Fragile X Association of Michigan

eXtra, eXtra

Volume XVIII, Issue 2, April 2022

Mark Your Calendar

Support Meetings

When:

May 14, 2022
June 4, 2022
(No meetings in July, August & September)

Business Meeting
10 - 11 a.m.
Support Meeting
11 a.m. - 1 p.m.

Where:

Berkley Public Library
3155 Coolidge Hwy
Berkley, Michigan

Special Events:

May 21, 2022
Creative Arts Studio
See page 3.

July 14-17, 2022
18th International Fragile X Conference
San Diego, California
See page 3.

July 16, 2022
FXAM Moms: Let's Do Lunch!
See page 4.

August 13, 2022
FXAM Family Picnic
(more info to come)

Fragile X Association of Michigan
FXAM.org

Contact Information:
313-689-3340

PO Box 1414
Troy, MI 48099-1414

Three Cheers for...

In-Person FXAM Support Meetings -

(note *When/Where* updates to the left!)

Some are comfortable and happy with the return of in-person meetings. For those not comfortable or if the location is not an option, Zoom participation is an option.
See FXAM FB page and FXAM.org for Zoom details.

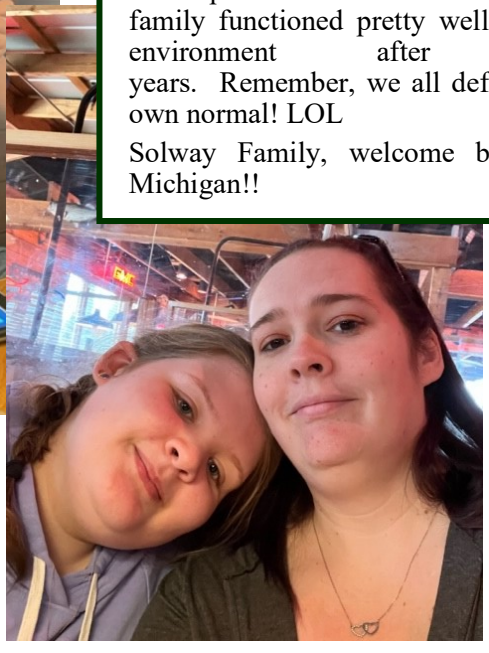
The library **strongly encourages** masking. You will have the option to remove your mask in the conference room where the meeting will be held.

May, June and October meetings will be at the library and then we'll reassess.

The Solway Family -

Celebrating in a restaurant in the U.S. in April! After not being able to cross the border for two years and the kids not eating in restaurant all that time, being in a Michigan restaurant was cause for celebration! Lockdown in Canada was very different than in the States. Your newsletter co-editor, Sally, cracked up when Tiah sent these pictures and noted that the family functioned pretty well in the environment after two years. Remember, we all define our own normal! LOL

Solway Family, welcome back to Michigan!!



Three Cheers for…

FMR1 Renamed - Thanks to the European Fragile X Network (EFXN), the words "mental retardation" will no longer be used to describe the FMR1 gene which causes Fragile X! The efforts of the EFXN, which consists of seventeen national Fragile X associations, have led to the renaming of the FMR1 gene to "Fragile X messenger ribonucleoprotein 1".

Families around the globe are celebrating the news as a significant step forward for acceptance and the removal of a term that evokes many negative feelings. FRAXA president and co-founder Katie Clapp expressed, "As the mother of a son and daughter who both have the full mutation for Fragile X but who are affected very differently, I am grateful to the EFXN for their work to create a positive, more accurate definition of the Fragile X gene".

Discovered in 1991, the gene responsible for Fragile X was named Fragile X Mental Retardation-1. The challenge with this description, in addition to the stigma around the language, is that many individuals with full mutation Fragile X do not have cognitive impairment. In fact, most females have normal intelligence.

Read more at: **fraxa.org/fmr1-renamed-to-fragile-x-messenger-ribonucleoprotein-1/**

From the President's Desk *by Heather Van Dam*

Dear Fragile X friends and families,

Do you know that the Fragile X Association of Michigan unites the Fragile X community to:

Enrich lives through educational and emotional support.
Promote public and professional awareness.
Advance research toward improved treatments and a cure for Fragile X and it's associated disorders.

