsupportive response, compared with 17% of Asians, and 15% of postdocs from underrepresented racial groups.

Principal investigators' response to parenthood impacted overall appointment

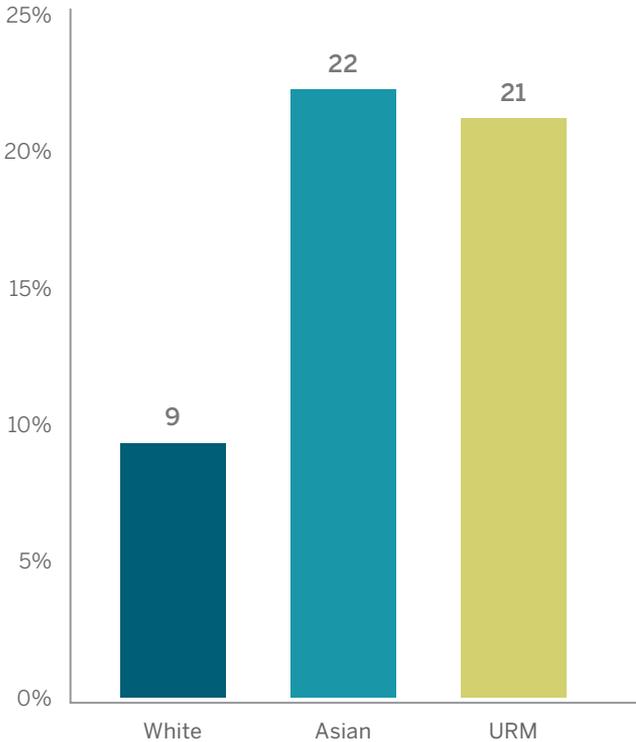
Fathers who participated in this study were asked to characterize their PI's response to their new parent status overall. Again, we found an insignificant but notable difference based on race; 7% of white postdoc fathers and postdoc fathers from underrepresented groups found their PI to not be supportive, compared with 13% of Asian postdoc fathers.

Postdoc fathers reported that their PI's response had an impact on the quality of their overall experience. **Postdocs of color were over twice as likely as white postdocs to report that their PI's response had a negative impact on their postdoc experience overall, with roughly one in five reporting a negative impact** ($p=.04$). Postdoc fathers of all races reported positive impact at similar rates.

Seeking and receiving paternity leave, by race



PI response had negative impact on quality of appointment overall



“It is difficult to stay motivated
for work when the entire
salary goes for daycare.”

SHARED EXPERIENCES

Managing Administrative Processes

Managing a postdoc's parental leave can be challenging not only for the postdoc, but also for their institution. Whereas other employees' leave is governed by a handful of policies under the auspices of human resources (HR), the unique variety of stakeholders and classifications in play for postdocs mean they often struggle to determine what policies apply. In the midst of this confusion, postdocs and their principal investigators struggle.

Postdocs report widespread confusion regarding leave policies

Postdocs reported confusion regarding the application of university parental leave policies. Even among survey respondents, who all had children during their postdoc appointment, **one in ten women and two in five men indicated that they were not sure whether their institution had a maternity or parental leave policy that covered them.**

A postdoc mother in cell biology summarized a common sentiment: "I was surprised by the lack of information I received from the University people in charge of maternity and family leaves...it was like I was the only pregnant woman in the university ever."

“...my family housing contract was terminated while I was on [unpaid] maternity leave, and I was given a notice to vacate my University Family Housing unit just before I went back to my postdoc position in the lab.”

Postdocs funded by their university less frequently reported uncertainty about their leave policy than those funded by federal agencies (20% v. 31%). This may be because postdocs on grant funding must navigate both their host institution's policy and their grantor's.

Human resources offices give incorrect or incomplete information on leave policies

One postdoc interviewed for this study was surprised to learn – months after giving birth – that her university's policy offered six weeks of maternity leave at 70% pay. The postdoc had been told by human resources that no leave was available, and instead had used her vacation and sick time. Another postdoc mom reported being steered in the opposite direction; she was told to take disability leave, even though she had accrued sufficient time off. As a result, the postdoc took a significant – and avoidable – pay cut.

Postdocs reported a variety of problems navigating university leave policies and procedures that could have been resolved with the accurate guidance of human resources staff. A postdoc in veterinary medicine shared that she, "...had no paid maternity leave, plus I had no vacation (because I have no benefits) and only 11 days of sick leave." The postdoc's solution was to work from home during her recovery period, but human resources administrators objected to this arrangement and she was eventually forced to "pay back 20 [days] of work... that I actually worked from home."

A postdoc mother who was instructed by her supervisor to speak with HR about potential leave funding options recalled that **"HR told me there is nothing they can do if the PI decided to terminate my employment because of my status [as a pregnant woman]."** Such actions violate anti-sex discrimination laws, such as Title IX and Title VII, in addition to the FMLA (for eligible postdocs).

Another mother commented that her administration manager, "required that I submit an approval form and request time off from work prior to all doctor's appointments. [The manager] didn't believe that I should receive a paid leave." The postdoc's funder, the NIH, ensured that she was eligible for 8 weeks of paid leave, yet "upon my return to work, [the HR administrator] also gave me a difficult time and requested a doctor's release back to work." These sorts of requirements would be in violation of federal anti-discrimination law unless applied uniformly to all similarly situated postdocs.



Failure to coordinate continued benefits was a less common but troubling (and potentially illegal) occurrence reported in survey responses. Said one postdoc mother “I was dissatisfied that my dental insurance and access to University services...were discontinued during my 8 weeks unpaid (sic) maternity leave. I was extremely upset when my family housing contract was terminated while I was on unpaid (sic) maternity leave, and I was given a notice to vacate my University Family Housing unit just before I went back to my postdoc position in the lab.”

Human resources offices give incorrect information on the FMLA

Violations of the FMLA, or errors implementing it, were also reported by postdocs. A common mistake relates to the FMLA eligibility requirement that the employee taking leave must have worked for the employer for at least 12 months. Although the law doesn't require the employment to have been in the same position, several HR departments incorrectly considered postdocs

ineligible for FMLA leave because they had switched jobs within the institution.

