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Rational Points on Surfaces and in Life

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Synopsis

This essay collects together examples of instances where I should have advocated for myself more as a mother and examples of how I have advocated for my children. These stories come from a mathematician who gave birth to two children while on the tenure track in an older department with only one tenured woman.

As an algebraic geometer, some of my favorite research involves studying the rational points on algebraic surfaces. These are the solution sets to polynomial equations over a specified field. An example of such a surface is the set of quadruples (x, y, z, w) in \mathbb{Q}^4 that satisfy the Fermat cubic equation $x^3 + y^3 + z^3 = w^3$. In my life as a mathematician mother, I am constantly trying to find rational points to make in order to advocate for my children and myself. Advocating for my sons has come very naturally, but I am still trying to figure out how to stand up for me. I hope that the reader can learn from some of my mistakes and triumphs as I navigated the pre-tenure life with babies. I think of this article as both a motivating and cautionary tale. As mothers, we need to champion for ourselves and our children, and I hope my stories can help someone make rational choices while doing so.

Let me start by telling you a little about myself. I am a recently promoted tenured associate professor and mother of two boys ages four and one. Both were born when I was on the tenure track at a university that emphasizes both teaching and research. Before my tenure was granted, my department had only one female associate professor. She is in her seventies and just retired. So, now I am the lone tenured woman with three women in the tenure pipeline.

1. Pregnant Mathematician

I am one of the lucky ones who got pregnant at thirty-two after only three tries. But I can tell you, those two months when I saw negative pregnancy tests, I was crushed and scared. That is a feeling that many of our male colleagues do not understand because they have never had to take such a test. I tried to keep it together at work and get research done, but always in the back of my mind was my sister's two-year struggle with getting pregnant. A rational person would just say, "relax and it will happen," but that is hard to do when you are someone like me who started planning grad school as a freshman in college. I am such a planner that in grad school I "knew" that I would get a three year post-doc, find a tenure-track job, and then get pregnant in my third year of that job so that I could have three kids before forty. All this planning was done without a boyfriend, so the backup plan was to buy sperm at thirty-eight. Thankfully, I did meet my husband in grad school and was able to get pregnant in my third year on the tenure track. Even though my plans somehow worked out perfectly, I attribute this all to luck and advise other women to be more rational and go with the flow. There is a lot of energy wasted wondering if one is pregnant or not, so try not to take a pregnancy test before you actually miss your period. But, if you are like me and cannot stand to wait and cannot get babies out of your brain, at least use the time you are trying to conceive to start advocating for yourself. Let your department chair or a mentor know what you are going through. Their support and your venting may be just what you need to relax, do some math, and magically get a positive pregnancy test.

Once I was pregnant with my first son, the fun really began. By the eighth week, I was nauseous every afternoon. Thankfully I always teach morning classes, so for three months I would teach, have office hours, and go home by 3 to hang out by the toilet and my bed. The sickness only got worse with my second pregnancy. That time it started around week five and was much worse. For four months I threw up every morning as I walked my oldest to school. Can you imagine what my neighbors were thinking seeing this woman throw up on the street every day? Twice that semester I lost ten pounds and had to cancel class because of uncontrollable vomiting.

One of my biggest challenges in life is caring what others think of me, and so I struggle to let my department know I am not Wonder Woman.

I did not tell my colleagues what I was going through, and it was irrational of me to just expect the men in my department, who are almost all over fifty, to have any idea what I was experiencing. One of the colloquium chairs used to pass me in the hall and say, “We missed you at the talk Friday,” and I would just say sorry and walk by. When I read the department’s report on my tenure file, the only negative they had to report from their meeting was a complaint from one member that I was not a good department member because I missed colloquia. I should have told the colloquium chair that I was home throwing up, but instead I apologized for something I should not have. I should have told him I was growing a human being who was making me incredibly sick. We have to remember that these men and many women do not know what we are going through. You must advocate for yourself and tell people if you are not feeling well. No one wants preventable negative feelings to come out at tenure time.

2. New Mom Mathematician

The timing of both of my sons’ births and my university’s parental leave policy let me stay home with them until they were five months old. I am so thankful for that time and cannot believe most women go back to work after six weeks. If you can, stay at home as long as possible but not too long because it can get really lonely. Like many academics, my close friends and family live halfway across the country, so maternity leave meant hours a day spent with a person who cannot talk to me. After my five months of isolation, returning to work was pretty amazing.

