



# Beyond the Surface

Data visualizations of mental health

## Why this project exists

As a creative, I am interested in understanding the human condition. Most of my projects so far have reflected this, I explore topics such as culture, language, and mental wellbeing. In 2017, I did an embroidery project detailing the types of anxious thoughts I had. A few years later, someone sent me a message telling me how my work resonated with them. They were surprised that someone else had the same kind of anxieties. My assumption was that they were from a conservative place that didn't talk about mental health. They told me they wanted to try out my project to better understand their own mental health.

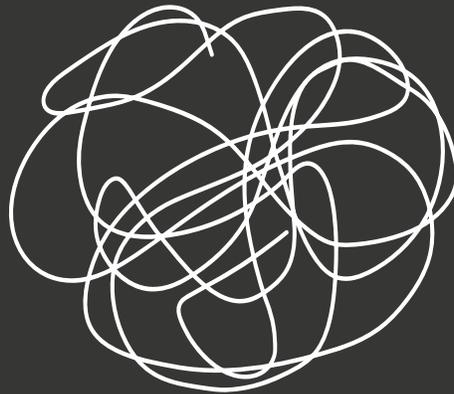
My project on anxiety made me realize how documenting my life through data could help people better understand who they are. The power of visualizing data comes from being able to see it. Once we see it, we begin to understand. And when we start to understand, we develop an awareness of ourselves, which allows us to change who we are.

The project I did on anxiety only scratched the surface of mental health. I felt that there was potential for me to go deeper on this topic. I drew inspiration from Pictal Health. Katie McCurdy, founder of Pictal Health, visualizes the medical history of patients. And I started to wonder, "could I do this for mental health?". It would be interesting if I could see trends by plotting my mental health over an extended period. I've spent about 10 years on and off with therapy and couldn't show my progress over time. Apps and gadgets do a great job at measuring our physical health, such as weight, blood pressure, number of steps we walked, etc, but fall short on tracking our mental wellbeing.

So, I set out to make this project. For several months, I collected data on my mental health from April 2019 to June 2019. The method for collecting data was loosely based on thought records used in CBT (cognitive behavioural therapy). I had data structured around situation, thoughts, and feelings for the day.

This project is an expression of the data I collected on myself. I have designed it as an internal dialogue, which almost mimics the therapy sessions I used to have. In this dialogue, there are two parts of me present. The first is the one that I felt was rational. It is the one that wanted to get better and it could see consequences. I call this side Jane. The other self is less rational, it thinks and behaves in ways that don't make any sense. For example, this self would procrastinate, fixate over small details, or jump to drastic conclusions. I call this