One postdoc mother with a life-threatening pregnancy condition gave birth so prematurely that her university leave term ended even before her original due date. She had worked for the university for five years as a student, yet when the postdoc applied to take time off under the FMLA, her office failed to account for this previous employment and she was found ineligible. Said the mother “...I took all my [paid time off] to stay home as much as possible. As a consequence both my work and my relationship with my employer suffered greatly [...] I lived under constant threat of having the [funding] being pulled any minute until my baby started full-time day care at 5 months of age.”

A lack of formal policies results in lost funding opportunities

Postdocs working on external grants that offer parental leave have the ability to take leave they would otherwise be unable to access due to funding limitations or

supervisor discretion. As indicated by the responses to our survey, funding source played a significant role in determining postdocs' access to leave.

University-funded postdocs asked for pregnancy leave 86% of the time, compared with 93% of NIH funded cases and 81% of those funded by other agencies. This may be a result of the NIH's well-known family leave policy, which provides funding for up to eight weeks of leave. It appears that the only other major federal funder of research that provides a distinct funding program for family leave (not merely allowing it under the fringe benefit rate) is the NSF, which offers supplemental funding to cover the cost of a replacement researcher while a postdoc is on leave.

Postdocs repeatedly expressed the sentiment that their grantor's funding for leave was essential; without it, many postdocs would have had no option to take the time off. "As a[n] NSF fellow," one postdoc explained, "the leave provision was explicitly written into the program description and the program director did not question my request. [...] I am certain that if I were not a fellow (but rather being paid by a faculty PI), my only option for leave would have been unpaid time off."

Although appreciated by those postdocs who were able to access it, grantors' parental leave funding often goes unused. Funders often have conditions in their parental leave or fringe benefit policy that stipulate that parental leave must be provided to all postdocs through a host institution's formal policy – and many institutions have none. Institutions are missing out on a funding opportunity, and the retention boost that comes with it, because of this conflict:

"[Funder] granted 8 weeks of paid leave. The university policy is 4 weeks of paid leave. Therefore, I received only 4 weeks..."

"My [...] institution offered only two weeks paid. However, [the funder] allows fellows to take up to 12 weeks, UP TO THE SAME AMOUNT OFFERED TO OTHER EMPLOYEES AT THE INSTITUTION. I took 8 weeks anyway, since 2 weeks is ridiculous, especially following a cesarean."

Avoiding human resources

Human resources offices are often so unhelpful that postdocs are advised to circumvent HR by making arrangements with their supervisor directly. Said one

"One of [my PIs] quietly told me just to disappear and not tell HR ... i.e. don't tell anyone."

postdoc father in engineering, "All of my PI's were very support[ive] of my leave. They just couldn't pay me. One of them quietly told me just to disappear and not tell HR... i.e. don't tell anyone."

Reports of "flying under the radar" are common. A failed attempt to do so resulted in a tense situation for a postdoc mother in veterinary science, who reported, "[HR was] rude and made me feel guilty about receiving a salary while being at home caring for my baby, although I worked from home since week 1 after C-section." She was forced to repay her salary; "I still believe I deserved that payment" said the postdoc, "but they didn't give me a choice."



SHARED EXPERIENCES

Family Responsive Benefits and Scheduling

Postdocs of all genders demand family-responsive schedules

Given the long hours worked by most postdocs, having family commitments can create challenges. To create a better work-life fit, postdoc respondents asked for accommodations related to family responsibilities for half of the births documented in this study.

Roughly 19% of survey respondents who provided a description of the accommodations they requested²⁰ reported seeking to adjust their hours or days of work. For example, postdocs sought to; “switch a Workday for a weekend-day so I or my partner can take a weekday for staying with child more days a week,” or take “weekends off in order to take care of my child and relieve my partner,” or starting the workday earlier to match daycare needs. Others sought to avoid late night meetings or forgo travel on certain days. Roughly one quarter (26%) of commenters reported requesting permission to occasionally work from home. Postdocs also frequently reported requesting space and/or time to pump breastmilk.

Without the scheduling flexibility they need, postdocs quit

A surprising number of postdocs explained that accommodations were essential to them, and 40% of commenters reported requesting flexible schedules. A neurologist commented that, “having a flexible schedule that allows me to be there for my young child is the number one reason I continue to work as a post doc.” A father studying microbial ecology shared, **“If flexible hours were not allowed, I would have left my postdoc.”** A mother who requested the ability to work remotely explained that “these accommodations allowed me to continue working. Otherwise, I would quit.”

“Frankly, if my PI were discouraging or voiced an opinion that was negative toward family time and commitments, I would not hesitate to leave that situation,” explained a mother and cell biologist. She currently stays at home with her daughter one morning each week, and has some flexibility with regard to doctor’s appointments. Other mothers echoed this refrain: without the family-friendly

“These accommodations allowed me to continue working. Otherwise, I would quit.”

accommodations, an engineer would **“strongly consider leaving,”** a neuroscientist **“would not have been able to continue,”** and a biochemist **“would just have to quit.”**

These aren’t empty threats; postdoc respondents did indeed leave positions because their supervisor did not permit family friendly schedules. A postdoc dad in cell physiology tried to negotiate several scheduling options with his PI, such as starting workdays earlier, working longer some days in exchange for leaving early on others, or taking off a work day in exchange for a weekend day. None of his proposals were accepted so, “one of us had to leave [the] Academy.” Explained a mother in developmental/cell biology, “I found it impossible to be successful when my work schedule was interfering with my family life, this is why I left my first institution and am finding greater success/happiness at my new institution.”

Family-responsive schedules: getting it right

For many new parents, accommodations were critical to their continued work. When asked about the impact of scheduling accommodations on her experience, a postdoc mother explained, “It helps a lot to have some flexibility. It creates a[n] environment where work gets done nevertheless but without the pressure of choosing between a successful career and family.”

“It was great” said a postdoc mother in chemical biology. She was provided a lactation space and permission to leave early to pick up her baby from childcare and then work at home in the evenings. She explained, “I felt like the pressure of taking care of my family and my work obligations was far less than if both arenas had strict constraints on my schedule.”

