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Balancing an Academic Career in Mathematics with Motherhood and Life's Other Passions¹

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Synopsis

I became a mother while a postdoctoral fellow, and solved my two-body problem shortly thereafter, becoming a tenure-track professor in mathematics and statistics. My plan to have a second child came with an unexpected bonus: I had identical twin girls, and this happened during my second year on the tenure-track. Finding anything resembling a work-life balance has been extremely challenging since then. Many days I struggle just to cover the basics at work and home, let alone finding time for other passions in life — in my case, dance has been my creative outlet since childhood and an essential part of my life. In this article, I describe my unique experiences in learning to balance these three parts of my life (career, family, dance) and share thoughts on common challenges and strategies for success I believe will resonate with other academic mothers in mathematics.

In some ways, I am the stereotypical academic mother.

I am an assistant professor in the Department of Mathematics and Statistics at the University of Nevada, Reno, and a mother of three kids ages 5 and under. My husband, whom I met in graduate school, is also an assistant professor in the same department. In some ways, we are living the dream. We are a dual-academic couple, we solved our two-body problem, we have offices across the hall from one another, and we genuinely love our jobs.

¹I thank Paul Hurtado, my husband and assistant professor of mathematics and statistics at UNR for helpful discussions and comments that greatly improved the presentation of this article.

We get to live near the mountains and Lake Tahoe, and we are an easy direct flight away from our families in Colorado. We get to eat lunch together most days, and we have a built-in support system for both our professional and personal lives.

Academically, I'm in a great place. I'm at a university that values both teaching and research, and is supportive of faculty with kids. My department has a vibrant group of applied mathematicians, probabilists, and statisticians that I interact with daily; they form a strong network of support for me and the other junior faculty. My research is interdisciplinary and I collaborate with biologists, particularly those working in neuroscience. UNR has a strong group of such researchers one building away from mine, very convenient for me, and the close proximity fosters collaborations.

I had my first child (Alex, age 5) while a postdoctoral fellow and experienced many common challenges faced by mothers in academia. While it was a good time to start a family (flexible schedule, minimal responsibilities outside of research, etc.), I took a relatively short maternity leave near the beginning of that postdoc so that I wouldn't lose focus on my research. In particular, I worried that taking too much time off would cause me to miss key meetings and lose my rank on collaborative papers. I made time to attend certain meetings starting about one month after the birth of my son, while technically still on maternity leave.

Ultimately, I learned to be more efficient with my time at work so that I could go home and enjoy time with my family.

In other ways, I am far beyond the stereotypical academic mother.

Like most people, there are also many ways in which I am not the stereotypical academic mother.

I found out that I was pregnant with identical twins during the summer after my first semester of my tenure-track job (I started in January 2015). The first thing out of my mouth during the ultrasound was "Oh my goodness, I'm not going to get tenure!", shortly followed by "I don't want to have a C-section; I'm a dancer and I need my abs!" I have been dancing since I was five years old, and dance is completely intertwined with who I am personally and professionally. Dance is my primary form of exercise and the reason that I have the metabolism of a marathon runner.

It's also a huge creative outlet and an opportunity to socialize with others outside of academia. I absolutely need this to function; it is a basic necessity in my life and I can't imagine life without it.

In the end I continued to dance (somewhat) until the night before my twins were born. In fact, I proved that I could still do a series of pirouettes at 36 weeks pregnant, which most likely kickstarted my labor and my twins were born early the next morning.

With the birth of each of my children, I faced common challenges associated with how to prioritize and fulfil my academic duties as well as those associated with childcare and household responsibilities. With the birth of my twins, however, it is hard to put into words how much more demanding and complicated life became, especially with my then three-year-old son in the mix and a husband who is also pre-tenure and facing the same (sometimes identical) demands at work and home. The last two years have been a blur, and I am only now beginning to figure out how to manage my time and my priorities.

Below I describe my journey from starting a family as a postdoc to becoming a tenure-track professor with three young kids. I hope my story will empower others to embrace and support academic motherhood, and illustrate what it can take to be successful as an academic and a mother. I also reflect upon some of the systemic challenges that we as a professional community need to address to break down barriers and better support STEM professionals with young families through improved policies and practices in our universities.

