



The ALBA Diversity Podcast

Season 1- Episode 3

Basma Radwan - Empowering women in science

Speaker Key:

SM Shruti Muralidhar (Podcast host)

BR Basma Radwan (Guest)

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SM Hello and welcome to the Alba Diversity Podcast an Alba Network undertaking to profile and highlight diverse and immigrant neuroscientists. The Alba network aims to promote equity and diversity in the brain sciences. We talk to neuroscientists across positions, career paths, and backgrounds to better understand their personal journeys. We showcase the grit and determination it takes to overcome hurdles as part of underrepresented or minority groups. We talk about what keeps them going as individuals and as neuroscientists in today's world.

BR Hi. So I'm Basma. Currently I'm a postdoc at NYU Abu Dhabi working in the lab of Doctor Dipesh Chaudhury. My current research involves investigating the link between sleep and depression. It's a pretty fascinating field for me with a lot of implication in real life, and that's what motivates me to get involved in this whole project.

I did my PhD at NYU, New York with Doctor André A. Fenton, investigating the neural impairments associated within the cognitive impairments in a mouse model of Fragile X syndrome in the model of autism.

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SM When was the first time though you thought about brain and neurons, how did it all begin?

BR It was really in my undergrad year. So we had a small department for neuroscience called Centre for Neuroscience mainly focussed on sister neuroscientists. So there were physicists, and they were doing a lot of research and visionary science using monkeys and primates. My trajectory changed from pre-med to research really because of the amazing professors I had there.

I had two professors that taught us behaviour integrative neuroscience, and they really focussed on making sure that we understand the concepts, and we question the hypothesis. It was literally a scientific method in action, and I fell in love with this. I found myself happy learning it and thinking this way the emphasis of the NYU teaching. And it's really all about the question how would you investigate it, what would be the best approach to investigate it?

SM From your story I can see that promoting critical thinking is so important, and I see



that it really propelled you into neuroscience. Because there was somebody who came and said it's okay to ask questions, and in fact you should be asking questions.

BR Yes, absolutely. Can I do this, can I ask a question and plan an experiment? Once you get the excitement, you feel the excitement, it becomes an itch or something, like an urgent need that you had to fulfil. So yes, this is when I decided to study neuroscience.

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I remember when I was walking as an undergrad in the hallway, I would see postdocs and PG students analysing signals and data, and I was like oh this is fascinating I just want to do that. It was like a kid in a candy store, I was like, whoa this is amazing.

So right now I work on the link between sleep and depression. So this is actually a topic that relates to a lot of people because all of us go through stress, and all of us go through some sleep problems when we have stress. And what I'm doing right now is literally investigating the link between both of them.

I'm investigating something that's very well documented in clinical research in the clinical field, however not documented at all in the basic field in which is there is a link between prior sleep disturbance and the vulnerability to stress disorders. And they noticed a very strong association between the sleep impairments before stress, before exposure to stress, and the psychiatric outcomes of anxiety or stress, or depression actually even.

Insomnia is a very common sleep disturbance and there's a very strong correlation, and it's actually a strong predictor of depression. Basically we're trying to see if there is in an animal model we can find this relationship. So we're using a model called chronic social defeats stress, that's a very widely acclaimed model for depression. The beauty of this paradigm is not all the mice become depressed, some mice actually adapt to stress and become resilient. So you get to see the differences between what's resilience and what's susceptibility to stress.

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And what I did was very simple, I basically just recorded sleep before and after, and if you trace that to before stress you can actually see what these diseased mice are different, even before stress. And maybe that's why they might be predisposed more, or more vulnerable, more to stress, and we have a hypothesis maybe some early life stresses.

So basically what we believe is like okay one of the homeostatic processes is basically impaired, and that maybe leading to the higher vulnerability to stress. And so we're trying to see really what made this homeostatic mechanism in these individuals worse than the others, and we try also to trace it back to early life stresses. So we're basically going from out to in, so we're looking at some hypotheses about what's happening, and then we're tracing it to a molecular mechanism, and there are processes that might underline this vulnerability to stress.

Firstly it will have implications for this vulnerable population. And I was reading



one of the clinical papers. And they were actually mainly talking about the teenagers, some of them being exposed to daily bullying or social pressures. And this is when they change, their body changes, they're concerned about their physique and the way they look, so actually it's a very stressful time.