The FXAM board is committed to doing that, but our community needs you! We need the participation of our families and friends to help our families and the state's Fragile X community to succeed. During Covid, our meetings were not able to occur in person and our families lost an important connection. In order for the FXAM board to continue to support our mission and fulfill our obligations to the FXAM community, we are asking all of our families to consider becoming a more active part of our group.

What can you do to be more active and help us to make the world a better place for those affected by Fragile X? Attend meetings either in person or by video. Share your experiences or answer questions from fellow members on our FXAM Facebook group. Share your stories and photos in a future quarterly newsletter. Email or message us about the types of support and events you would like to see offered. Become part of our board. Our newsletters are shared with more than 175 homes, but usually under 10 members attend our meetings. Please let us know what we can do to better reach and support our community.

Our next FXAM board and support meetings are Saturday morning, May 14, at the Berkley Library (address/times on page 1). There will be an option for a video call as well as the in-person meeting. We would love to see you in attendance!

Since May 2017, I have been honored to serve on the FXAM Board as the President of our organization. My family and I were welcomed with open arms and I have made lifelong friendships that helped me through some of the hardest times in my life. I will treasure them forever. After much thought and consideration, I have decided to step down as President. I do this with great reservation as I have loved my time as President but as with many of us, my life has changed and I no longer feel I can commit the time needed to this position. I intend to continue being an active board member of FXAM. Many of you may wonder what happened to make me plan to step down as President: (1) I am having hip surgery in May and expect to take most of the summer to fully recover with PT 2-3 times per week; (2) As part of the sandwich generation, Derek and I find ourselves caring for our parents in some form; and (3) Beginning in June, I will have to travel for work.

This is definitely not goodbye to you. I'll still be active on the board and at many of the meetings and events. I hope to see many of you very soon!

18th International Fragile X Conference

The 18th International Fragile X Conference is in San Diego, California!

If you've never attended a conference, please consider attending to connect with families, gather info from eXperts and come away with the supportive knowledge that you are not alone on this Fragile X journey.

If this isn't your first conference, you already know why you want to attend this Fragile X family reunion!

Go to fragilex.org/get-involved/international-fragilex-conference/ for more information and to register for the National Fragile X Foundation's biennial conference**! Please note that early bird pricing began on April 18 (no listed date when this ends**). Don't miss the discounted registration fees! Hotel information is also at fragilex.org/get-involved/international-fragilex-conference/; reserve your room early to make sure you're at the Town and Country Resort, San Diego, conference headquarters, at the $199 per night conference rate.

Once again, the Fragile X Association of Michigan is happy to be granting conference scholarships to help **our** members afford to attend this important conference. The final amount of each scholarship will be decided after we have the final number of scholarship applicants. **To apply for the FXAM conference scholarship**, contact Heather Van Dam (fab4fam@comcast.net) to let her know you are interested in the scholarship. Please mention in the email if you applying for a scholarship for one or two family members and their names. **Apply by Thursday, May 12**. FXAM will contact applicants with confirmation of their scholarship amounts by **May 21**. At this time, we DO NOT KNOW when early bird conference registration ends.

By July 31, you'll need to verify that you attended the conference by submitting receipts (hotel, etc) and after verification, will be paid the scholarship money by mid August.

Creative Arts Studio Ceramic Event

Saturday, May 21, from 1:30 p.m.

114 West 4th Street, Royal Oak, MI 48067
creativeartsstudios.com

$5 per artist. Adults are free. Pizza and salad will be served.

Limit of 18 artists and adults.
To reserve your spot, please connect with Tiah Solway on our FB page
or if not on Facebook, email jtsolway@rocketmail.com.

"It doesn't get easier, you get better" ~ *Unknown,*

And you get better by educating yourself and networking with others.

FXAM Moms: Let's Do Lunch!

Saturday, July 16, 2022 at 11 a.m.

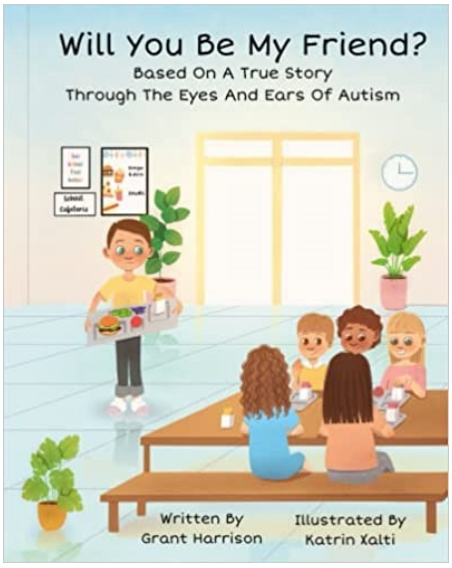
Can't make the trip to San Diego for the conference,
Come join us for some Mom-only time!
Seriously folks, we've got some of the best experts in our moms.
Email mblangan@hotmail.com so we so we can keep you in on our plans
plus we'll discuss the plan on our FXAM Facebook page.