Starting a family as a postdoc

My husband and I met in graduate school at Cornell while we were doctoral students in the Center for Applied Mathematics. We dated throughout grad school, I graduated first, and then I accepted two postdoctoral fellowships: one at the Institute for Mathematics and Its Applications (IMA) at the University of Minnesota and the second (deferred for 1 year) at the Mathematical Biosciences Institute (MBI) at The Ohio State University. My husband and I spent 2.5 years in a long-distance relationship and we got engaged before he finished his PhD. I won't pretend that the distance was manageable, it was extremely tough and had a negative effect on my mental well-being and research productivity. I coped by taking dance classes nearly every day,

seeking out dance performance opportunities, and building up frequent flier miles for romantic weekend getaways. We had many discussions about who would leave academia if we couldn't solve our two-body problem since we were not willing to live apart again.

We were four years out of phase when my husband finished his Ph.D., so I took a third postdoc to temporarily solve our two-body problem after my husband was offered a postdoctoral position at the MBI (right after my MBI postdoc ended). We were able to live in Columbus, OH together while he worked at Ohio State and I worked at Case Western Reserve University (located in Cleveland, OH about two hours north of Columbus). The key to making this work was that I had a flexible postdoc advisor and work environment, along with good timing and a bit of luck. I was supported by an NSF grant and didn't need to teach (translation: I could work at home or elsewhere!). Thanks to impeccable timing, my new postdoc advisor planned to spend a semester at the MBI during my first semester at Case, so the MBI graciously offered me a desk and gave me the title of visiting researcher so that we could work together at MBI.

My journey as an academic mother began that first year of my postdoc at Case; my son was due during the winter. Fortunately, my postdoc advisor was quite progressive and understanding (with two young kids himself), and we worked out a reasonable maternity leave (twelve weeks paid leave) and a plan for coming back to work. After my leave, I continued to work in Columbus and commuted to Case as needed, which averaged about twice a month, and we also met via Skype more often. I felt extremely fortunate that I had found a desirable work-life balance and my first few years of academic motherhood went very well.

Wanting a second child

My son was two years old when my husband and I started applying for tenure-track jobs. We knew we wanted another child, but I didn't want to be pregnant or nursing a newborn during interviews (for fear of implicit bias, sadly yes this is a thing). If I weren't in academia, I would have tried for a second child much sooner. This is a common issue faced by academic mothers.

So we waited until after we landed jobs in the same university, which thankfully for us only took one round of the academic interview cycle. Once I had my tenure-track job, the earliest I could officially take maternity leave was one year after working at the university. We planned for that and the timing worked out, sort of. . . .

While family planning is a good idea, we all know that randomness can play a key role in many processes, including pregnancy. Sometimes things don't work out as planned, and in our case, the surprise was that I wouldn't just have a second child, I'd also have a third. Twins don't run in my family or his (identical twins = random event, incidence is increased by IVF and age of the mother), and we didn't use IVF so finding out that I was pregnant with twins was a total surprise. All of the sudden, I faced a whole new set of unexpected issues: we had to buy a new car that could fit three car seats, we contemplated whether or not our newly purchased house was big enough for a family of five, and I had to brace myself for a high-risk pregnancy and how I would be able to work during that time.

Pregnancy with twins

Pregnancy with multiples is no joke. I had severe morning sickness starting at 5 weeks that peaked during the summer while I (thankfully) wasn't teaching, but lasted most of my pregnancy. I tried to work at my office that summer, but often ended up lying on my floor for an hour and then going home.

My twins were classified as monochorionic-diamniotic (or MoDi) meaning that they were in one chorionic sac but two separate amniotic sacs. Out of the three types of twins (DiDi, MoDi, and MoMo), MoDi is relatively rare (occurring in about 0.3% of all pregnancies) and comes with a handful of risk factors [1]. I had to see a maternal-fetal medicine (MFM) specialist in addition to my OBGYN doctor for the duration of my pregnancy. This more than doubled the amount of appointments required (including routine ultrasounds at every MFM appointment — think time-consuming, stressful, and expensive!) and my pregnancy was relatively uneventful compared to other MoDi pregnancies. In fact, it went better than I expected, aside from the morning sickness.