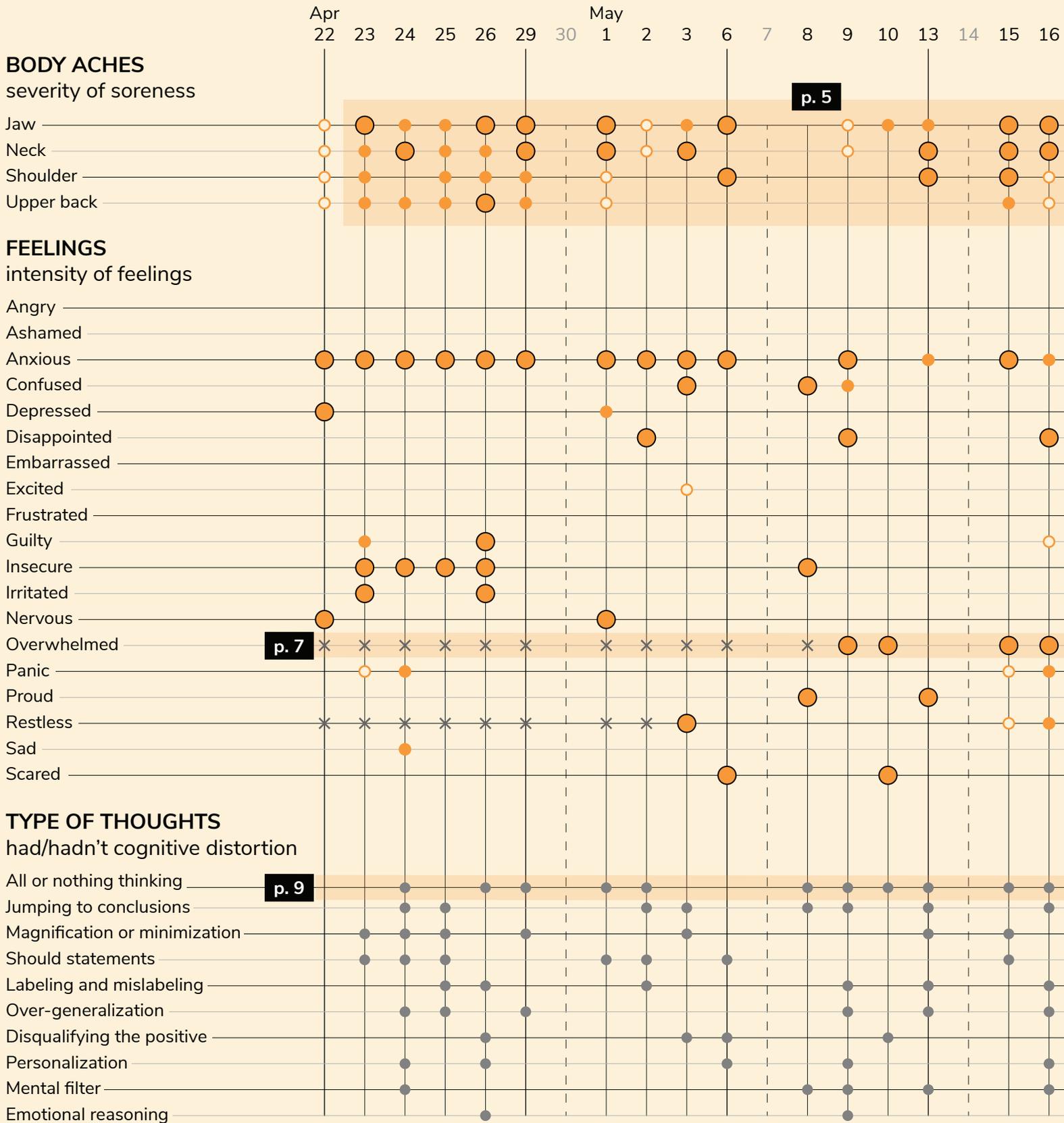
self Wyn. Wyn is the side that caves into unhealthy thought patterns, while Jane is the one who sees this happening and tries to make it better. Writing the interpretations of the data as a dialogue helps me feel more comfortable talking about it. Talking about my mental health in almost a third-person perspective makes this easier and almost 'safer' to do so.



The concept for this project is to untangle. I view the thoughts and emotions I feel like a big ball of yarn. All the information is cluttered and unclear. I've created the stories in this project as I would approach data. I start with an overview analysis of the data available. I look for things that stand out and understand why. I hope that this project offers insights into mental health and how it affects people like me.

# Aches, feelings, and thoughts

A high-level overview of the key metrics from Wyn. Read more about the stories from the highlighted sections on the page tagged.

