

Fearology Part 2 with Mary Poffenroth

Ologies Podcast

April 30, 2018

Oh, hello! Hi! It's your old dog, hiding behind the couch because I ate from the garbage... again. For week two, it's ol' Alie Ward. Why? Well, because we're back for Part 2 of Fearology, folks. Did you listen to Part 1? I hope you did. If you haven't, then just stop this. Go back, listen to Part 1. That's how things work sequentially. And Part 1 is bananas. How crazy bananas was that episode?! I heard from so many of you that it was life changing. It totally was for me too and so we're back for the last half of the interview! Because I did talk to that ologist for one million hours. So I split it into two.

Fun fact: did you know that you can't spell interview without review? Get it? And when you rate, and review, and subscribe to this podcast, it keeps it up in the charts and it helps other people see it and then - Boom! - you have more people to talk about this stuff with at dinner parties. And I read every single one of your reviews. Every single one. Is that weird? I do it. No shame. And this week's review was just so kind. The review I picked to read is from StirFried. The part I loved said:

Even when I see a topic and I'm like, "meh," I give it a listen and I get wrapped up in it as if it were a topic that I was enthralled with. Keep it up, Alie!

And so, if there are any episodes that you haven't listened to cuz you're like, "I don't think I'm gonna like that!" Go back and listen to 'em. I *promise* I put stuff in there for everyone and you're gonna be like, "Who knew? I am now very, very excited about gemstones and birds." So, head on back.

Okay, let's get back to it. We learned last week that fearology is indeed a real word. It has been cited in the literature. And that stress is just a sneaky-deaky word for fear. That blew my mind. And that fear is not helpful unless it's factual and you need your muscles tense to outrun an angry animal. And that a lot of our fictional fears stem from, just... plain old human not-being-good-enough or from being out of control. So, ARRRGGGH... why did I never learn that in therapy!? Ever!? Why not!? Anyway, no matter.

Also, if this podcast makes your life any better, here's where I say, 'Consider being a patron for like a dollar month.' I'm not afraid to put that out there. Patrons get to ask their questions to the ologists, and also you help support the making of this show, which requires web hosting, and editing, and microphones and all sorts of other bullshit.

Anyway, back to fear.

So, this week, we'll find out how super successful people approach fear. We'll learn about Mary's scariest hour of her life and what she learned. Plus, all of your questions about everything from night terrors, to self-spookery, to sharks' bad PR image, to how likely is it that a snake bites your butt, and also the best thing about following your passions in life.

So sit back, breathe deep, and hold onto your amygdala, folks, for fearologist, part 2, Mary Poffenroth.

Mary: And it sounds like a Harry Potter name, which is totally fine. [*Alie laughs*]

Aside: Let's get right into it, and let's talk about what is the most afraid Mary Poffenroth, fearologist, has ever been?

Alie: Do you know the most afraid you've ever been?

Mary: Um... let's see. I'm afraid a lot. Probably one story that pops into mind – and usually when you think about all the things you're really afraid of, it's death of some kind. Like your death or someone that you love's death, because death is final. It's one of those things that generally you can't live through. By definition [*Alie laughs*]. And even living through someone else's death is always really challenging.

Aside: [*Ahem*] For more about fearing death, you can see, or revisit, the episode on Thanatology with Cole Imperi. Okay, sorry. Let's get back to her story.

Mary: Once I was doing my graduate work in biology in the Warner Mountains of California, which is the very northeastern corner in the middle of nowhere. It was like an eight-hour drive from the Bay area, which means that I had to go by myself to do live-trapping a lot. I was probably, 23 at the time... 24. It's a bunch of sage brush scrub, which is kind of like a tawny blue color, almost like a gray blue color. And I'm dressed in gray field pants and a gray vest, because I am smart. And it's hunting season because it's the middle of nowhere. So I'm out by myself in the middle of the sage brush scrub checking my traps, studying the habitat partitioning of a chipmunk species. I'm out there doing my thing and I hear this, "pop, pop, pop!" [*Alie gasps*] And I just like... my initial reaction is to get super small, hit the deck, you know, be really, really tiny. And at this point I know I'm getting shot at... but I don't know if they're doing it because they don't see me or because they *do* see me. As a woman, the first thing in my mind is like, not death, but "Oh my god, these are hunters. They're going to be like cowboys and they're going to rape me." That's like, that's where my mind initially goes.

Alie: As you do.

Mary: Yeah, as you do, right? And then I'm like, "Okay, what do I do, what do I do?" And I'm trying to get really small under the sage brush scrub, and I turn over to my left and there was a giant fire ant hill [*Alie gasps and laughs*] right in front of my face. So, I have to make some decisions about my life right now. The truck that I had is - even if I ran, and I'm not a good runner - would be like a 10-minute run to get back to the truck. So I'm like, "Okay, do I just stay still? Do I do like... I don't know?!" I can't stay *right here* because there's fire ants literally in my face and at this point, I'm going through all of the scenarios of what could happen. Do I deal with the very real, in-my-face fire ants and just stay where I am and don't move because they might see if I move? Do I make noise

because maybe they just don't see me, because I want to trust that humans are good. You're like, "What are my options?"

And then I'm thinking of the news, like, "Young field biologist found in Warner Mountains!" And this happens within seconds. All of these scenarios play out in your head. And, being alone, right? Because, if I had been with someone else, had ability to reach out, that would've have made everything so much better. You know, safety in numbers. And this was like before cell phones were a thing. You're just in nature. I love nature, I'm a biologist, but also nature's scary because we are not good at defending ourselves. We don't have fangs. We don't have a good ability to do much of anything physical. *[laughs]*

Alie: Yeah. We'll think our way out of it!

Mary: Yeah, exactly.

Alie: Yeah, like good luck.

Mary: Yeah, we've got opposable thumbs. That's kind of cool.

Alie: That helps.

Mary: So, I think that probably was definitely one of the scariest factual situations that I've been in.

Alie: How did you resolve it?