Please note: This is not a free FXAM event. Each FXAM Mom will be paying for her own food/drinks.

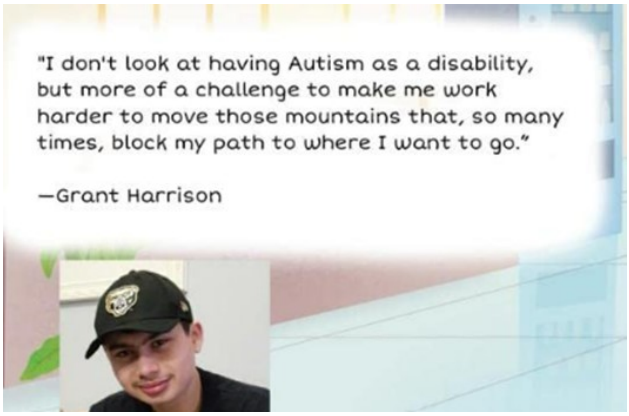
Between the Lines

"Will You Be My Friend?" by Grant Harrison

Reviewed by Kim Young



I happened to be watching the news the other day when they featured a metro Detroit senior from Utica Schools. He has Autism and wrote a book about his experiences feeling different as a child and always being alone. His book is currently the #1 seller on Amazon. He did an amazing job articulating what it's like to be him and what he went through. This might be a good tool for those choosing inclusion for your child. Could be a good one to read to the class. I always give a book as part of my gift at a baby shower-this will probably become my new go-to. Any chance to teach others about patience, understanding, and acceptance!



A kind word is like a spring day. *-Unknown*

Research - What's going on

The Aging in Toolbox Study - Stay tuned participants in the old Toolbox Study, it's going to be brought back. The Aging in Toolbox Study is an extension of the age range in the pre-existing Toolbox parent study. The aim of this project is to develop and validate a cognitive battery for aging adults (25 and up) with intellectual disabilities, as to enable more accurate tracking of cognitive development over time in this understudied population. Recruitment has started at the Mind Institute, UC Davis. Austin, Sally's son, had an email invitation from the MIND Institute to participate. Criteria to participate as noted by the MIND Institute:

This study is an extension of our ongoing Toolbox Study, which is aimed to optimize cognitive assessment tools for children and young adults with intellectual disabilities. We are extending our project to include older adults to better understand cognitive profiles in this understudied group. The study consists of:

- Up to 2 visits at the MIND Institute consisting of cognitive testing (including IQ Testing) and study partner surveys.
- 25 - 90 years old
- The first visit will typically last 5 hours.
- Some participants may be invited for a follow-up visit 1 month after the first visit. This visit will last 1-2 hours.

What else can be expected?

- $100 gift card compensation for your participation
- An opportunity for neuropsychological testing debriefing from a research staff member

The MIND Institute is many miles and time zones away so I, Sally, inquired if the study will be done in Chicago. It will but they don't have their IRB yet.

Combining Lovastatin and Minocycline for the Treatment of Fragile X Syndrome: Results From the LovaMiX Clinical Trial

Background: Limited success of previous clinical trials for Fragile X syndrome (FXS) has led researchers to consider combining different drugs to correct the pleiotropic consequences caused by the absence of the Fragile X mental retardation protein (FMRP). Here, we report the results of the LovaMiX clinical trial, the first trial for FXS combining two disease-modifying drugs, lovastatin, and minocycline, which have both shown positive effects when used independently.

Aim: The main goals of the study were to assess the safety and efficacy of a treatment combining lovastatin and minocycline for patients with FXS.

Design: Pilot Phase II open-label clinical trial. Patients with a molecular diagnostic of FXS were first randomized to receive, in two-step titration either lovastatin or minocycline for 8 weeks, followed by dual treatment with lovastatin 40 mg and minocycline 100 mg for 2 weeks. Clinical assessments were performed at the beginning, after 8 weeks of monotherapy, and at week 20 (12 weeks of combined therapy).