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It's very important if you can look at any biomarkers for those vulnerable populations. And try to help and intervene before the problem gets worse and gets out of control, like some of them developing depression or actually even committing suicide, which is quite sad for such a young age.

Now that I'm a postdoc I'm having my own project, I'm planning my own projects and facing failure, maybe my paper just doesn't qualify for this journal. So yes these are defeats which are painful on the surface, but actually they're very useful, and you need that because that's going to make me grow.

SM I feel like that kind of attitude you really have to work to build it.

BR Well yes, I had to work to build it because I had a lot of disappointments. You had to get through it by thinking positively because otherwise you'll stop. But it's good also that you're seeing yourself growing, and then you say one day my outcome will definitely reflect my growth.

SM Exactly. I think for almost all of us it's an uphill climb, and the way you look at it is so healthy. And I hope people who are listening to this can take that away from our conversation, that failure is okay, and yes, you'll feel bad, but you have to look at it differently so that it helps you grow.

BR I have no other option because I cannot stop.

SM We can shift gear. So is there somebody in your life that you think is a mentor?

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BR So I don't know if you can tell from my story I'm more into translation and applied neuroscience. I think neuroscience is a very important topic. We have those fascinating scientists, when you just read their work, and you read the precision of their work and everything, it blows your mind. But then I always ask myself, I was like okay so what can you step out for a moment out of your lab coat and just see what the people around you and the community need.

Mental health is a very big problem, so I'm looking for anyone who is trying to take neuroscience out and do something good for mental health for it, something in psychiatric drugs discovery. It's basically on hold right now, a lot of the neuropsychiatric drugs are 50 years old, there were the same drugs we had 50 years ago. How come we never really made any progress? So I have an interest about what can we do with neuroscience in real life. I'm looking for those people, I'm still looking.

SM Do you feel like you're part of a minority group in academia in neuroscience?

BR Yes.

SM Have you had problems, have you faced discrimination because of this at any



point?

BR I was lucky, because again I went to a school in New York, NYU, and New York is very diverse. NYU are very amazing scientists who always have high degree of respect for your capability no matter where you come from, so I never actually felt the discrimination at all, I haven't experienced it myself. But there is something that for sure that you can see that some groups are not very represented around us, so it's there, I hear it.

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SM So speaking of looking at people around you, diversity's something everybody talks about now, especially now even more so with how things have been changing with COVID. And how institutions have been forced to rethink what it means in their hiring practices and things like that. It's become this really overwhelming catchphrase. But what does diversity mean to you?

BR There is something that I definitely see and it's very striking, but I wouldn't say about race, but it is about gender. We're still very, very, very rarely presented in the academic position, the woman, and that's annoying, why is it still like that? Here in the department we only have two female professors, they're hiring more now, they were ideally looking for a woman.

But then I remember I was having a talk with my supervisor, Dipesh actually, we had a job talk. And I think even though we're very misrepresented as women, but I also like to be fair, and I always say well yes it's not because she's a woman we have to hire her. Yes, I do feel the lack of presence. For me I'm also standing firm that it should not lead to lower standards.

SM Absolutely. 100%. You've to treat the candidate as a candidate first, right?

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BR Yes. So it's tough, I feel it, but I also don't know how to solve it. I do agree, and I understand that we should not lower the standards, and I don't think that we have lower standards of performance. So that's why I'm a little bit struggling, I was like what's happening here. Again maybe I don't see the whole picture, my environment is very small and limited.

So I'm Egyptian originally. I grew up in an environment where they always tell you if you're smart you go to medical school, or a PG in whatever. So I think it's really all about what kind of environment around you, what kind of message you're going to get when you're little.

SM How did that go, did you have people who were very positive and who when you said I want to do medical school were they supportive?

BR Oh yes, absolutely. Girls in general we do very good in school, actually do even better, and we even outperformed with the boys I think.

SM Well I can attest to that as an Indian. In the Indian system girls do extremely well, and we're really very absolutely much better than boys in a lot of cases.