Mary: I kinda scooted down again. I'm lucky, I'm kind of very, very tiny. I like to say fun-sized. *[Alie laughs]* I just scooted around away from the ants, *[laughs]* and just kind of froze there, and then waited to hear stuff. They were in an ATV which made noise, and just waited for the ATV sounds to move away. I have no idea how long I was there, but just made myself small, because fighting - that wasn't really going to help. And flying - I knew I was too far, so I'm like, "I will just hide."

Alie: Oh my god! What were they shooting at, do you think, deer?!

Mary: Probably deer. Yeah, it's *really* middle-of-nowhere, California. Like the one town - and by town, I mean there was a gas station and a bar - that was the town. And that was an hour and 15 minutes-away drive.

Alie: Oh my Gaahhhd!

Aside: Just a quick note. Curiosity got the better of me and I was like, "What happens if you DO bury your face in a pile of fire ants? What happens?!" And it led to me to a YouTube video with 14 million views, in which a guy named Coyote Peterson inserts his hands into a mound of loose, sandy soil like he's getting the world's worst manicure by thousands of Satan's servants giving him itchy lumps and pustules. Let's listen in:

[Clip from YouTube video, "I'm Coyote Peterson, and I'm about to enter the strike zone, with a fire ant. You guys ready? Your shot good?" (Cameraman says, "Yup") "One...]

*two... three... Holy cow! Ow! Ow! Ow – oughhh!! MMMM! *Exhales quickly 3 times*
Ahh... ahh... ah! Holy cow, that's a lot of stings already!"*

Anyway, he tries to keep them in there for 60 full seconds, just like a good cuticle soak, but he lasts maybe 25, because he's like, "Fuck this shit, I hate science now." He doesn't say that vocally, but I bet it's in his head a little bit. Okay, back to Mary.

Alie: Who were they shooting at and what happened??

Mary: It was definitely one of those, "I'm actually kind of screwed!" if they were shooting at me because they saw me. But then the reality is, the chances are they probably were shooting at a deer and not me, and they just didn't see me because I was all in gray.

Alie: But still... I'm going to put that in the factual...

Mary: Oh, yeah, definitely! It was, you know, the getting shot at was suuuuper factual.

Alie: Yeah, I'm gonna put that in the factual bucket.

Mary: But then my mind continued to make alllll different reasons, and in that situation, you don't know. So I just kind of waited it out until I heard them really far away and then just took off running. *[laughs]*

Alie: God, and you're like, "Do I owe someone money? *[Mary laughs]* Am I in the mob?? *[higher pitched voice]* What's happening?!? Is this a political assassination???"

Mary: *[laughs]* Totally.

Aside: So, yes, even fearologists get afraid. It happens. But, like super successful, crazy successful people, they must just lack a gene. They must not feel fear, right?

Mary: So, actually I want to come back to this. At the beginning of the talk, I was saying that there's a guy who did some research looking at what vocabulary was being used by super-successful people, versus less than successful or mediocre people, versus the hyper-successful people. Like the Richard Bransons and the Ed Catmulls of Pixar and – I mean wow, have done crazy stuff - they use the word "fear". They used the word "afraid" and they use the word "scared"

Alie: *[Gasps]* No! Goosebumps.

Mary: Yeah, in Ed Catmull's book that he wrote about creativity, *Creativity, Inc.*, I think he used the exact word "fear" 98 times.

Alie: Oh my god!

Mary: And people who are less successful... guess what word they use?

Alie: Stress?

Mary: Stress.

Alie: Shut! Up! Are you serious?! Oh my god.

Mary: So, like Ed Catmull said, 'If we're not afraid, we're not doing our job. Because that means we are playing small and we're not pushing our limits.' So, learning that fear is

something you should run *towards* - in a healthy way with those fictional fears – not like you run towards your mugger. [*Alie and Mary laugh*] “Let’s hug!” But you know, making those adult decisions, feeling that fear and being like, “Oh, okay, this is maybe an area that I don’t feel confident in, so what can I do to push that a little harder instead of running away from it?”

Alie: And that is, in terms of - this is a different episode - but in terms of phobias, that is why exposure therapy can be helpful, I imagine?

Mary: Yeah. And there's a lot of work being done with VR with phobias and exposure therapy. They feel a little bit safe, but still their brain is getting trained on, “It's okay to, you know, get on a plane, or wear a sweater,” or whatever that is, to help re-train themselves.

Alie: It would just be me and a spreadsheet.

Mary: Spreadsheet-aphobia? Excel-aphobia?

Alie: Oh god, I hate ‘em. Yes, I hate ‘em so much! Okay, you ready for rapid fire?

Mary: Mmmhm!

Alie: Okay, I'm just going to throw these at you, you can answer as quickly as you want. These are from patrons on Patreon who support the show. (Thanks guys!) Tyler Fox wants to know: Is fear of the dark mostly universal?

Mary: I would say yes because as humans, we have really poor eyesight at night. We’re a diurnal species. That means that we are naturally awake during the day. Even though in ‘modern times’ we have the ability to have fancy electric light, our bodies are meant to be active hunting in the day. So, at night, we would naturally get in our little safe protective area, whatever that would be. Whether that is a tribal situation or if you're a primate in your little nest. And then we don't leave, because we can't see and there's predators out there, and we can't see that well at night. Walk into your room or the bathroom, and this is – when you talk about fear, you want to really try and separate the ones that just are going to be part of your life forever...

I'm still afraid to go in the bathroom when it's dark at night. [*Alie laughs*] But I don't want to turn on the light because then I won't be able to go back to bed, but I have to pee. And I just keep thinking like, “What if there’s a snake in the toilet?” I live in downtown L.A., y’all. Like there’s not... I mean, I don't live in the tropics. I mean it's... But I, I just... I don't know why. It's like, “What if it bites my butt??” I don't know, I'm really... it's just, every time! [*laughs*]

Alie: How cute! How cute would that be, just like, [*cartoonish voice*] “munnch... Good night!”

Mary: “Hiii!” But the probability...

Alie: Very slim! It's verrrry sliiiim!