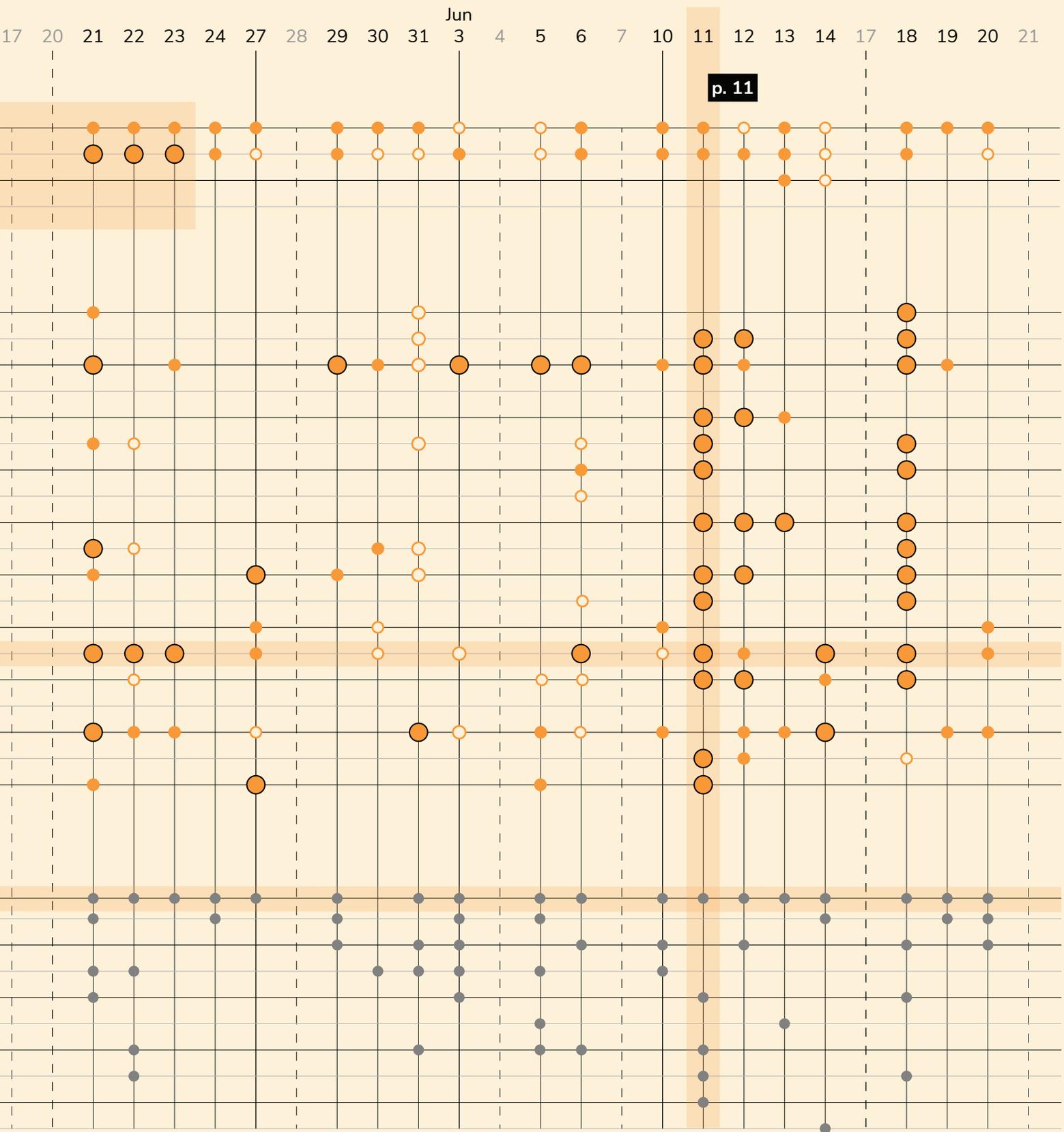


- 1 = A little
- 2 = Somewhat
- 3 = Very

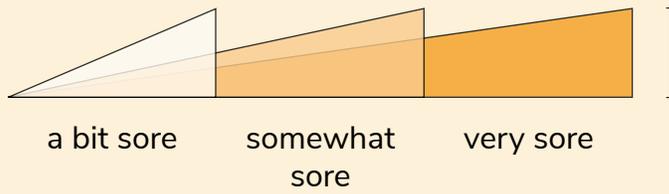
Data was not collected on this day

p. 13

× Data was not collected for this variable (this variable was introduced later in the data collection stage)