The additional physical demands of pregnancy with twins limited my ability to work, and in particular, teaching. Teaching a 75-minute class (400/600 level probability, lecture format) twice a week became increasingly difficult,

and by the middle of my third trimester it was a challenge just to finish each lecture, but I did it. Fortunately, I was only teaching one course; I don't think my body could have handled more. In my case, I was lucky, and unlike many twin pregnancies, I didn't end up on bed rest for the last few months.

I successfully finished up the fall semester, submitted grades, bought a new car with room for three car seats, and my twins were born at the end of December. This was exactly one year after starting my tenure-track position, and this timing was intentional for two reasons: 1) We planned to have our "second child" during winter break or summer to minimize time away from teaching duties (common practice in academia), and 2) only after working full time at the university for at least one year would I qualify for paid maternity leave through FMLA.

According to FMLA and HR at my institution, I could take the 30 days of sick leave that I had accrued, and then I would have to go on unpaid leave if I wanted to take more maternity leave. Given that my twins were born at the end of December, that put me back to work mid-February. That was absolutely unacceptable. My department was more understanding and didn't schedule me to teach for the spring semester, but I did come in to do service and to meet with students that had ongoing projects with me. In some sense, my research expectations were slowed, but never halted, and were back in full over the summer. This may be somewhat standard and reasonable (in the US) for the birth of one child, but with twins or higher multiples (especially preemies), there needs to be more flexible accommodation for parental leave and tenure clock extension.

Early on in my twin pregnancy, I sought out a network of supportive people. I talked with women faculty members at my institution who had experience navigating maternity leave policies. I talked to women in my department about teaching reduction policies, and I also talked to women (and men) in other departments. They helped me figure out the best maternity leave arrangements that have been made around campus so that I could be informed while discussing options with my department chair. I was very lucky that my chair at the time not only had multiple (adult) kids, but that one of his kids recently had quadruplets. He was acutely aware of the challenges of twins, and he supported my semester-long maternity leave.

The new normal

After six months of life with twins and my singleton (who was 4 at that time), I still felt like the twins were newborns and my body was still recovering from the intense pregnancy and birth. I was diagnosed with a bladder prolapse and diastasis recti seven weeks after their birth, which initially severely limited what I could do physically. I was exclusively breastfeeding both babies (yes, it is possible!) so I was eating constantly and extremely sleep deprived, all while trying to entertain my energetic four-year-old son. It seemed that parenting was taking all my time. I definitely felt pressure to keep up with the demands at work, so I prioritized working on papers and grants, and working with students on projects that needed to push forward despite my going on maternity leave.

Two years later, my physical health has improved somewhat thanks to physical therapy and postnatal yoga classes, but I continue to deal with the medical issues described above, and sadly, my dance life has taken a serious hit. As a result, I am searching for alternative forms of exercise and creative outlets. Within the last year, I started taking different yoga classes and mellow dance classes; these will have to suffice for now.

Having twins is not like having two children in succession. It is much more intense in terms of the stress on the mother's body during pregnancy and birth, and the difficulty in raising two infants simultaneously during that first year (and beyond). I quickly realized that one child was easy, in hindsight. Adding a second child may not be trivial, but it would probably be much more manageable than jumping from one to three. I joke with my department colleagues that I should be able to extend my tenure clock by two years, one for each baby, rather than the one year I was granted. But why do I need to joke about this?

Being an academic mom is not the gender role reversal of the 1950s stereotypical male professor. I don't have a stay at home husband to hold down the fort for me and put a hot meal on the table as soon as I walk in the door. Even if I did, he couldn't simultaneously breastfeed two babies! We both have to somehow get everything done at work and at home.

Below, I share some lists, of things that helped me initially, and of issues I still find challenging. I also share some ideas about what might help others.