Aside: Okay, quick note here. How probable is it that a snake will bite your butt? I started looking into this to prove that it's happened like, one time and the news likes to

sell fear. And yes, sure enough... a family in Seattle a few years ago found an enormous ball python in their apartment toilet and that kind of blew the notion up a bit. But... then I started finding more and more stories. Apparently, this is not an isolated incident. The BBC did a piece on toilet critters and one Australian wildlife worker says that rats sometimes hang out in sewer pipes, which is like so on-brand for them, and the snakes follow the rats. They're just like walkin' hamburgers.

So, this guy gets called on about 4 or 5 times a year, and he was not vague about his feelings. He said, "It's the worst job. You get a toilet bowl that's been there 30, 40 years. We see the bit that gets cleaned but the rest of it doesn't. When you go to pull the thing out of there, it's not fun. I usually have a bottle of disinfectant with me." Only imagine he said all of that in a very charming wildlife Australian accent.

Okay, so, then I then scrolled through a large volume of images online of "things in your toilet that should not be in your toilet," and I found photos of very wet baby bunnies, a dazed and sopping squirrel, and dozens of bright green toilet frogs that had just sauntered up a pipe after a rainstorm. So, it happens but it's still rare. And most of the time, just think of it as the universe delivering you a new temporary pet!

Mary: But it's one of those things that I think about and be like, okay, it's irrational. I'm just going to just let it go. Part of it is when you go into a dark room, you don't know what's going to be there. And this is why when we look at horror movies and the tropes that are in there, they're very specifically tapping into those natural fears. You know, horror movies are usually dark and there's a spooky house or there's a corn field and it's not a bright, sunny, beautiful day, usually. It's dark so that you can hide in the shadows.

Alie: Yeah. They're never like... They never take place in a brightly lit Wal-Mart or something.

Mary: [*laughs*] Although, that might be a good one!

Alie: Yeah, that strikes terror in a lot of people, I'm sure. Topher Mendoza wants to know: Is fear a learned behavior? Says, "I used to be afraid of a lot of things and then my belief structure changed, and now I find it really hard to be scared by things that are supposed to be scary."

Mary: So, with fear there's both. Like we were saying, fictional and factual fear. We're always going to have a natural fear response. At the top of the hour, we were talking about stressors versus stress. As those stressors change, we can have a different perception of how we are going to react to those stressors. And everyone's going to have a little bit of a different tolerance for dealing with different stressors. So, you can learn to be more afraid, you can learn to be less afraid, but you're always going to have fear in some way, shape, or form. It might not be something you're dealing with daily, like that factual fear of having your life physically threatened or someone that you love, that you're out of control to impact it. Those kinds of fears hopefully are very minimal in our lives. So really the fictional fear is where we can do the most work and we have the most impact. It sounds like the Patreon there was able to do that work with the fictional fears and start whittling down their reaction to those things that are not directly impacting their

ability to survive. Even within factual fears... Look at military training, where they're trying to get people to move past what their initial fear reaction would be with someone literally coming to pretend-kill them.

Aside: Military training involves something called “fear inoculation,” which is getting exposed to scary-ish situations in kinda small amounts until you’re no longer shocked by them. You’re just kinda over it. How do they do this? They simulate battle via – and this kinda blew my mind – paintball and laser tag. Which now totally justifies my dislike of these recreational activities. If someone’s like, “Hey, it’s Saturday afternoon. Do you want to go do mini golf, or like eat pancakes on a patio, or pretend to kill each other with lasers?” There’s one of those things that I’m like, “Nah, I’m good.”

Mary: And that’s training. And it takes a while. But to say that even a highly trained Navy Seal is not afraid, is ridiculous. They’re still... They’re gonna acknowledge it, but they’re going to have the skills and training to move past it to do what they need to do.

Alie: It’d be interesting to make a list of the things that scare you most or the times you’ve been most afraid and go back and think, was there an actual danger there? You know what I mean? And how would I handle that fear in hindsight knowing... I’m thinking about the times I’ve been most afraid and yeah, I think about the centrifuge and I’m like, “Yeah, no, I didn’t need to be afraid.” Even the mugging, I got through it. I threw my purse really far. I distracted them. I memorized their plates. I took them to court. It was not a pleasant experience and I had PTSD for a while, but I clearly... I think that if you look back on all the times that you’ve been afraid and thought, “Well I handled it, and I survived,” then it almost feels more empowering.

Jordan S. wants to know: Weird and dumb question. Why does anxiety/dread give us that stomach achy crampy feeling? I understand the racing heart and fast breathing, but I could never really get why that stomach cramp feeling happens.

Mary: And the big “D” word, right? *[laughs]*

Alie: Yeah, ummm, *[silly voice]* “THE D!” I love that RIA is the way to get yourself out of it. You’re like ria, or rrhea, one or the other...

Mary: *[laughs]* You gotta pick one!

Aside: If you listened to part 1, you may remember that Mary’s tactic when you feel stressed out or angry or fretful is to stop and do some R-I-A, some RIA. Which stands for: **R**ecognize, **I**dentify, and **A**ddress a fear or a stress when it comes up, to figure out exactly what it is that you’re afraid of.

Mary: Throughout the work that I do, I like to have a dichotomy because people love one or the other, a binary of left/right, good/bad, up/down. So, in particular for that question – we’re talking about digestion – it’s because digestion is a non-essential function when we are in fear. This is also why a sustained fear response leads to part of the obesity epidemic that we’re seeing in the United States and throughout the developed world. Because when our body’s in fear, it’s not trying to digest properly, it’s just like, “Okay, shut it down,” because that’s not going to... our digestive system is not going to help us

fight off the stuff. So, the “grumbly-tumbly” stuff, that's more of the digestion system trying to take things offline. And with the “excavation” aspect, that's trying to lighten the payload so that we just dump the cargo so you can run faster. Which is an animal response. When birds take off for flight, they want to lighten the cargo load, which is why they poo before flight. You wanna... you know... [laughs] make the journey as light as possible.