A biochemist expressed her gratefulness; **“flexibility in my schedule to accommodate my older child and the new baby was amazing and generous. It certainly motivated me to work hard for my advisor.”** Megan, a postdoc researching food systems, wrote that her ability to work from home occasionally “helps keep some kind of balance in our lives.”

University-provided family benefits

Postdocs were also surveyed about what other institutional programs of services for parents they were eligible for. The most commonly reported benefit was dependent healthcare, with 63% indicating that it was available to postdocs at their institution, followed by on campus childcare, with 29% eligible. A majority of postdocs (64%) reported taking advantage of at least one of their institution’s family-oriented benefits. Nearly one in ten used other aids provided by their institution, most frequently lactation rooms, backup childcare, and flexible spending accounts.

At your most recent postdoc appointment, what programs or services were you eligible for?	
Dependent Health Insurance	63%
On-Campus Childcare	29%
Childcare funding assistance	6%
Unsure	18%
None	16%
Other	7%

The National Postdoc Association’s Institutional Policy Report found that 95% of institutions provided their postdoc employees with dependent health insurance, while just 61% of institutions surveyed provided the insurance to externally funded postdocs. Postdocs surveyed about the availability of dependent health insurance reported eligibility at a lower rate than their institutions; just (63%) of respondents reported they were eligible, even though a majority were institutional employees. This gap may reflect ineffective education and onboarding of postdoc hires.

“I was not made aware of any programs, of any kind, by any one.”

When asked why they did not take advantage of the insurance benefit, one of the most frequently cited reasons was that the insurance was unaffordable, or not worth the expense:

“Once I included dependents on my health insurance plan, my take home pay after taxes is the equivalent of the amount that I pay on childcare per month. **I essentially work as a postdoctoral fellow without income.** It has caused a significant financial strain on my family.”

Postdocs aren’t aware of the resources available to them

Our survey revealed an immediate step that institutions can take to support postdoc parents; better communication. When asked about their eligibility for family-friendly benefits, 18% of postdoc respondents replied that they were unsure what was available to them and over one third didn’t use any institutional support programs.

For some respondents, this survey was the first time they learned that such benefits may be offered. “I did not even know about them at all. How can I get them?” asked a postdoc geneticist and mother. “I was not made aware of any programs, of any kind, by any one” said Jeff, a father and postdoc employee. “If there are no programs available (childcare, grants, etc.), then shame on the institution. What’s more to be said?”



SHARED EXPERIENCES

Childcare

Of the on-campus services studied by the postdoc survey, the issue of daycare elicited the most responses – and the most passionate responses – by far. Postdoc parents, like many parents, have difficulty obtaining childcare, which in turn results in problems at work.

Leave offered by many institutions was so short that it was impossible – or exceedingly difficult – for postdocs to arrange childcare

“The leave (4 weeks) wasn’t even for a long enough period for my son to be allowed to go to daycare” noted one parent. In their state, as in many others, providers are not legally permitted to care for infants that young.

Other postdocs also reported this disconnect between university leave and childcare policies. For example, several postdocs reported that their university provided leave for just six weeks, while their university’s childcare

facility only accepted infants twelve weeks or older. As one said, “this leaves a strange period between 6 weeks and 3 months when the parents are supposed to be back at work but daycare is not yet an option.”

The inaccessibility of newborn childcare is of particular importance for this population because many postdocs relocate for positions far away from their families. “I am an immigrant” explained one mother. “Nobody from my family or my husband’s family can come to help us during this time.”

“The leave (4 weeks) wasn’t even for a long enough period for my son to be allowed to go to daycare.”



On-site daycare was inaccessible for postdoc parents

Just 29% of postdocs indicated that they were eligible for on-site day care and only 7% indicated they were eligible for some form of childcare funding assistance. Even with this sizable minority having access to on-site childcare on paper, postdoc respondents overwhelmingly reported that the care was inaccessible in practice.

One parent wrote, “Though my university says it provides childcare options, this is not true for postdocs. There is a wait list that is impossible to navigate in the required time.” This parent will likely have to keep waiting; respondents reported facing waiting periods ranging from one to three years.

Several postdoc parents commented that the wait for childcare was longer than their appointment, like the parent who was “informed that there was space in the daycare only after 2.5 years of waiting, right as we were leaving the university for other positions.” Respondents hypothesized that some of the delay could be explained by the fact that other members of their university community have the priority on waiting lists, including faculty.

Some university childcare programs were not set-up to match postdocs’ unique schedules. Explained one postdoc parent:

“I did not use on campus child care because it is prohibitively expensive for postdocs on NIH fellowships; the program requires a whole year commitment in tuition payments; the program has working hours that are too short for my childcare needs, and has too many Holidays and staff vacation days during which I would need to work in the lab...”

On-campus childcare was unaffordable for many postdocs

Even if these postdocs were able to secure a position in on-campus childcare, the expense could prove prohibitive. Of those who commented on why they did not use all of the university services provided, 21% percent explained that they were deterred by expense. While complaints regarding the affordability of childcare are common on any campus, the relatively low pay of postdocs makes them especially vulnerable.

“On campus childcare is over \$20,000 / year,” explained one father. “This is half of a postdoc’s

salary in Biology.” As high as this figure sounds, many postdocs commented that their campus childcare was even more expensive:

“Well over 75% of my NIH-level salary went to pay childcare expenses. This is outrageous, and it’s really no mystery why so many mothers in biology quit.”

“A child care subsidy would be a nice gesture. **Currently, to put my child in the university daycare would cost 90% of my take home salary.**”

“Well over 75% of my NIH-level salary went to pay childcare expenses. This is outrageous, and it’s really no mystery why so many mothers in biology quit.”

Childcare difficulties impact postdocs’ work

The issue of childcare is deeply intertwined with the need for workplace flexibility. A majority of postdocs who remarked that they requested flexible schedules or schedule changes did so in order to fit the schedule of their childcare provider; a task that would be less onerous if on-campus childcare was available. Several postdocs raised this issue, including a mother studying Evolution and Development who commented that having on-campus childcare, “...would mean I could spend more time in lab instead of racing home.”