The major drawback of returning to work for me was pumping breast milk. I hate pumping. Pumping is the worst! I usually teach two classes in a row, but when I am pumping, I have to take time between the classes to empty my breasts. Besides ruining my schedule, pumping in my office leads to more isolation. We have a very collegial department where all the doors are open and people randomly stop in. Each time I returned from maternity leave; I seemed like a hermit shutting myself off from the world. Once I accidentally had my door cracked and a male professor walked in on me pumping. Instead of just shutting my door and seeming anti-social, the rational thing to do would have been to let everyone know why I was being so closed off. I don’t know why I am so embarrassed by pumping, I breastfeed in public all the time.

But there is something about the machine that feels a little dirty, and I never opened up about it. My husband and I plan on having a third child, and this time I am determined to be more rational and put a sign up to let my hall know that I am in my office pumping and not just avoiding them.

So far I gave examples of times when I should have advocated for myself more. Advocating for my children has come much more naturally and required much less thought. I am fortunate to have a 2-3 teaching load, so I do not have to stay at the university all day. The first instinct I had as a new mom was to put my babies in daycare for only half a day. I taught morning classes, held office hours, pumped, and picked them up by 1. For me this was necessary because I missed my babies and would have hated to have to pump a whole day's worth of milk. It was easy to rationalize this and my colleagues were happy to have a baby present at afternoon meetings. Getting research done with only a half-day at work is pretty hard, so I had to devote my summers to my research and semesters to teaching. Being pre-tenured and only staying on campus until 1 was a little scary, but I always knew that I would pick time with my children over tenure. Thankfully, I was able to have both.

Another way I have advocated for my children is to follow my gut about them needing to be with me even if I need to travel. We are an attachment parenting family. This means that we give our babies constant touch and bodily contact [1]. We do not own a stroller or a crib; instead we wear our babies and share a family bed. Besides the continuous physical touch my children receive, I also let them nurse until two. This form of parenting works well in our home, but it gets a little bumpy when I need to leave town. In my research area, there are tons of specialized conferences throughout the year. I did not want to miss out on everything just because I had breastfeeding, co-sleeping babies/toddlers, so my husband and mom have been kind enough to travel with me. If you can manage traveling with your family, I highly recommend it. Sitting and listening to talks is such a nice break from playing superheroes and singing nursery rhymes, so I guess conference attendance is also a way to nourish yourself.

3. Final Thoughts

Motherhood has been the most amazing part of my life so far. I was thrilled the day I received my Ph.D. and fell to the floor crying the day I got my tenure letter. But seeing my babies for the first time gave me a feeling of

peace that I cannot ever replicate with a career success. I know that sounds mushy and cliché, but I always wanted children more than I wanted a career, and I was willing to risk my tenure to have children.

One downside to being a toddler mother in my department is that I do not get to teach our graduate students because they are taught at night, and my babies must be nursed to bed. But this is only temporary, and I can teach at night when they are older. I also miss my free time at work. I do not have the time to go to a long lunch with “the guys” because I need to maximize my productivity while my kids are in school.

A big upside for my career that comes from being a mom is the effect motherhood has had on my teaching. My students often make comments on how nurturing I am, and I have noticed my patience grow immensely since having children. I do not think they mean nurturing in the sense of handholding or coddling them because that is not happening. The standards I set for my students are just as high as they have always been, but somehow the way I approach people has changed, and this had a positive effect on the classroom atmosphere. Students now sense that I am pushing them because I care about their mathematical development and want them to succeed the way a parent would. I am no longer just a young know-it-all nagging them to do their homework. Somehow having children and getting older has turned me into a wise and trusted aunt, one whose opinions they respect and value. When I tell them that homework, like broccoli, is good for them, students accept it as fact and follow my lead.

I hope these examples from my journey can help you as you navigate yours. Please remember that in many math departments if you do not advocate for your family, no one will because it is just not part of the historical culture. It is your job to present rational points to your colleagues in order to find the best outcomes for you and your family.

References

- [1] William and Martha Sears, *The Attachment Parenting Book: A Common-sense Guide to Understanding and Nurturing Your Baby*, Little, Brown and Company, New York, 2001.