Outcome Measures: The primary outcome measure was the Aberrant Behavior Checklist-Community (ABC-C) global score. Secondary outcome measures included subscales of the FXS specific ABC-C (ABC-CFX), the Anxiety, Depression, and Mood Scale (ADAMS), the Social Responsiveness Scale (SRS), the Behavior Rating Inventory of Executive Functions (BRIEF), and the Vineland Adaptive Behavior Scale second edition (VABS-II).

Results: Twenty-one individuals out of 22 completed the trial. There were no serious adverse events related to the use of either drugs alone or in combination, suggesting good tolerability and safety profile of the combined therapy. Significant improvement was noted on the primary outcome measure with a 40% decrease on ABC-C global score with the combined therapy. Several outcome measures also showed significance.

Conclusion: The combination of lovastatin and minocycline is safe in patients for FXS individuals and appears to improve several elements of the behavior. These results set the stage for a larger, placebo-controlled double-blind clinical trial to confirm the beneficial effects of the combined therapy.

Read more at: frontiersin.org/articles/10.3389/fpsyt.2021.762967/full

Research - What's going on - *continued*

New insights into FXTAS could inform future research and clinical trials

Long-term MIND Institute study is the first to define how people with FMR1 genetic variant progress to disease. Peer-Reviewed Publication, UNIVERSITY OF CALIFORNIA - DAVIS HEALTH

After following a group of patients with a specific gene mutation for many years, a team of UC Davis MIND Institute scientists has provided important insights into how fragile X-associated tremor/ataxia syndrome (FXTAS) first develops. The work, led by researchers David Hessl and Susan Rivera, identifies new ways to study the disease and possibly test potential therapies in the future. FXTAS, caused by "premutation" expansions of the *FMR1* gene, has no approved treatments, only symptomatic management. The study was published in the *Journal of Neurodevelopmental Disorders.*

Read more at: eurekalert.org/news-releases/948399

Through the Maze

Fragile X News Today

fragilexnewstoday.com/#

BIONEWS
WE ARE RARE.

"Rare diseases demand rare resources. Because rare diseases are complicated, they can be resistant to normal treatments; they can be difficult to isolate; and they require specialized skills and care.

Maybe more than anything else, a rare disease requires information."

"BioNews is a leading online health, science, and research publication company that exists to improve the lives of patients living with rare diseases. We connect them with current, trusted news and information. We offer support, guidance, and insight. We empower, engage, and encourage. And we do it all with a rare level of empathy. Quite simply, BioNews is a resource that can literally change a patient's life.
And that is rare. "

BioNews does all of this with Fragile X, it is a one stop site to stay abreast of what it going on in the world of fragile X. You can sign up for their e-mail newsletters or simply visit the site regularly to keep up with what is going on in the world of fragile X or "rare" diseases in general.

"Flowers don't worry about how they're going to bloom. They just open up and turn toward the light, and that makes them beautiful."

– Jim Carrey

Between the Lines

"The Carriers: What the Fragile X Gene Reveals About Family, Heredity, and Scientific Discovery" *by Anne Skomorowsky, .*

Ms. Skomorowsky's new book is the talk of the Fragile X Facebook groups. Many Fragile X carriers are loving it and recommending it. Here is a recently published excerpt :

A whisper of autism: Fragile X carriers and the autism phenotype

BY ANNE SKOMOROWSKY / 21 APRIL 2022, *Adapted from* "The Carriers: What the Fragile X Gene Reveals About Family, Heredity, and Scientific Discovery"
spectrumnews.org/opinion/viewpoint/a-whisper-of-autism-fragile-x-carriers-and-the-autism-phenotype/

Margaret* was 46 years old when we spoke for hours by phone. Randi Hagerman, medical director of the MIND Institute at the University of California, Davis, had suggested that Margaret would be interesting to interview because she provided an example of the broad autism phenotype (BAP), a set of personal traits that might be called a hint or whisper of autism. Originally recognized in some parents of children with autism, BAP doesn't constitute a diagnosis. It's more of a clinician's impression.

BAP is sometimes described as an endophenotype, because it combines observable characteristics ('pheno-' means showing or appearing) with inherent, biological traits ('endo-' means internal or inside). Geneticists like endophenotypes — also called intermediate phenotypes — because they are thought to reflect underlying genetic predispositions. So a mother of an autistic child might not herself be autistic, but investigation of her genome might reveal variant genes that she has in common with her autistic child. Such a discovery can help geneticists home in on genes of interest.