Another postdoc mom, who commutes more than an hour each day, explained that “the monthly cost [of on-site childcare] is as much as our stipend or more. We have to choose other places.” She found the extra commute to the affordable childcare impacts her work, and that of her colleagues who are parents; “We have to pick up our babies and leave earlier than usual, and adjust our schedule accordingly. We should spend more time focusing on our job – it would be good for them to have daycare on site.”

Reducing the likelihood that postdocs are driven out of their appointment or career is easier than it sounds.

Conclusions and Recommendations

Postdocs' responses to this study paint a picture of stark contrast. The majority of postdocs receive the support and benefits they need to continue research after parenthood. They reported being grateful, loyal, and more productive researchers as a result of the positive experience. In contrast, a startling minority of postdocs must fight bias and/or unsupportive policies when they attempt to have both a family and career. Some in this group reported that this bias or lack of support drove them out of appointments – or research entirely. This finding is especially troublesome considering this survey's recruitment was skewed toward including postdocs still at institutions.

Our survey of postdocs reveals that a major driver determining which experience a postdoc will have is the response of the postdoc's Principal Investigator (PI) to their pregnancy or new parent status. Absent clear institutional standards and policies on pregnancy accommodations, parental leave, or family responsive benefits, PIs must apply their own judgement – serving not only as a research leader, but also as human resources. This dynamic creates the risk that some PIs will make decisions that are unsupportive of, or even biased against, postdoc parents.

We asked postdocs directly whether their PI's response impacted the quality of their postdoc appointment overall.

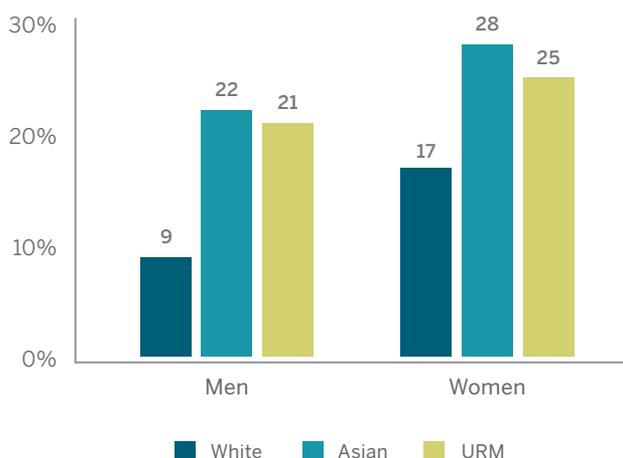
Over one in ten postdoc fathers and one in five postdoc mothers reported that their PI's response had a negative impact on the quality of their appointment overall.

The result, like other markers in this study, varied significantly by race; fathers of color found their PI had a negative impact on their appointment more than twice as often as white postdoc fathers ($p=.04$). Similarly, postdoc mothers of color were far more likely to report a negative impact, with more than one in four reporting their PI's response to their pregnancy had a negative impact on the quality of their appointment overall ($p=.001$).

Despite these startling numbers, reducing the likelihood that postdocs are driven out of their appointment or career is easier than it sounds. There are many steps institutions and research funders can take to address the concerns raised in this report by providing guardrails for the use of PI discretion and mitigating some of the other pressures bearing down on postdocs at great cost to their research.

The following recommendations, sorted by audience, provide a starting roadmap for improving the retention of postdoc parents and securing diversity in STEM in the process.

Negative impact of PI on overall experience, by gender and race



FOR INSTITUTIONS

Create a postdoc office

The National Postdoc Association recommends that institutions establish offices to coordinate university relations with postdocs and ensure the quality of postdocs' training.²¹ A high number of postdocs reported not knowing whether parental leave policies apply to them, or difficulty understanding the policies. Postdoc offices can assist by serving as a clearinghouse for critical information and offering guidance to help postdocs navigate university processes. Of course, not all institutions are able to create a standalone office for postdoc affairs. In that case, institutions can at least designate an administrator to serve as an expert on postdoc issues. This staff member can be located in whichever office is most appropriate, typically human resources, research offices, or the graduate school dean's office.

Provide parental leave

One of the most important steps that institutions can take to improve their postdoc parents' experience is to have a formal family leave policy, as requesting leave was the point at which many postdoc parents first experienced discrimination or other problems. Ensuring the policies are formalized and available in writing will reduce the confusion that often occurs and provide much needed guidance for PIs. As a result, policies reduce the risk of noncompliance with Title IX, Title VII, and the FMLA.

The creation of formal leave policies provides another benefit for researchers and their institutions; supplemental funding is more readily available for postdocs at institutions that have institution-wide policies.

Best practices

- ▶ Provide paid leave to postdoc parents separate or in addition to paid sick or vacation leave.
- ▶ Provide at least 12 weeks of job-protected leave and allow extensions for cases of medical necessity.
- ▶ Ensure that the leave policy explicitly includes fathers or other non-birth parents. The best policies model the FMLA's inclusion of a wide-range of caretaking obligations – and an inclusive definition of caretakers.
- ▶ Require postdocs to provide notification of the intent to take leave, but not request permission. Treating leave granting as discretionary allows more risk.
- ▶ Include all postdocs regardless of funding source. Establishing a baseline protocol for all postdocs affiliated with an institution will reduce confusion and set clear expectations for the entire university community. It may also allow postdocs to access funding streams that would not otherwise be available.

Ensure health accommodations are accessible to postdocs

Although the legal mandate to provide workplace accommodations for postdocs with pregnancy-related health needs is well-established, postdocs still report an unacceptable amount of difficulty accessing pregnancy accommodations. Postdocs of color are especially vulnerable and less frequently request the accommodations they need. Establishing a formal process for requesting accommodations that explicitly

One of the most important steps that institutions can take...is to have a formal family leave policy.

includes postdocs may enable them to feel less vulnerable requesting accommodations and will signal to the community that such requests are appropriate. Institutions will benefit from reduced liability and increased work productivity. In particular, personal protective equipment and fumehoods must be made available to postdocs who need them to secure the health of their pregnancy.

One accommodation that should automatically be provided is the space and time for postdocs to pump breast milk. Providing break time as needed and a private place to express breast milk (that is not a bathroom) is a requirement of the federal Break Time for Nursing Mothers law (for covered employees), along with a number of other laws. Easy access to lactation space that meets these requirements is lauded by postdocs, while burdens on postdocs' ability to breastfeed will have strong negative impacts on their work performance and health. The U.S. Department of Women's Health provides guidance²² on creating lactation spaces in a variety of different workplaces and can serve as a resource for departments in search of space solutions.