Alie: I feel like anytime you have loaded a pet into the car to go to the vet, you've probably gotten shit on, at least once. [Mary laughs] I remember having to take a cat to the vet once and it was just... explosion. It was like you stepped on a pastry bag. And I was like, “Whhhhhyyy?” It's like, “I'm scared.”

Mary: “I don't know what a car... I don't understand cars.” [Alie and Mary laugh]

Alie: Yeah. Like I guess that our bodies do that before a big presentation or whatever, you know. Your body's like, “You know what would help this presentation? Just a lil' bit of diarrhea.” [laughs]

Mary; Give that something extra!

Alie: This is what's going to help you survive your PhD dissertation. It's just... explode your butthole.

Aside: I've also heard that right before a fight, your body wants to “lighten your load” in case you get stabbed by claws, like in your colon. Then the less you have on board, the smaller your risk of contaminating your own body with the filthy contents, that is the bag of waste, that is your guts. I hope you're not eating. I looked for some articles on this and I can't confirm it, but I think it's a cute idea, kind of like your body just tossing a bowl of chili in the bushes before a fistfight so it doesn't stain your shirt.

Now, okay, what if you're just blessed with not feeling any fear at all? Well there's this disease called Urbach-Wiethe that can cause calcium deposits and lesions on the little almond fear factory that is your amygdala. And thus, it can reduce a patient's fear response to next to nothing. My friend Dr. Tegan Wall, thank you, by the way, for telling me about this over dinner. One sufferer of this disease is identified only as S.M. – it's probably at the behest of the researchers for anonymity - but she's probably like, “So what if people find out who I am? I literally fear nothing!” That's probably not true. But according to Wikipedia, “S.M. appears to experience relatively little negative emotion, whilst simultaneously experiencing a relatively high degree of positive effect, despite great adversity in her life.” So, researchers are like, “Yeah, she's pretty happy, man! She's had a shit life, but she's pretty happy.”

Researchers took S.M. to an exotic pet store, they had her hold snakes and spiders, and she was fine. She was like, “This is dope.” Which I kind of have to agree with her. That would be pretty cool. But they also took her to a haunted Halloween house, and she was just chill. She was like, “This is fun!” Her lack of anticipatory fear, though, has had its consequences. She walks alone at night whenever she wants and she's been mugged, but she continues to take the same walk home. Something that her amygdala, in a healthy

state, would otherwise be screaming at her like, "No! Recalculating route. Bitch, no! Do not go down that street!" But S.M. is said to be super friendly to strangers, so I imagine she's probably a hoot at a cocktail party.

Alie: Megan Gerard asks: Setting aside really split second, super bad situations, (factual) what can we do to help control or tamp down fear for things that we know logically are not dangerous or scary?

So once again... RIA.

Mary: Yeah, try and recognize, even just the... I mean there's so much power in just having the self-awareness saying, "Oh, I'm having a fear response right now." Instead of just following that fear response, like *Alice in Wonderland* down the rabbit hole being like, "Should I follow that rabbit or should I maybe just chill out and see what the situation is?" So, recognizing that in the moment, identifying it... you know, name it to claim it, saying, "Okay, so what is this? Is it dread? Am I anxious that's something's going to happen? Am I actually terrified? Am I feeling just insecure, like I just don't have control over the situation?" And like I said before, those two are usually enough to start pulling you out of it, and then really address what kind of outcomes can be managed here. Is there a strategy you can employ that would help to alleviate what you're feeling right now, or just even doing, kind of, "What's the worst that could happen?" If you play that little game, you know, in your head, "What's the worst that could happen?" and just keep going for like five or six times, you get to a point you're like, "Okay, I'm actually not going to die." Then your brain's like, [*high-pitched voice*] "Okay, we're not going to die? Cool, I'm going to go back to sleep, goodniiiiight!"

Alie: [*laughs*] I'm going to have to just carry that around like an emergency bracelet that's like, "In case of emergency, RIA." Sarah Michelle asks: How can someone be afraid of something they haven't necessarily experienced? Like sharks, for example? What triggers a fearful response if you've never even been scared of it in-person?

Mary: Part of that can be media, and sharks are such a good example, because toasters and vending machines kill more people every year than sharks. [*Alie mock whimpers*] For real. And unless you are a scuba diver or a surfer... It's not gonna sharknado up in your hometown in Nebraska. They're literally in the ocean. But we have a terror of sharks because, thanks *Jaws*. They make a really good villain, because they're not that cute, they have funky teeth, they're big, they're cold blooded. And so, they make a really good way for stories to have a big scary monster, because we like to be scared in a safe way and we want those big scary monsters, and sharks just fit the bill really well. So, we have been trained to be scared of sharks, and part of that is good storytelling of the buildup and not having control. Like in *Jaws* where you have the little swimmer on the top... and why are they always women in bikinis that get eaten? Whatever.

So, we're not made to be in water. We can be in water for short amounts of time, but we're not that good. We're kind of clunky and like [*fake terror grunt*]. So, we don't have full control over our faculties, and that's already putting us in a vulnerable position. So,

we're already kind of like, on edge. And then you have something [*scary voice*] "coming from the deep", and it's like, [*scary voice*] "Ooooooh! Scary Mufasa! See it again!" Right?

Alie: So, you have darkness and you have the inability to... I mean, you probably can't fight it because you just, you've got these dumb little arms, and then flight is difficult cause you can't swim as fast as you can run.

Mary: Yeah. And you can't see it. You probably can't hear it because it's under the ocean. They're not like, "Hey, I'm a shark! I'm comin'! Ding ding ding!" So all of our senses that keep us safe, that let us understand our outside world, aren't really that great in the water. And that makes us vulnerable to actual death, and that's what is really good to tap into the big scary monster idea.

Alie: So, sharks just get a bad rap.

Mary: I know. Poor sharks.

Alie: Poor sharks. Vending machines, watch out! I did some research on that once and I was like, "Dang, vending machines are dangerous!"