Molly Losh, an autism specialist at Northwestern University in Evanston, Illinois, and her colleagues summed up what was known about the so-called BAP in a 2008 article in the *American Journal of Medical Genetics B: Neuropsychiatric Genetics*:

> *Converging evidence from a number of ... studies indicates that certain personality traits and social behaviors are observed more commonly among autism relatives than control relatives of individuals with Down syndrome. ... Both family history and direct assessment studies have reported elevated rates of socially reticent, or aloof personalities among autism parents, as well as untactful behavior, and fewer high-quality (i.e., emotionally reciprocal) friendships. Autism relatives have also been reported to more commonly display rigid personalities, showing relatively little interest in novelty or difficulty in adjusting to change in environment and activities, as well as perfectionistic or overly conscientious, detail-oriented traits. Finally, anxiety-related features ... also appear more common among parents of individuals with autism. These characteristics closely correspond to the social impairments, ritualistic/repetitive and anxious behaviors observed in autism, making them good candidates as autism intermediate phenotypes.*

Hagerman had treated Margaret's son, Joseph*, for **fragile X syndrome** with autism traits. Over the course of the treatment, she had come to know and become quite fond of Margaret. Hagerman's clearest memory of Margaret is the repeated phone calls Margaret made to her during the early years after Joseph's diagnosis. Mothers of her fragile X patients are often eager to talk to Hagerman, but Margaret was particularly relentless, asking the same me to be accurate descriptions, and I think that Margaret would acknowledge them.questions over and over, almost begging at times for reassurance that her son would be OK.

Margaret was very helpful to me, tolerating a lengthy interview and sharing her life history unsparingly. But "untactful," "rigid" and "hypersensitive" — Molly Losh's terms — seem to me to be accurate descriptions, and I think that Margaret would acknowledge them.

She describes an isolated childhood, with depression and eating disorders as far back as she can remember. She had no friends and was bullied. Her interests were, and still are, solitary: reading, knitting, libraries. She told me, "I'm depressed; I'm not normal; I was weird in school. I would do what anyone wants if I would

Between the Lines - *continued*

meet a man." That last sentence reflects what executive-function researchers call impulsivity, and BAP researchers call "lack of tact" — a failure to inhibit a conversation-grabbing digression.

Margaret was hospitalized twice with bulimia as a teenager. She described driving around her hometown alone, binging and purging in the car. "I had severe depression, always, problems getting along with people, choosing bad men, in very abusive relationships, bad choices. I don't feel good about myself. Whatever I do, it doesn't work out."

She found out she was a carrier of fragile X syndrome when Joseph was diagnosed. As a carrier, she has an alteration in a gene on the X chromosome that codes for fragile X messenger ribonucleoprotein 1 (FMR1). Carriers have what is known as a 'premutation' — excessive repetition of the nucleotide sequence cytosine-guanine-guanine (CGG) in this gene. That expansion is insufficient to cause full-blown fragile X syndrome, but it makes the gene unstable and prone to expand further in subsequent generations, as it did in Joseph's case, causing the full syndrome. Many carriers are unaffected by the altered gene, but others have a variety of health and cognitive issues.

It's apparent when speaking with Margaret that she is very intelligent but has difficulty expressing her thoughts appropriately. This trait is consistent with BAP but is also characteristic of some people with the premutation. Many researchers have shown that symptomatic premutation carriers tend to have deficits in executive function — the aspects of cognition that involve planning, setting priorities, processing feedback and staying on task. Margaret's behavior from her youth to her current age is rife with executive dysfunction. But this impairment is also visible in *how* she tells a story: full of non sequiturs, repetition, oversharing and an inability to judge how she is being heard.

Some researchers divide BAP-related difficulties with pragmatic language into two camps. People who control conversations and are excessively verbose have a "dominating" style, described in a 2012 paper by Losh and her colleagues as "overly detailed, vague, tangential, overly frank, pedantic, overly talkative, no reciprocation, topic preoccupations and interruptions." This surely applies to Margaret. Those with a "withdrawn" style offer too little information and require much prompting.