Best practices

- ▶ Establish a written workplace health and safety policy that explicitly includes pregnant postdocs. Ensure the policy covers the postdoc's own impairments as well as risks to her pregnancy.
- ▶ The best policies include the participation of health/safety experts, rather than requiring a postdoc to negotiate with her supervisor one-on-one.
- ▶ Advertise the occupational health and safety policies directly to postdocs and their supervisors during onboarding/training. Ensure occupational health administrators are aware of any special funding provisions, policies, or contacts specific to postdocs.
- ▶ Provide break time and a private sanitary space for the expression of breast milk.



Implement and advertise written policies on schedule flexibility

It is important to provide the flexibility for postdocs to return to work in a way that respects their health and family responsibilities. Allowing schedule flexibility is especially important for those postdocs who are not able to take a significant amount of leave. Many postdocs expressed gratitude for policies (or a supportive PI) that permitted them to return back to work gradually or complete some work from home.

Provide on-campus childcare or other childcare supports

Offering affordable on-site childcare for postdocs can mitigate one of the major burdens distracting them from their work by reducing the intense financial strain and time constraints faced by many postdoc parents. Of course, just as childcare is prohibitively expensive for postdocs, it may also be for your institution. If it

is not feasible to make on-site childcare accessible and affordable to postdocs, consider supporting their childcare needs in other ways. For example, due to postdocs' challenging schedules, back-up or emergency childcare is a precious commodity. Providing a set number of hours of back-up childcare or paying for postdocs' membership in a childcare service can offer a much-needed safety net. Institutions can also establish childcare flexible spending accounts to allow postdocs to save for their childcare needs tax-free.

Keep metrics

Without tracking the postdoc population, many campuses are missing the opportunity to spot early warning signs of discrimination and resulting attrition. Many postdoc parents reported leaving positions due to discrimination or lack of support – yet it is likely their institutions were unaware. Conduct a regular census of the postdoc population at your institution at the department level, including gender, race, time in

position, and parental status. Then, use the census to identify trends in postdoc attrition. Identifying potential problems early will allow for easier intervention.

FOR FUNDERS

Fund postdoc family leave

Funders of scientific research have an important role to play. By funding parental leave, grantors can assure that postdocs do not have to choose between having a family and their career.

Best practices

- ▶ Funders should provide paid leave to postdoc parents that is separate or in addition to paid sick or vacation leave.
- ▶ At least 12 weeks of job-protected leave should be provided.
- ▶ Ensure that the leave policy explicitly includes fathers or other non-birth parents. The best policies model the FMLA's inclusion of a wide-range of caretaking obligations.
- ▶ Require postdocs to provide notification of the intent to take leave, but not permission. If the granting of leave is treated as discretionary, eligible postdocs are more likely to be denied, and many, particularly fathers and people of color, won't even ask.
- ▶ Any leave period should be accompanied by an ability to extend the term of the current grant. Moreover, funding opportunities limited to "early career" researchers should provide a clock extension for those researchers who took family or medical leave.

Many postdoc parents reported leaving labs as a result of discrimination or lack of support – yet it is likely their grantors are unaware.

Advertise family-friendly policies directly

Many postdocs who were eligible for parental leave under the terms of their grant were unaware. Providing information on family-friendly policies directly to the postdocs and PIs may help alleviate this problem.

Several postdocs requested a website that provided a postdoc-specific and user-friendly overview of benefits and family-friendly policies of their grant. Any such resource should include a point of contact for postdocs to anonymously request information on policies and a contact for filing a Title IX complaint.

Keep metrics

Those funders that do not currently collect information on the demographics of grant-funded employees should consider doing so. Many postdoc parents reported leaving labs as a result of discrimination or lack of support – yet it is likely their grantors are unaware. Include the collection of funded postdocs' gender, race, parental status, and time in position on regular reporting. For an example, review the practices of the NSF, which collects demographic information on grant-funded workers as a part of the grant reporting process.

Periodically assess the demographic data provided by grantees to identify trends in diversity and postdoc attrition. Incentives can be provided to encourage PIs to retain women and parents in their funded programs. This data can also assist federal research funders in conducting Title IX reviews of institutions. Ideally, funders should implement interventions for PIs who consistently hire a non-diverse workforce or have heavy attrition of at-risk groups.

APPENDIX I: METHODOLOGY, CONT.

Survey sample and data notes:

1. **Initial screen:** The survey was open to respondents who had a child by birth, adoption, or fostering while in a postdoc appointment. Respondents included current postdocs and those who were postdocs within the last 3 years.
 2. **Gender:** Survey respondents' gender was coded as-self-reported. For those who did not self-report, those who indicated they gave birth to at least one child were coded as women. Using the above definitions, there are 389 women and 262 men in the data. Alternately stated, there are 466 children with women postdoc parents and 332 children with men postdoc parents.
 3. **Race/ethnicity:** 592 respondents reported race. "White" postdocs were those who only selected white or Caucasian as well as respondents who self-described as European in the "other" field. There were 365 white postdoc respondents. "Asian" (postdocs are respondents who selected Asian or Asian American; who selected both white and Asian; or who selected white and also entered a description of Asian in the "other" field). There were 153 Asian respondents. Postdocs from "Underrepresented groups" or "URMs" are those respondents who selected Black or African-American, Latino or Hispanic, Native American or American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Middle Eastern or Arab American, some combination of one of the above groups, or respondents who selected both white and one of the above groups. There were 73 respondents from underrepresented groups.
 4. **Immigration:** Of the 600 respondents who reported their immigration status, 178 (30%) indicated that they were on a visa during their appointment, and 46 (7%) reported that they were a permanent US resident or became one during the appointment.
- NSF data indicates that 55% of postdocs in science, engineering, and health fields are on visas.²³ This study may have undersampled the non-resident postdoc population, or it may be that this population is less likely to have a child during their postdoc appointment.
5. **Field of research:** The majority of respondents (65%) are in the field of Biology. The next most common fields of study, with 5% of the population each, were Chemistry, Medicine, and Engineering. No other individual field garnered 5% or more of the population.
 6. **Funder:** The NIH was the most common funder (39%), followed by university funding (34%), and the NSF (5%). No other individual funder garnered 5% or more of the population. "Other" sources accounted for 13% of the population.
 7. **Employment status:** 76% of respondents indicated they were considered an employee during their appointment, 22% were non-employees, and 2% were uncertain.
 8. **Institutional data:** In July 2013, the NPA Institutional Policy Survey was sent to all 167 NPA Institutional sustaining members. Responses were received through early 2014. Of the 74 institutions that completed the survey, 66 responded to questions regarding family-responsive benefits used herein.