Aside: Once I was hosting and writing on this show about fearful situations and the science behind them. So before we shot, I did some digging on airshow fighter pilot dangers vs. shark dangers vs. vending machines. And it turns out that sharks in the U.S. kill like one person every two years, and maybe one or two deaths a year happen in fighter jet aeronautic flights, like air shows, but vending machines tipping over kill 2 people a year! Usually people who have been trying to shake snacks free from their coiled grip. While I was on location with fighter pilots shooting this show, a vending machine at the Airforce base started to dispense some barbecue potato chips, about which I was very excited, but then just dangled them mercilessly at me. And these two fighter pilots were like, "Yeah sometimes you have to shake the machine" and I was like, "No! Y'all can't go out like this! Of all the ways, this is the most dangerous!" But it was fine. And the chips were good.

Mary: Yep. And it's perception, right? And data will only go so far to quelling your perceived fears. No one's afraid of a vending machine. Yet the data shows that more people die from vending machines than sharks, but our brain has that – such a deep bias of like, "I'm still not going to be afraid of a vending machine." [*laughs*]

Alie: And that doesn't even count the cholesterol problems that might happen with a vending machine, or the coronary disease that happens. I mean, you're talking to someone who used to eat ham sandwiches out of vending machines. I had a job where that was dinner at like midnight, and I would go down and get a ham sandwich. So yeah, they're dangerous on a lot of fronts. Um, Bob wants to know: How clear is the line between anxiety and fear? And can you tell me a little bit more about those negative health effects of living with fear?

Now, you said anxiety and fear are pretty much the same thing?

Mary: Pretty much the same thing. Now, when we're talking about clinical-level anxiety, that's going to be an actual thing that needs to be addressed in a professional setting. So that's when you aren't able to adequately handle your fear, and your anxiety is negatively impacting your life. And that line is always fuzzy. It's kind of like addiction. Are you someone that just likes to drink or is the drinking impacting your life where you can't be successful, you're not having good relationships, you can't get to work or school... where is that line? Not everyone that drinks wine needs to be treated at an addiction center, but there are some people that go to that level of the spectrum where they can't handle their consumption of alcohol and need to go be treated. I find addiction one of those things that's almost easier to talk about than fear and anxiety in society, which is why I use it as an analogy, because sometimes the brain has gotten to the point where just having these strategies isn't going to help. And you need to kind of get to that root of, was it trauma driven? What's going on for that individual person? Where that threshold is, is seriously a person-by-person thing.

Alie: And some of the health effects of fear, you were saying: cell regeneration, skin, digestive health. Scare me a little bit more about not being scared. [*Mary laughs*]

Mary: It's definitely not in my nature to try and bring the doom and gloom, but when we look at... More and more research is coming out associating the way we live our lives and the fear responses and the stress response to these, what we thought were unrelated, large issues in health. The top killers of humans in the United States are heart disease, stroke, and cancer. Those are going to be your big three, and they're all associated with stress and fear. Now, there's going to be a genetic component of it, but you can't control your genetic component. You *can* control your stress level and you can control your lifestyle choices. So, those are the things you wanna focus on and just looking at the three, the big three: stroke, heart disease and cancer. I mean, I don't have statistics on me, but they kill a lot of people!

Aside: Okay I'm going to rattle these off as fast as I can, so no one is too bummed out, but [*takes deep breath*] heart disease is 630,000 deaths a year, cancer about 600,000 deaths a year and then lower respiratory disease is 150,000 a year. Soooooo... be less afraid of sharks, and spiders, and toilet snakes, and public speaking... and I guess be more afraid of ice cream. It's so weird to think that gelato looks like your friend but could actually be your murderer! Our typical American diet is just in menacing cahoots with stress and sleep deprivation.

Mary: And they're all going to have that component of fear and stress because they are something that is cultivated every day. Cancer is one of those things that lifestyle choices are going to impact it. So it depends. Cancer is one of those really tricky things to talk about with just one word because every cancer is very different in how it behaves and how it's going to come about in the body, but at the heart of it, it's a disease of the cell cycle. So, during that cellular generation process, something went wrong. The cell is chugging along, wanted to do its thing, and something went wrong and it starts making cells that it didn't mean to make, and those are going to turn into those cancer cells. And depending on what type of cancer you're looking at, there's going to be an impact of

how your body's constantly in that stress state and not focusing energy on cellular regeneration and keeping up the housekeeping. So, your cell house is getting super messy because your brain is like, "No, we need to focus all the energy on these stress responses because we think that we're dying all the time." Because our body's not meant to be in that constant state of, "Oh my gosh, we're going to die."

Alie: And now, I imagine also that must affect immunology and your immune system's ability to kind of police things and say, "Do we need to send some cells after this thing?"

Mary: Well, I mean the biggest part of your immunity is contained in your digestive system. So, if your digestive system is not getting any attention because your body's like, "Sorry, digestive system, we need to take care of other things." Then in the moments that you do calm down, a lot of people turn to food to help get those happy feelings going. So, they're shoving a bunch of food, usually not brussels sprouts. No one stress-eats broccoli. [*Alie laughs*] Like, "I've had such a hard day, babe. I just, I need some broccoli before I could talk to you." Literally said no one ever.

Aside: Did some research on this and I found at least one person who might argue otherwise. On September 14, 2016, someone on the website Twitter.com with the handle @blanketperson tweeted, "I think I'm addicted to broccoli." I'm gonna fave and retweet this from the Ologies twitter, and perhaps, just perhaps, we can follow up to see if he's still struggling with that. Meanwhile, the rest of us tend to make less healthy choices when we numb out.

Mary: [*laughing*] So what do you do? You go for the sugars, you go for the fats, you go for the crunchy... the things that you probably shouldn't be eating any way, but you want to get some happy brain chemicals happening, so you're shoving that into your body. Then maybe you go back on your email and you start the whole thing over again, and your body's not really properly digesting things. The bacterial flora in your digestive system isn't up to par. You can have bacterial die off with stress, which is decreasing your immunity. So, it's a total body thing.

Alie: You know, I have to say also, I think that if you're gonna spend time doing serums and sheet masks, it's probably also good for your skin to just talk yourself through your fear storms. [*Mary laughs*] Do you know what I mean? I have to say, when I was meditating more, people were like, "Your skin looks amazing!" I was like, "Really??" And dang, I was probably changing my body's priorities a little bit. I'll have to look into that.