Even infant girls who carry the premutation and are too young to speak can display behavioral, gestural elements of BAP. In one 2016 study, premutation carrier babies had fewer gestures than average and poorer eye contact. The researchers write: "These results suggest that infants with a premutation may present with subtle developmental differences as young as 12 months of age that may be early markers of later anxiety, social deficits or other challenges thought to be experienced by a subset of carriers."

Why bother with BAP?:

About 14 percent of boys with the premutation meet the criteria for autism, and about 5 percent of girls do. But the premutation-related endophenotype — the hint of autism, sometimes evident from birth — may be far more common.

So why should anyone care about BAP, which is not even considered a diagnosis but more of an unusual personality style? Because the premutation carrier's susceptibility to BAP may shed light on the cause of idiopathic autism, or autism of unknown cause. FMR1 mutations are the most prevalent known single-gene cause of autism and the most common inherited cause of intellectual disability. That means that investigating premutations of this gene can help researchers home in on the high-support forms of autism found in many people with a full mutation. When we know precisely what alterations in FMR1 do in the brain, we will understand at least one relatively common cause of autism, and with luck we can extrapolate it to others.

This relationship is far from completely understood, but it seems that the FMR1 protein, FMRP, which is absent in people with fragile X syndrome and poorly regulated in those with the premutation, interacts with more than 100 different genes suspected to be involved with autism.

Thus, FMR1 has an effect on multiple genes that may lie behind the complex genetic disorder that is autism.

Between the Lines - *continued*

Abnormalities in FMR1 production and in associated messenger RNA could constitute some of the many 'hits' that are hypothesized to be responsible for autism of unknown cause.

Stuck in the middle:

Research has shown that although many male premutation carriers have subtle autism traits, female carriers are more prone to obsessive-compulsive tendencies and anxiety. Because all men with premutations pass their X chromosomes and premutations to all of their daughters, this leads to a recurring situation in carriers: that of a young girl who is anxious and obsessional being raised by a father who is rigid, perfectionistic, has limited interests and is often of a solitary nature — in other words, a father with BAP. That describes several female carriers I have interviewed, including Mara.*

When Mara was just 25, before she considered having children, she saw a gynecologist to evaluate her chronic pelvic pain. The pain was so bad that after walking around for several hours while working the night shift at a cable news station, she could barely stand. During this same period, Mara began to notice that her father, Stefan, was struggling with his own health challenges. He had developed a tremor and was having trouble getting up from a chair. A neurologist had diagnosed him with Parkinson's disease, but now we know better: Stefan had fragile X-associated tremor/ataxia syndrome (FXTAS), a movement and gait disorder that often occurs in older carriers. Mara's pelvic pain was eventually diagnosed as another condition associated with the premutation: fragile-X-related ovarian primary insufficiency (FXPOI), which can cause infertility and premature menopause.

Stefan had retired from a career as a certified public accountant. His hobby was rocketry. His greatest pleasure, Mara told me, was blowing things up. As a much younger man, he was prone to road rage and did not seem to care that his reckless driving put his children in danger. He hardly played with his children, although he would take them along on rocket launches and to hobby stores, often lecturing them on technique. He never joked and rarely laughed. When I asked Mara if she had ever wondered if he was on the autism spectrum, she said she had. When I asked her if she had ever wondered if *she* was on the autism spectrum, she said no: "I think it's more that I was raised to think nothing I ever did was good enough. Now I can't look anyone in the eye because I am so unsure of myself."

At the time of this writing, Mara, now 42, has been lucky enough despite FXPOI to have two sons: Tommy, 12, and Matt, 14, each of whom also carries a premutation. Her boys are what Hagerman calls "high-level" premutation carriers, with 180 and 166 CGG repeats respectively — just short of the 200 or more repeats that cause fragile X syndrome. Hagerman says that such carriers experience a double hit*:* They have traits related to toxic mRNA from their expanded CGG lengths, and they are likely to have low FMRP levels compared with children who have fewer repeats. Neither boy is intellectually disabled, but both struggle with mental health and behavioral problems. "I love my sons," Mara told me. "But this has been hell."

Tommy, whose challenges are more obvious, according to Mara, has been diagnosed with attention deficit hyperactivity disorder (ADHD) and mood instability. He is anxious and has a phobia of pigeons. Crowds, smells and loud sounds upset him, and he has poor coordination, including difficulty writing. He is good-natured but very vigilant. "He talks all the time, runs ahead of everyone else in the group — it can be hard to take," Mara said. "Matt beats the shit out of him, because it drives him crazy." Tommy takes clomipramine, an older antidepressant, for his phobia, and guanfacine, or Intuniv, and methylphenidate, or Ritalin, for ADHD. He takes aripiprazole, marketed as Abilify, to stabilize his mood.