APPENDIX II: FOR GENERAL COUNSEL AND COMPLIANCE OFFICERS

Postdocs' experiences reveal a number of illegal practices or troubling trends that universities should be on alert for:

Confusion regarding postdocs' rights to non-discrimination

Many trainee postdocs surveyed for this report were under the mistaken impression that as non-employees they have no legal entitlement to maternity leave, and no recourse to address the discrimination they faced. That belief is misguided; even those postdocs who are not employees are entitled to the protections of Title IX.

Title IX protects people from sex discrimination not only in academic study for the purposes of obtaining a degree, but also in "research, occupational training, or other education program or activity operated by a recipient which receives Federal financial assistance."²⁴ Institutional definitions of trainee postdocs' relationship with their host university vary, but no such internal classification supersedes Title IX.

Recommendations:

- Advise Title IX, human resources, and other administrators involved in compliance work that Title IX includes postdocs.
- Train stakeholders on the ways in which postdocs' needs may vary from those of the general population.
- Ensure postdoc handbooks and other on-boarding materials include a non-discrimination statement and contact information of the institution's Title IX Coordinator.

Racial discrimination and potential Title VI violations

Responses to nearly every survey question indicated disparities in experiences of postdocs on the basis of race. Key findings include:

- Postdocs of color less frequently reported requesting pregnancy accommodations (35% of postdocs of Asian descent requested them, compared with 38% of URM post-docs and 41% of white postdocs).
- Postdocs of color were less likely to request maternity leave (84% of postdocs of Asian descent and 80% of URMs requested them, compared with 91% of white postdocs).

- Postdocs of color were more likely to be discouraged from taking maternity leave by their PI (21% of postdocs of Asian descent and 17% of URMs were discouraged, compared with 9% of white postdocs).
- Postdoc women of color were more likely to report their PI was unsupportive (22% of postdocs of Asian descent and 14% of URMs were discouraged by their PI, compared with 10% of white postdocs).
- Postdocs of color, particularly postdocs of Asian heritage, were less likely to report being granted parental leave (88% of postdocs of Asian descent were granted leave, compared with 94% of URMs and 95% of white postdocs).

Over one in four postdoc women of color reported that their PI's attitude had a negative impact on their postdoc experience overall, as did one in five postdoc men of color. In comparison, among white postdocs, 9% of men and 17% of women reported a negative overall impact.

Such racial differences in the experiences of postdoc parents are not in themselves violations of law, but they may be evidence of illegal racial discrimination.

Recommendations:

- University administrators seeking to improve diversity in STEM or simply monitor compliance and campus climate should include all postdocs of color as a focus of their efforts, not just those from underrepresented groups.
- Include a discussion of these racial disparities in Title IX and D&I trainings.
- Do not require postdocs to request permission from PIs to take leave provided by the FMLA or university policy. Instead, require notification.

Accessibility of pregnancy accommodations

Postdocs with university funding were less likely to ask for accommodations during pregnancy than postdocs funded by other sources, and postdoc women overall asked for accommodations at a low rate. It is possible that this low rate – 32% of university funded postdocs and 45% of those with other funding – reflects the impact of a unique variable, such as the nature of the work. However, some postdoc women shared a different reason; they were terrified of the responses they'd get

from their PIs. A biomedical scientist shared that she didn't ask for accommodations as, "you know not to ask in this environment because you may lose projects or because of retaliation."

Of survey respondents who reported asking for pregnancy-related accommodations, 93% had their request approved. This number is relatively high, but considering the risks women face in the lab, the 7% rejection rate is worth investigation.

Refusals to provide health accommodations to pregnant women will often violate federal law. In addition to Title IX, postdoc employees are protected by Title VII (as amended by the Pregnancy Discrimination Act). Under both laws, postdocs who are pregnant or have pregnancy-related conditions are entitled to the same benefits as postdocs with other temporary disabilities and must be treated the same as others similar in their ability or inability to work.

Recommendations:

- Include postdocs in the university's existing procedures for researchers with disabilities.
- Advertise the availability of health accommodations to postdocs and identify a point of contact to provide assistance.
- Train staff working on disability and workplace safety issues of postdocs' right to accommodations.

Gender discrimination/Title IX violations in university leave policies

Between 5% and 44% of institutions do not provide *any* time off for new postdoc parents, with the variation dependent on postdoc employment classification, funding source, and gender. Failing to provide maternity leave is a violation of Title IX, and for postdoc employees, it may be a violation of various labor laws, such as the FMLA, as well.

Postdocs that are considered trainees but not employees of an institution are covered under Title IX regulations governing the provision of maternity leave to students. The federal regulations provide that institutions, "shall treat pregnancy, childbirth, false pregnancy, termination of pregnancy and recovery therefrom as a justification for a leave of absence for so long a period of time as is deemed medically necessary by the student's physician."²⁵ Postdocs who are not covered under another more generous policy should therefore be permitted to take time off work for as long as their doctor

deems necessary. Following this leave, the postdoc must be permitted to return to the same status.

Institutions are also required by Title IX to treat pregnancy, related conditions, childbirth and recovery as a temporary disability for job purposes and give maternity leave to those postdocs who are classified as employees by their institution. The law provides that employees are entitled to an unpaid maternity leave for at least a "reasonable period of time."²⁶ This is a vague provision, but to mitigate risk, universities should at minimum provide employee postdocs with leave for the immediate post-birth recovery period of 6–8 weeks, after which the postdoc should return to the same or comparable position. State and federal employment laws relating to disability and family leave provide more guidance and typically provide job-protected leave for at least that minimum period of maternal disability, and additional time, if medically necessary.