Aside: Alright I looked into this and apparently it *is* a thing. Being in a constant state of fear ups your cortisol, which boosts oil production and gives you breakouts. It also boosts sugar levels in the blood, which breaks down collagen, and that makes your skin look old, and wrinkly, and dry. So, if people are starting to tell you that you look like your dad and you're like, "Dude, I'm 30!" Or you're missing out on sleep because you're up watching videos about what serums to spend \$46 on - there are so many serums - maybe we should all just give this meditation thing a good go and just calm this amygdala. Meditation, it seems kind of annoying if it's just hocus-pocus, but when you look at it as a brief respite from terror and the chemical effects of having a fire alarm

happening in your brain or body, you're like, "Yes, sure, namaste, let's do this." It's cheaper than sheet masks and takes way less time per day than under-eye spackle and you might end up crying less in airport bathrooms. I am talking exclusively to myself on that last one.

Alie: Courtney Sobieski asks: Why do we sometimes re-scare ourselves if our minds wander? Like, say I listened to a scary story and then a week later as I'm falling asleep, I think about the scary story and experience the fear reaction all over again un-prompted. Why does my body do that to me?

Mary: Because we're kind of like, masochistic. There's that portion of our brain. Part of it is that we like to dress-rehearse tragedy, because there's a portion of our dysfunctional mind that thinks that if we just practice enough, we will be prepared. We will be safe. We're constantly looking for safety, and even though safety really doesn't exist, we're constantly striving for it. And by dress rehearsing that tragedy, our mind's like, "Okay, cool. I will be ready. I will be ready." And you keep going back to it. And part of it is, we just have this sick fascination with beating ourselves up over stuff. That's never gonna go away, but you definitely can manage it in a way where it stops being so negative on your life. And it's gonna pop up, especially if you're someone that naturally goes to those places. It's not like it's going to just magically disappear, but you can turn down the dial a whole lot to where it's a whisper instead of blaring in your ear and you can't focus on anything else.

Alie: A bullhorn of fear!

Mary: [*imitates a bullhorn*] General foghorn.

Alie: A foghorn! That's next level, man. A light house of anxiety. [*laughs*] Jim Merson, who's a wonderful person, I know him personally, [*Alie & Mary say in unison, "Hi, Jim".*] says: I'm so curious as to the ethical implications in studying fear. How does one conduct an experiment that requires someone to feel afraid, that doesn't also harm them? So, do scientists have to make sure to reinforce the subject's safety after they've made them feel afraid? So how is fear studied in a clinical aspect? How do clinicians do experiments on stress response?

Mary: Fear as a study is massive. If you're going to focus on humans, and more of the clinical extremes, the outliers of the populations... in terms of ethics, it depends on what year you're looking at. So, pre-1980's, not great! Pre-1920's, reeeally not great. "Oh, lobotomies?! Yeah, we should totally do that!" And mental health is one of those things that... there's still stigma around mental wellness and mental health. It used to be where people had no rights. If you were mentally unwell, you were put in asylums, you were abused. So in terms of ethics... wasn't a lot of ethics. It depends on what time period you're looking at.

If you're looking at modern studies, and if it's in a clinical situation and it's United States-based - again, every country's a little bit different on their laws - now we have a lot of protections for patients and their well-being. It's part of the design process,

whatever institutional organization you're at, you have to have really, really strong safeguards in there to be able to have that study approved. So now it's much more ethical. Usually it's partnered with a treatment. Right now, the newest thing, like I was saying before, is VR and how we can use VR to give some of that experience and exposure therapy, but in the safest way. Because it used to be like, "Oh, I'm afraid of spiders." "Okay, we're going to put your hand in a box to spiders." You're like, "Whaaaaat?!" Most people are just like, "No. I'll just be afraid of spiders. That's fine." But with VR, because people know it's "fake", but your brain doesn't know that. Your conscious brain knows that, but your subconscious brain doesn't. And so, they're a little bit more open to be like, "Okay, I'll give it a try. Doesn't sound fun, but it doesn't sound as bad as some other exposure therapy." So, it's going to open a lot more ability to research, and just asking people, right? Studying humans is hard. So, a lot of it is asking, "Okay, what are your perceptions? What was your level of fear on spiders before you went into the VR? What's your level after?" And just really exploring that.

Aside: By the way VR stands for virtual reality, which is like those Oculus Rift... like the huge goggles that cover your face in an immersive, crazy situation. I didn't want to interrupt before but, yeah, that's what that means. Virtual spiders may pave the way to calming your shit around 3-dimensional alive ones. And here's a secret. The alive ones? They usually just want to hang out in your shower. They just wanna look up at you, they wanna hear you sing. You're their nude Celine Dion. So, do not smear your biggest fans into a paste with a paper towel. They love you!

Mary: There's also some research in the clinical setting around depression and using really delicate electrical current outside of the skull. So, it would be an in-office visit where you'd have little pads and they'd put it on your forehead around your skull to kind of see if they can get away from so much medication-based treatments and start to almost reset the electrical currents in your brain. And some people find a lot of therapeutic stuff with that. So, there's going to be a lot more research, again, with people that are already struggling with that thing and seeing how those treatment options are helping to impact them. To get them back to like a baseline where they're higher functioning in that area.

Alie: So instead of just going to the mall and kidnapping someone and saying, "I'm gonna show you a bunch of weapons and see how scared you get." The research is more like, "You have a problem. Come on into this study, let's see if we can help with the problem."

Mary: Yeah, exactly. And the other kind of aspect, and we've done this forever, a lot of the biology and physiological studies are usually done on soldiers because it's a captive audience, you don't *really* need their permission...

Alie: Which is crazy.

Mary: Yeah, there's... I mean it's, so... you know, the ethics have gotten better around that. But in terms of fear, it's very common to study special ops groups or incoming cadets because they're going to be in the same place, they live together. It's kind of like, in ecological studies, we love to study islands, because you start to decrease the number of

variables. So, we study our military a lot, but then you run into the situation of, those aren't everyone's experiences. Very few people, when you look at the whole population, are ever going to be navy seals. Like, I can't even do a push up. [*Alie laughs*] I could do a plank, but not even a real push up.