Tommy's speech is unusual. He stays on a subject too long, and he occasionally uses the third person inappropriately or resorts to baby talk. His speech is cluttered with words that bunch together, and he often leaves out a letter or a word. These are examples of 'pragmatic language violations' — pragmatic referring to how language is used in conversation. Tommy doesn't look people in the eye, and he talks to himself. Although more than one psychiatrist has told Mara that Tommy does not meet the criteria for autism, in my view, he surely meets the criteria for BAP.

Between the Lines - *continued*

Matt has been diagnosed with bipolar disorder. He had his first manic episode around age 11, when his pediatrician started him on sertraline (Zoloft) to treat his anxiety. He became sexually preoccupied, got knives out from the kitchen and carried them around, and beat his little brother with a rod. He told his mother, "I'm having violent thoughts, but I don't want to kill anybody." Now he takes the same three medications as his brother, plus venlafaxine (Effexor) and sodium valproate (Depakote).

Mara's family is a classic three-generation fragile X family — three generations of premutation. The grandfather, now with FXTAS, previously with BAP, was withholding, humorless and disapproving to his children. Mara internalized his disrespect for her, and that, combined with a premutation woman's tendency toward mood and anxiety disorders, led her to dislike herself and, at times, her sons. Meanwhile, the boys, with their high-level premutations, are intellectually intact, but Tommy in particular has many social behaviors common to both fragile X syndrome and autism.

What it means to be 'typical:'

A hint of a condition — a pattern such as BAP — shines a light on what it means to be neurotypical and what constitutes an actual condition. A boy like Tommy is, in his mother's words, "obviously strange" in terms of his behavior and language. But Tommy doesn't have autism; he has BAP.

Thinking about the 'neurotypical' person and neuropsychiatric conditions got me curious about myself. You can't spend years researching a condition whose symptoms can include everything from anxiety to dementia to nothing and not wonder where you fall on the spectrum of risk.

Hagerman had been after me for years to get tested for the premutation because of my own medical history. I thought it quite possible that I was a carrier. I'm an anxious person, and I had autoimmune thyroid disease, which is common among carriers. My periods had stopped a few years short of the U.S. average. And as my father aged into his 80s, he developed a tremor and sometimes fell when he tried to sit down. Maybe he had FXTAS.

I finally decided to get tested after I learned I needed a pacemaker to adjust my slow heart rate — another symptom sometimes found in carriers. I pondered what I would tell my daughters if it turned out that I was a premutation carrier. But that turned out not to be the case. Testing showed that I had two FMR1 alleles, like all neurotypical women. Both had 29 CGG repeats — not too many, not too few.

My heart rate had slowed because of something called sick sinus syndrome, which means that something was wrong with the pace-setting sinus node of my heart. My period stopped in my late 40s because, well, it just did. And I had thyroid disease because thyroid disease is common. And anxiety? Don't we all have that, at least some of the time? As a doctor, I know that when you hear hoofbeats, you should think of horses, not zebras.

So none of those problems had anything to do with an FMR1 mutation, right? But once your eyes have been opened to what a "silent" mutation can do, it keeps you wondering. Maybe my health problems, or even my character, had to do with some as-yet unnoticed mutation, another bit of underappreciated DNA. To me, this relieving result only adds to the mystery of the premutation. How many others are out there, waiting to be discovered?

** Margaret is a pseudonym, as are the names of other individuals in this excerpt. Some of their personal details have been changed for anonymity and clarity.*

Skomorowsky is clinical instructor in psychiatry at the NYU Grossman School of Medicine and an attending psychiatrist at NYU Langone Hospital. Her writing has appeared in The New York Times, The Washington Post, The Wall Street Journal, Scientific American *and* Slate.

eXtra, eXtra

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313-689-3340

contact@fxam.org

FXAM.org

The Nantais Family -
Celebrated spring break at Universal. It's amazing what you can talk Austin into when his sisters come along.

Ted and the Easter Bunny -
Would like to wish the FXAM Family a very Happy Spring 2022!

"If we don't inspire, motivate or support one another, we have no business being in contact" ~ *Unknown*