Recommendations:

- Implement clear policies that provide maternity leave to postdocs for at least as long as medically necessary.
- The baseline term for job-protected (unpaid) leave should be the same for postdocs of all classifications.
- Distribute memoranda or fact sheets specifically addressing common questions on postdoc family leave. A sample for university use is available on the Pregnant Scholar website.

Violations of the FMLA and related employment laws

Postdoc parents surveyed for this report described confusion on the part of their institutions regarding the FMLA's coverage of employee postdocs. Representatives from several institutions surveyed indicated that their institution did not provide postdocs with even unpaid parental leave, a likely violation of the Family and Medical Leave Act (FMLA). Under the FMLA, universities must provide time off to eligible postdocs as a matter of federal law.

Postdocs who have been employed at the same institution for 12 months (need not be consecutive) and have worked at least 1250 hours in the preceding 12 months are typically covered under the FMLA. This federal law guarantees 12 weeks of leave for childbirth and/or to care for a new or newly adopted child.

One related issue raised by multiple postdoc mothers was the onerous documentation requirements imposed by human resources. Documentation requirements must be applied uniformly without regard to sex/pregnancy status. Postdocs attending doctor's appointments or taking medical leave for pregnancy/childbirth would only need to meet similar requirements as others with medical conditions.

Recommendation:

Distribute memoranda or fact sheets specifically addressing common questions on postdoc family leave. A sample for university use is available on the Pregnant Scholar [website](#).

Discrimination against fathers requesting parental leave

Fathers were less likely to have access to leave than mothers; at one quarter of institutions, there was no parental leave policy even for employee postdocs. Moreover, some fathers eligible for time off reported they were unable to take it because of discrimination.

Blocking postdoc fathers who are entitled to leave from taking time off because of their gender is a violation of Title IX. Although the law does not mandate a minimum leave term for fathers as it does for birth mothers, a refusal to allow eligible fathers to take accrued time off for the purpose of caretaking or welcoming a new child into their home is characteristic of unlawful sex discrimination. Moreover, the FMLA applies equally to men and women. Eligible postdoc employees must be able to access their FMLA leave without regard to gender.

Recommendations:

- Institutions should provide paid parental leave if they can afford to do so. If not, establish a term of unpaid (job-protected) leave.
- If paid parental leave is unavailable, institutions should state clearly that sick leave and other time off can be used by postdocs for family leave.
- Whether leave is paid or unpaid, implement and disseminate clearly defined procedures to limit room for illegal PI discretion. Where possible, require PI notification but not approval of time off.
- Ensure that guidance on the FMLA and other family leave programs is gender neutral.

- Include examples relating to family responsibilities in sexual harassment/discrimination training conducted for PIs and administrators.

Discrimination against mothers requesting maternity leave

Most frequently, discrimination against mothers began with a request for childbirth leave. A postdoc mother who was instructed by her supervisor to speak with human resources about potential leave funding options recalled that **“HR told me there is nothing they can do if the PI decided to terminate my employment because of my status [as a pregnant woman].”** Making such a statement may be unlawful intimidation or interference with taking leave in violation of anti-sex discrimination laws, such as Title IX and Title VII, or the FMLA. And of course, if the postdoc was indeed terminated due to her pregnancy, this would violate a number of federal laws.

Discrimination against mothers who request leave for childbirth is often subtle and short-lived. However, several postdocs reported being fired because of their pregnancy and/or request to take reasonable time off work. Most frequently, principal investigators justified removing postdoc mothers from their position by falsely claiming that funding for the project dried up.

Universities have an obligation to prevent and respond to such Title IX violations. However, postdoc reports indicate that human resources officers or other administrators who ought to serve as a safety check are at times giving blatantly illegal advice. One postdoc who was terminated after asking for maternity leave explained that, **“When I went to HR, they basically told me it would go better for me if I went quietly.”** This is a violation of Title IX and Title VII.

Recommendations:

- Institutions should provide paid maternity leave if they can afford to do so. If not, provide unpaid (job-protected) leave.
- Implement and disseminate clearly defined maternity leave procedures to limit room for illegal PI discretion. Where possible, require PI notification but not approval of time off.
- Include examples relating to pregnancy and family responsibilities in sexual harassment/discrimination training conducted for PIs and HR administrators.