Alie: They keep trying to recruit me and I'm like, "You guys, not now. I'm gonna be in my peak form 2-3 years from now, ask me again, ping me then." [*Mary laughs*] But we can use them though, maybe to look at trends or to look at models, and then apply that once we've refined them into the greater population.

Mary: Yup, exactly.

Alie: Okay. Oh that's fascinating! Jessica Geisler wants to know: Is there a biological advantage to Emetophobia? I haven't been able to shake it my entire life.

I think that is the fear of barfing, because there is a barfing emoji and I don't know about that. That might be a phobic question. I think that's a fear of barfing.

Mary: Yeah. I've never heard of that, but I mean, if there's a barfing emoji...

Alie: Yeah, yes, I just looked it up and it is a fear of barfing,

Mary: I don't personally study phobias, so I would be hesitant to say if there's... I mean, the ability to vomit is an evolutionary adaptation for survival in and of itself, of all humans, which is one of the... I know I keep coming back to AR and VR because I'm actually doing AR and VR work in education, so it's on my mind. So, as they're continuing to develop VR, a lot of people get nauseous from it, and that's because when our body has perceived that something is affecting our ability to see things correctly, it assumes that it's like something we've eaten was bad. So, our body's like, "Oh no, we've been poisoned! Eject stomach contents!" This is why if you put someone else's glasses on they will make you like, "Uuhhhh!" It starts to make you dizzy or nauseous, like if your glasses aren't quite where they need to be. So, it could be like something over-developed in that area, because it is a way that, if we have eaten something bad, our body can purge it. But if I had to guess, that would be my two-cent answer.

Aside: Isn't that nuts! So, the little fluid-filled tubes in your ears are like, "Okay. I'm sensing motion. Yep that was a corner, we're moving, holy shit." And your body's like, "Nah nah nah nah, dude I'm just sitting here in this seat. I'm not even moving my legs or anything." So, they have a meeting about it and the consensus is, "We're hallucinating. We've eaten moldy garbage. We're hallucinating. Let's barf." Okay this is not an episode on phobias, but Jessica, I don't wanna leave you hanging, so I did look it up. One method of getting over it involves confronting the fear head-on and then abstaining from any rituals that you might do to avoid it, like running away or praying for the apocalypse. This kind of therapy is called "Exposure and Response Prevention" aka E-R-P, or "eerrrp," which is, coincidentally, the noise I made before un-poisoning myself over my snake basin when I last had the stomach flu. I don't know how the exposure part works, by the way, but maybe they take you to a spring break party. Let me know how it goes.

- Alie:** Dane Goding wants to know: Does your body have the same chemical and autonomic reactions to fear when you're asleep and having a nightmare, as it does when you're awake and conscious?
- Mary:** The fear and stress response system is the same all the time. When we're asleep, our body has created a system to essentially paralyze us so we don't act out our dreams, which is good for our bed partners to know. But we still have the physiological system, so if you have a really vivid nightmare and you wake up and you're like, [*panting*]. You're probably sweating, and you feel like you've been running and it takes you a second to figure out that it was just a dream. Our body is still having that physiological response, but because we're in sleep, we also have that kind of protective sheath of sleep that is preventing us from acting out our dreams. Now sometimes people don't always have that strong of a sheath, and that's why you can have night terrors or, if you are taking a sleeping pill like Ambien, this is why sometimes people will get up and drive a car or do things on sleep medication. So, it doesn't always work, but that's usually why we wake up and we haven't pummeled our bed partner, but we're all sweaty and out of breath.
- Alie:** That's so nuts! Anna Marie says: I have chronic terrors... I *had* chronic night terrors as a child and I still have them occasionally as a 35-year-old. Is this something that ever fully goes away?
- Mary:** That's probably gonna be a person-by-person basis. Usually night terrors are going to be really extreme nightmares and they're recurring. Generally, they could be associated with a trauma, like reliving that trauma because they haven't fully dealt with it. It could just be something that their psyche is trying to act out and express in their dream state. I don't think that anyone has one answer that fits all humans. It also kinda probably depends on what they're doing to address it. Are they getting professional therapy where they're able to say, "Oh, this is happening and maybe this is why. Or maybe you could address this kind of thing." Or are they just numbing it out with particular substances, or are they just ignoring it? So, I think it also depends on what that individual, or any individual is doing to kind of address it.
- Alie:** That's a good, that's a good answer.
- Aside:** Side note: I just watched a bunch of videos on YouTube about night terrors and I don't recommend it. Although I do have to give credit to Britain for making sympathetic TV shows exploring these really frightening medical topics, such as their program titled, "Embarrassing Bodies." Is there anything embarrassing or challenging about Mary's job?
- Alie:** What is the crappiest thing about your job? What is the hardest thing? What is the most annoying thing? Is it scheduling? Is it having to look at your own internal workings, like what's the... Is it Email? Taxes?
- Mary:** I would say about my professional job, it's constantly dealing with imposter syndrome. What I do is so weird, and so interdisciplinary that I'm specifically trained. I have

graduate degrees in Biology, my Science Communication master's is from Imperial College, and those make me feel good about what I'm saying for about five seconds. And then it's one of those things that, because it's so weird, I feel like I'm not good enough to do these things, or who am I to have this... share this knowledge and stuff. And, that's why I'm always really, really careful to say, "I'm not a clinical psychologist. I don't see clients or patients," so that people know I am getting the stuff from some of my own research, but also research in the literature. Just continuing to convince myself that this work is important because other people will have value from it. That's a constant conversation for me because I think it's so much easier.