BR And the Middle East is a little bit it depends on where you're from. So maybe Egypt is not conservative like other places in the Middle East, so actually education is



very well encouraged among women. The only problem though is that maybe they tell you okay do your best and work on whatever, but at a certain age the message to you is like well you have to focus on being a wife and a mum.

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You had the messages of push it to be better, and to dream, and to have these goals and aspirations of being very good in school, and having this career, but then at some point it stops and the message changed. Well, what are you going to do with all of the degrees, you have no kids and no husband? And I had the misfortune of actually getting divorced, my marriage fell apart four years ago. And this is when I realised well finally I have to take care of myself and my kids, so this message is start becoming so useless at this particular moment.

So I know what I'm going to teach my girls, it's like I'm never ever going to ever make them know that it's important to be a mum and a wife. I'm always going to push them that you have to be successful, you have to have a career, and you have to care for yourself and be responsible. And I will make sure that will be the message. And when they move on in their personal life I will always encourage them that how can I help them with balancing. Well maybe there'll be a little bit of change of priorities, but it doesn't mean that your medical bills or your dream disappears.

SM Being a single parent is not a cake walk, and I hope you have a good support group around you. It also tells me, and it also shows me how strong you are, and how determined you are to protect them by empowering them, and I think that's the best way to raise them.

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BR Yes. There's a movie called Mona Lisa's Smile or something, it's one of my favourite movies, one of my favourite movies. And it's kind of the same message, it's like the girls are very smart and they're been pushed to be very, very smart, but then to be a wife, a smart wife.

So it seemed that, at least my family in the environment, it was like oh yes be smart, and be smart, and whatever, and my dad used to buy me books. I won't say my dad, maybe I would say my mum maybe. And my mum for her the message switched and then I felt at some point very, that's one of the periods where I was lost in my life, I was like oh. So yes, maybe that's the difference. So I think it's really about the message, going back to your question, the message being sent in these groups.

SM But I like the fact how you used an example from your own life, and talked about the messaging and stuff, I think that's very important.

BR I think it's very important.

SM Yes, it hit close with me, because like I said Indian society has the exact same problem. Last question, we're almost done. So you are a single mum, how do you manage? Do you have something that you can share with us, so that people who are in similar positions can learn from you?

BR What can I tell you? Well they should listen to those women who actually made it.



The corporate world is very brutal world, very competitive, long, long, long, long hours, even longer than science, but then see how those women made it. Some women they will not have the life that you want to have, but then the women that they have the life that you want to have, what do they do? Indra Nooyi was a good example for me, people still listen to her when they had to take tips about how can you be successful because she's very successful and had two kids.

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And I remember she actually said something that was contradicting to everything, that women cannot have it all or do it all, that's actually a very bad sign, because this is putting too much pressure on you. So for me I think well I'm not going to be the most amazing mum who cooks and whatever, do those birthday cakes and whatever, no because I can't. And I think it's very important to know what you can do and what you cannot do.

And she also said that's all about delegation, if you can ask someone to help you ask someone to help you, if you have parents who can help you. And she's actually advised, even though she can afford day care, but she had to ask her mum to supervise the day care. So I like this practical application and the fact that we cannot always portray a woman as a hero who can do everything. I was like I think it's very bad.

SM Yes, it's quite toxic, and it puts so much pressure on the women.

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BR It's pressure, the stress is going to be so bad. But no, it's really about having some clarity of what you want to do, and this is where you put most of your efforts and you delegate as much as you can. And you focus on what do you want your kids to get out of you, so quality versus quantity if you can spend very little time. Because we end up spending very little time together, but it's good quality time and focus on this. It's just about being practical and not lying to yourself, and it's going to work out.

SM That's so hopeful, and that is so nice, I'm so glad we're ending on such a note. It will definitely help women to know that they don't have to have that kind of pressure, because like you say you cannot do everything. I can't even imagine what you are going through being a single mum in the middle of a pandemic and still doing science, so kudos to you really.

Thank you for listening to this episode of the Alba Diversity Podcast. To know more about the Alba network and its activities to promote equity and diversity in the brain sciences please visit [alba network](#). You can also register as a member for free and take full advantage of the network's resources. For more details follow the Twitter handle [@network_alba](#) or [AlbaNetBrain](#) on Facebook.

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