NOTES

- 1 The Council of Graduate Schools found that women are awarded doctoral degrees at the same or higher rate than men in all fields except business (45.2% women), engineering (23.8% women), math and computer sciences (29.4% women), and physical and earth sciences (35.2% women). Okahana, H., Feaster, K., & Allum, J. (2016). *Graduate Enrollment and Degrees: 2005 to 2015*. Washington, DC: Council of Graduate Schools.
- 2 Mason, M.A., Wolfinger, N.H., & Goulden, M. (2013). *Do Babies Matter?: Gender and Family in the Ivory Tower*. Rutgers University Press.
- 3 The average postdoc term varies by field, but is frequently cited as 4–6 years. Rockey, S. (2012). Postdoctoral Researchers—Facts, Trends, and Gaps. Retrieved from <https://nexus.od.nih.gov/all/2012/06/29/postdoctoral-researchers-facts-trends-and-gaps>
- 4 The average age for earning a doctorate in science and engineering fields is nearly 32. Hoffer, T.B. & Welch, Jr., V. (2006). *Time to Degree of U.S. Research Doctorate Recipients*. Available from <http://www.nsf.gov/statistics/infbrief/nsf06312>
- 5 Center for Women and Business. (2012). *Millennials in the Workplace*. Available from <http://www.bentley.edu/centers/center-for-women-and-business/millennials-workplace>; Galinsky, E., Aumann, K., & Bond, J. T. (2011). *Times are Changing: Gender and Generation at Work and at Home*. Retrieved from <http://familiesandwork.org/downloads/TimesAreChanging.pdf>
- 6 This cost can be estimated at \$605,676, including postdoc pay and associated costs in addition to postsecondary education expenditures. Postdoc pay of \$236,676 was calculated using the NIH salary scale over 5 years. (National Institutes of Health. Revised: Ruth. L. Kirschstein National Research Service Award (NRSA) Stipends, Tuition/Fees and Other Budgetary Levels Effective for Fiscal Year 2016. NOT-OD-16-062.) The institutional allowance and training related expenses permitted under the same guidelines are \$83,000, an amount roughly equivalent to the fringe benefit rate for institutions using that calculation instead. The postdoc cost is added to the estimated national public and private education expenditures per full-time equivalent postsecondary student multiplied by 11 years of postsecondary education. The average amount is \$26,000 annually per NCES data and “includes all expenditures by public and private education institutions (such as administration, instruction, ancillary services for students and families, and research and development).” (Digest of Education Statistics. (2014). Table 605.10: Gross domestic product per capita and public and private education expenditures per full-time-equivalent (FTE) student, by level of education and country: Selected years, 2005 through 2011. Retrieved from https://nces.ed.gov/programs/digest/d14/tables/dt14_605.10.asp?current=yes)
- 7 The link to the survey was not user specific and may have been shared by original recipients of the survey to other postdocs.
- 8 Ferguson, K., Huang, B., Beckman, L., & Sinche, M. (2014). *National Postdoctoral Association Institutional Policy Report 2014*. Available from http://www.nationalpostdoc.org/?policy_report_databa
- 9 The survey found that 58% of those who needed more frequent breaks asked for them, 74% asked for a schedule change or time off, 63% asked for a change in duties, and 62% asked for another adjustment. Declercq, E.R., Sakala, C., Corry, M.P., Applebaum, S., & Herrlich, A. (2013). *Listening to Mothers III: New Mothers Speak Out*. New York: Childbirth Connection.
- 10 Job Accommodation Network. (2015). *Workplace Accommodations: Low Cost, High Impact*. Retrieved from <https://www.shrm.org/hr-today/news/hr-magazine/Documents/LowCostHighImpact.pdf>
- 11 According to the White House, 53% of American workers report being able to take paid time off for illness and 39% report being able to take paid time off for the birth of a child. The Council of Economic Advisers. (2014). *The Economics of Paid and Unpaid Leave*. Retrieved from https://web.archive.org/web/20161110171117/https://www.whitehouse.gov/sites/default/files/docs/leave_report_final.pdf
- 12 Childcare Aware of America. (2015). *Parents and the High Cost of Child Care*. Retrieved from <http://usa.childcareaware.org/wp-content/uploads/2016/05/Parents-and-the-High-Cost-of-Child-Care-2015-FINAL.pdf>
- 13 Charette, A., Herbert, C., Jakabovics, A., Marya, E.T., & McCue, D.T. (2015). *Projecting Trends in Severely Cost-Burdened Renters: 2015–2025*. Retrieved from http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/projecting_trends_in_severely_cost-burdened_renters_final.pdf
- 14 Harrington, B., Van Deusen, F., Fraone, J.S., Eddy, S., & Haas, L. (2014). *The New Dad: Take your Leave*. Retrieved from http://www.thenewdad.org/yahoo_site_admin/assets/docs/BCCWF_The_New_Dad_2014_FINAL.157170735.pdf
- 15 Attendance at group child care has been linked to an increased risk of illness and hospitalization. Bell, D.M., Gleiber, D.W., Mercer, A.A., Phifer, R., Guinter, R.H., Cohen, A.J., Epstein, E.U., & Narayanan, M. (1989). Illness Associated with Child Day Care: A Study of Incidence and Cost. *American Journal of Public Health*, 79 (4), 479-484.

- 16 As the American College of Obstetricians and Gynecologists noted in a Policy Statement on Pregnancy-related Disabilities issued on March 2, 1974, “In an uncomplicated pregnancy, disability occurs near the termination of pregnancy, during labor, delivery, and the puerperium. The process of labor and puerperium is disabling in itself. The usual duration of such disability is approximately six to eight weeks.[] Complications of a pregnancy may occur which give rise to other disability.” The California Employment Development Department explains the most common interpretation of maternal recovery time, as it relates to disability and leave policies, “The usual disability period for a normal pregnancy is up to four weeks before the expected delivery date and up to six weeks after the actual delivery. However, [the mother’s] physician/practitioner may certify to longer periods if there are medical complications, if [she is] unable to perform [her] regular or customary job duties, or to a longer post-partum period if the delivery is by Cesarean section.” (State of California Employment Development Department, Frequently Asked Questions – Pregnancy, retrieved from: http://www.edd.ca.gov/Disability/FAQ_DI_Pregnancy.htm).
- 17 The American College of Obstetricians and Gynecologists Committee on Obstetric Practice. (2016). *Committee Opinion No. 658: Optimizing Support for Breastfeeding as Part of Obstetric Practice*. Retrieved from <http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Optimizing-Support-for-Breastfeeding-as-Part-of-Obstetric-Practice>
- 18 Visness, C.M. & Kennedy, K.I. (1997). Maternal Employment and Breast-Feeding: Findings from the 1988 National Maternal and Infant Health Survey. *American Journal of Public Health*, 87 (6), 945-950.
- 19 Amir, L.H. & The Academy of Breastfeeding Medicine Protocol Committee. (2014). ABM Clinical Protocol #4: Mastitis. *Breastfeeding Medicine*, 9 (5), 239.
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- 21 National Postdoctoral Association. (2014). NPA Recommendations for Postdoctoral Policies and Practices. Retrieved from <http://www.nationalpostdoc.org/?recompostdocpolicy>
- 22 Office on Women’s Health, U.S. Department of Health and Human Services (2014). Breastfeeding Support: Time and Space Solutions. Retrieved from <https://www.women-shealth.gov/breastfeeding/employer-solutions/common-solutions/solutions.html>
- 23 National Science Foundation, National Center for Science and Engineering Statistics. (2015). Table 34: Postdoctoral appointees in science, engineering, and health in all institutions, by field, citizenship, ethnicity, and race: 2010–15. Retrieved from https://ncesdata.nsf.gov/datatables/gradpostdoc/2015/html/GSS2015_DST_34.html
- 24 34 C.F.R. § 106.31(a).
- 25 34 C.F.R. § 106.40(b)(5).
- 26 34 C.F.R. § 106.57(a).

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