Things that helped me succeed initially:

- My parents stayed with us for the first two months after the birth of my twins, and my mom stayed for an extra month. We were fortunate to have them help out for this long since we have no family close by.
- Awesome neighbors helped us out when needed.
- Graduate students volunteered to make or bring us dinner.
- We have good medical insurance, and our babies are healthy.
- We found an amazing nanny after my parents left us to our own devices. She became an essential third parent in our house, but then she graduated from UNR and found a “real job”. We have hired four nannies thus far (we kept hiring college students), and turnover is high in our city.
- My department allowed me to teach the same course for three consecutive semesters so that I didn’t have new teaching preps; this was extremely helpful for managing my time upon coming back to work post twins.
- I started new research collaborations with faculty at UNR. Being able to meet and discuss ideas in person fosters productivity.
- I got a grant!

Ongoing challenges:

- Sleep deprivation can last for years.
- Finding good, reliable, and affordable childcare can be a hassle.
- Pumping multiple times during the day after returning to work has been time-consuming and difficult to fit around teaching and meetings.
- Taking babies to conferences is a real issue for dual academic couples with kids. Often, there is the added expense of bringing childcare provider(s) or a spouse to watch the kid(s) while you attend the conference (and if kids are over 2, there is the additional cost of their airfare).

Academic mothers of infants have to nurse or pump during coffee breaks and other social networking opportunities, limiting these important opportunities.

- Extended breastfeeding can be challenging. I nursed my son for two and a half years and my twins for two years and counting. This has taken an extraordinary amount of time and energy. And ongoing sleep deprivation.
- Scheduling teaching, office hours, and meetings around pumping sessions has been a complex, ongoing issue.
- Did I mention sleep deprivation?

Strategies for success as an academic mother:

- Seek out a network of support and nurture friendships, both within and outside of academia.
- Ask for help with childcare and household responsibilities.
 - Hire a nanny/babysitter.
 - Hire a house cleaner.
- Exercise!
 - At least once a week (I take ballet or yoga), ideally three to four times a week even if some of those are just twenty-minute walks around campus.
- Schedule time for yourself.
 - Put it on the calendar and use that time as you see fit. Call it “me time”. Starting two months after my twins were born, I set aside an hour each Monday morning for postnatal yoga to reset my mind for the week and work on healing my body.
- Reevaluate your priorities and set realistic expectations for yourself.

- Make a list of things to tackle that day at work, possibly one more to finish after the kids go to bed (if the kids go to bed before exhaustion hits).
- Include easy things and check them off. The feeling of accomplishment is underrated.
- Become more efficient at work by truly focusing on work; no extra stuff!
 - Don't take on unnecessary service, especially pre-tenure. It's really ok to say no.
- Enjoy your kids and minimize multitasking while engaging with them. Be present!

Challenges for the academic community

Lastly, I reflect on some of the challenges that the academic community needs to address to break down barriers and better support STEM professionals with young families through improved policies and practices in our universities.

How much time is appropriate for maternity leave in academia? I negotiated twelve weeks with my son (and one semester with my twins), which is more than most mothers get in this country, but it is still a ridiculously short time to heal from childbirth, bond with your infant, and figure out how to balance work and being a new mom.

Should maternity leave be paid time off or not? Should it involve using up sick time or not? We need to look at other institutions (and other countries) to see what works and what doesn't so that we can build upon their successes not repeat their failures.

What can we do to make it easier for women starting families at all levels of the academic pipeline: from undergraduate and graduate school, to post-doc, lecturer, tenure-track, and tenured positions? How can we ensure that academic mothers are supported beyond childbirth?

How can we make it easier on mothers who have to take their babies to conferences in order to participate? If you need to bring a baby with you because you're breastfeeding (and/or because you and your husband are both

presenting in the same session and have no family nearby to leave kids with, yes this has happened to us more than once), should those costs count as a work expense? This is a basic necessity if you're going to attend the conference, in many cases.

No one can predict when twins will occur (or other unpredictable family situations), but we can do better by having more flexible policies to deal with these issues in academia. It is possible to find a great work-life balance, but it takes a bit of work and a bit of luck to achieve.

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- [1] Cordero, L., Franco, A., Joy, S. D., & O'shaughnessy, R. W. (2005). Monochorionic diamniotic infants without twin-to-twin transfusion syndrome. *Journal of Perinatology*, 25(12), 753-758.