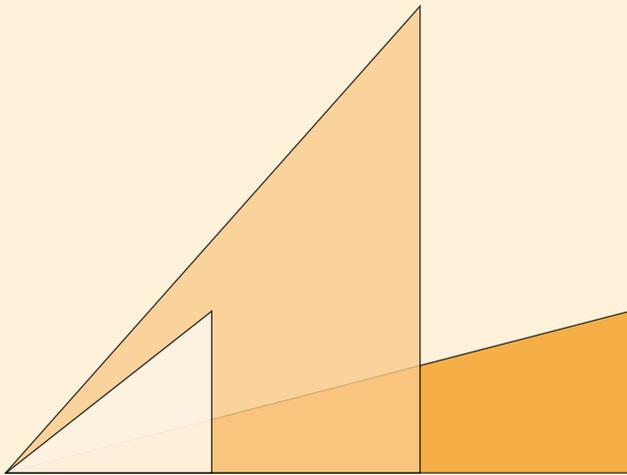
# Sore all over



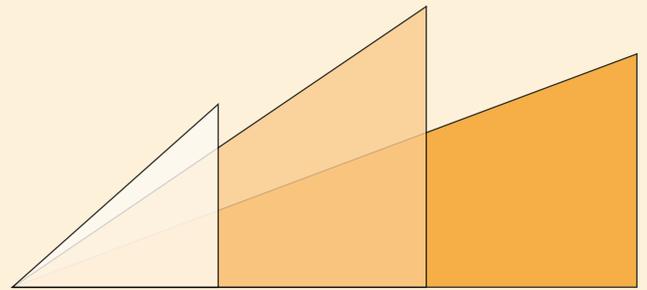
Height: # of days felt this way (full data set shown from April 22 to June 21).

In general, Wyn's Jaw was sore more often than other areas.

Despite the incidents of soreness being lower in her neck, her neck experienced the highest frequency of severity.



**Jaw**



**Neck**



**Shoulder**



**Upper back**

*Jane: Wyn experiences muscle tension when she is chronically anxious. Her soreness causes a feedback system that exacerbates her anxiety.*

---

**Jane: You had a lot of muscle pain from the end of April to early May. Why was that?**

Wyn: This was a very stressful week for me. A lot of things happened, and I just had a very hard time dealing with them. When I get very stressed out, my jaw tenses up and my whole neck gets sore. It ends up affecting my entire back and hips sometimes.

**Since when did you have this kind of response to stress?**

I developed this response when I was in school. I was chronically stressed out and one day, my jaw suddenly tensed up. I would notice it but ignore it. Over time, it would happen when I was not conscious of it. It became a problem when I started clenching my jaw for a prolonged period; I would clench my jaw for days and then my neck and back would start to get very tense. It ended up being a terrible cycle where my sore muscles affected my mood. It was awful.