I've been teaching at San José State University... this is my 11th year now. And I could just continue doing exactly only that role until I retire, and it'd be safe and it'd be comfortable. I mean, I know that I'm a good teacher. I feel confident in it because I've been doing it for 11 years, but that's not going to ever allow me to grow. And if I want to experience the world in a greater, more colorful way, then I have to do the things that scare me. That means constantly pushing the boundaries of my own personal boundaries. I also do a lot of public speaking, and every time, before I go on stage, I'm just on the text with my friends like, "Oh my God, oh my God, I'm gonna die, ehhhh!" At what point do you stop being freaked out by a really big talk? Maybe that's never, but I always feel really good coming off stage. I feel really good having that ability to connect with people, and they find value in these tips and tricks that they can then apply to their lives. And for me, having that as a bigger goal helps with the imposter syndrome. But I think everyone really rolls with that.

Alie: So many people have it. So many people. It's amazing. People that you would be like, "Youuu have imposter... YOU? You make me have imposter syndrome, you're so amazing!" So yeah, I think I talked in the gynecology episode about that, to the gynecologist who didn't feel comfortable saying she was a doctor for a while, and how imposter syndrome is more prevalent in people who are capable and intelligent, which is so annoying! [*Mary laughs*] So if you have imposter syndrome, chances are you don't need to have it. There you go! I fixed it! What's your favorite part about what you do?

Mary: I think that it allows me to have... I've taken a long time to craft a lifestyle that is really feral. Where I'm a full digital nomad. I do everything on a weird schedule. I'm constantly traveling and I love that lifestyle of not being in a tiny box and not having a time to punch the clock. And that's something that I've really been able to find a lot of joy in. That I could pair my research, and my science communication, and my teaching, and my love of travel and put all those things together, is just really, really special. And I'm very privileged to be able to do that, posting, "Here's my office today!" with my laptop on the beach. And it's such a unique experience that there's not all the jobs in the world that you could do that. So, really lucky that I can pull all these things in.

Everything I do has been driven by my interests, which is also a privilege. A lot of times, people are in jobs that are... The reason why they're unhappy is because they have no interest in what they're doing, whereas I do this because I love it. That means I don't have a distinct off-switch. It's a lifestyle, not a job that you clock in and clock out of. My

mind's always thinking about things, like writing down stories that would be good to tell on stage, I'm thinking about how I could do an activity in a workshop. So that's not for everyone, right? A lot of people want to just leave it at the office, and since my office is the planet... [*Alie laughs*] But, it's such a privilege to be able to do that.

Alie: It's funny, too, because that was one of your mother's greatest fears and that was one of your greatest fears, was leaving home, and that's one of your greatest joys now.

Mary: Yeah. Run towards your fear.

Alie: Yeah! Which is amazing and it makes me want to write down what I'm most afraid of and really examine it differently, because I think that I just let fear kinda knock on my door, and I'm like, "Who is it? Aaaagghh, come in and ruin my life!" You know what I mean? I don't necessarily run toward things that might be scary and kind of get over them. So that's really inspiring. I can tell you that you do not have any of the markings of an imposter. I think you are very good at what you do. [*Mary laughs*] Please take that, throw it into the ocean. You're amazing. Thank you for letting me talk to you. This is the longest interview I've ever done because I cannot stop asking you questions. You are amazing! Thank you so, so much for being on.

Mary: [*laughing*] You're so, so welcome!

So, for more about Mary Poffenroth, if you haven't already gingerly begun stalking her, her website is MaryPoffenroth.com. She's @MaryPoffenroth on [Twitter](https://twitter.com/MaryPoffenroth) and [Facebook](https://www.facebook.com/MaryPoffenroth), and on Instagram, she's [@fearforward](https://www.instagram.com/fearforward/). Now to follow Ologies, we're @Ologies on [Twitter](https://twitter.com/Ologies) and on [Instagram](https://www.instagram.com/Ologies). We're on [Patreon.com/Ologies](https://www.patreon.com/Ologies) if you'd like some perks there, like submitting your questions to ologists and seeing photos and videos. You can also fund the podcast and cover your body at [OlogiesMerch.com](https://www.OlogiesMerch.com), which was just updated by Boni Dutch. We have some new pin designs up by Shannon Feltus. Thank you both for that. You can join up on Facebook on the Ologies Podcast group. Thank you, Hannah Lipow, Esq. (she just passed the bar) and Erin Talbert for adminning for your ol' pop. And thank you to Steven Ray Morris for editing and cutting this all up and putting it back together for me every week, you're the best. The music was written and performed by Nick Thorburn of the band Islands, you should check them out.

And you know what? Okay, I have an idea. What if you ask smart people dumb questions? Because thinking the questions are dumb is actually a fictional fear. No questions are dumb! I just say that so that you don't judge yourself.

Okay, so if you hang through the credits, you know I tell a secret at the end of every episode, and this one I thought I'd stay on brand. I wrote this on an airplane somewhere over Tennessee, just tippity-tapping away. So, I thought I'd make a list of my fears and tell you what they are: one... getting divorced, which is probably why I've never gotten married; two... mismanaging money. I'm so afraid of over-spending my money like an idiot, or like M.C. Hammer did in the 1990s, God bless him, that I just never buy myself shoes or clothes, so I could probably change that and live a little. Another fear... teeth falling out. You know those dreams where your teeth fall out? I do not want that, IRL. Which also reminds me, I'm out of dental floss.

Okay everyone, let's read up on... I don't know, retirement accounts. And maybe treat yourself to some shoes on sale. And let's practice good oral hygiene. I hope you end up making a list of things that have been nagging at you. I mean, there are some things we can't change. Like the death of people we love or just the inevitable, our butts are gonna get droopy. But we can say to ourselves that, "I'll live that sorrow when it comes." You can't pre-grieve anything. You can only enjoy what you have right now and deal with the fears that you have and you can do something about. So, I hope that helps. I hope you go out and do the things you wanna do."

Okay, Berbye.

Transcribed by Carly Fetterolf, aka, "That girl who always raises her hand in class, and sometimes you think, 'That's annoying, get us out of here,' and other times you're like, 'Cool, I was wondering the same thing but didn't want to sound stupid.'"

Born in Akron, Ohio, living in Copenhagen, Denmark studying an MA in International Business Communication at Copenhagen Business School.

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