**Have you tried things like massage therapy or meditation to help remedy this?**

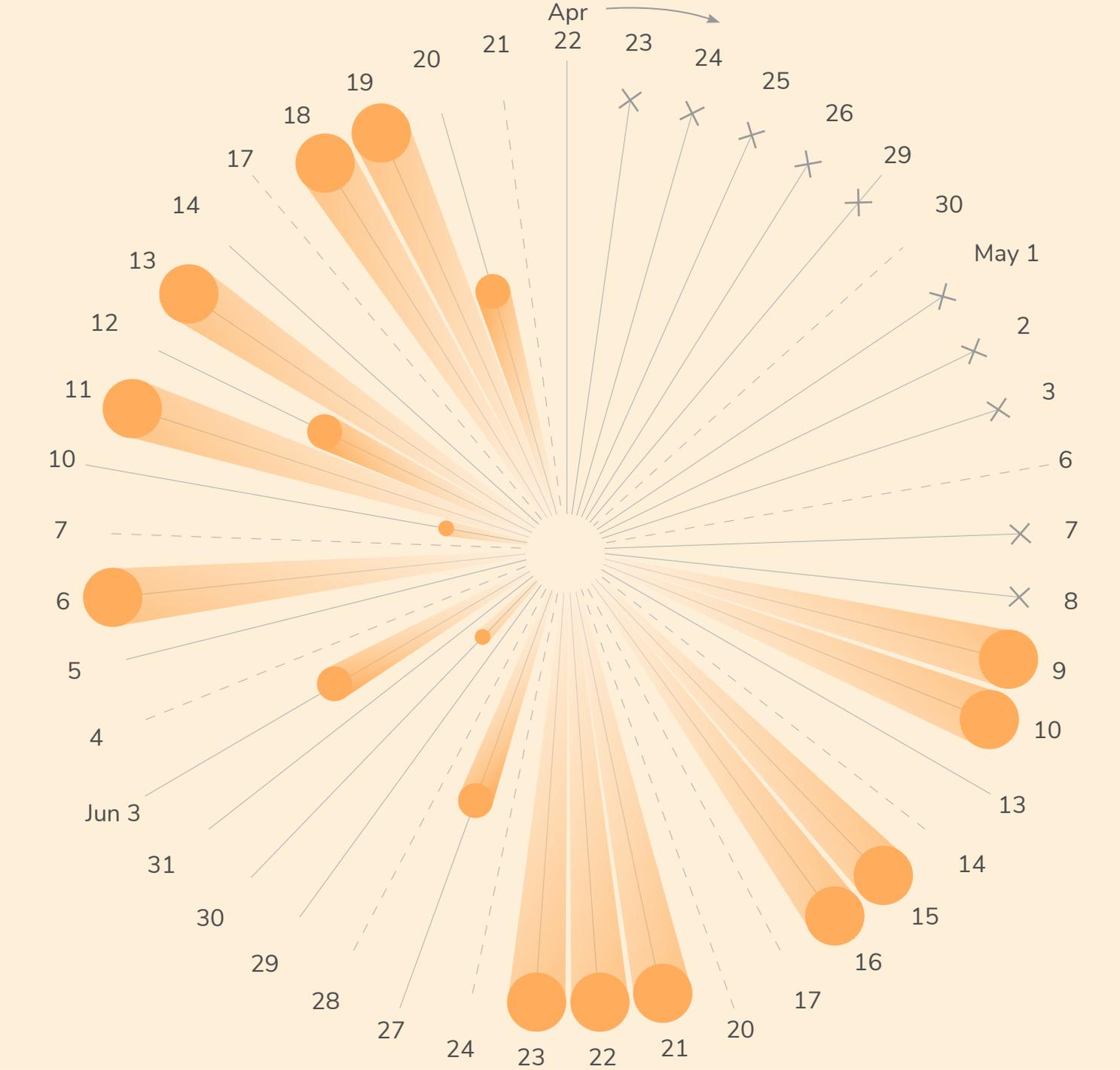
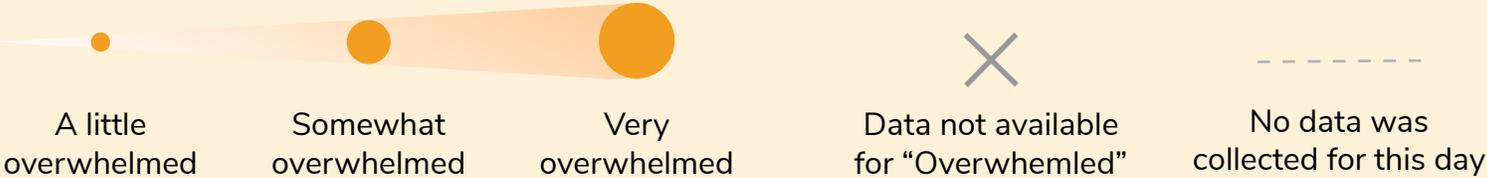
I've tried massage therapy but the effects didn't last. I saw a dentist and got a mouth guard, which is helpful, because I also clench my jaw at night. But the problem still persists. I've done a lot of counselling, and that has been educational, but I still have sore neck muscles. Over the years, it's gotten more serious. It used to affect me once or twice a month. Now, it happens every week, almost daily sometimes. For a long time, it felt like my body was punishing me. I got very frustrated and felt so powerless. I felt there was nothing I could do to alleviate my pain. But after all these years, I am looking at it differently. I now look at it as a feedback system.

The body sends signals when it feels like something is wrong. From an evolutionary perspective, anxiety or fear was meant to let us know when we are in danger. These feelings tell us to take action and address the danger. But in today's society, there's constant stimulation from the environment and I am anxious all the time. It can be overwhelming. I got good at ignoring my feelings because it was too much to deal with. As a result, my body took measures to make these feelings more noticeable. It decided to make me clench my jaw, which in turn makes my neck and back sore. And that works. It catches my attention. There have been cases where it doesn't catch my attention and gets more severe. In these cases, my body goes one level higher and makes it hard for me to eat. My gut would be tight and I feel an acidic taste come up into my mouth from my esophagus. I start to lose my appetite and become weak. That is when I can no longer function in my daily life and I need to stop.

**For you to take care of your health after you get sick doesn't sound sustainable.**

It's not. I used to be good at managing my mood and was confident enforcing CBT practices. I was good at identifying triggers from my environment, writing out the thoughts going through my head, and doing positive self-talk. But as I entered adulthood, it just became too **overwhelming** for me. My life got more stressful and there were too many things that were triggering stress and anxiety. It was very hard to process everything.

# Overwhelmed



*Jane: A new insight we found was that feeling overwhelmed has been causing Wyn to feel anxious. Addressing why she feels overwhelmed is key to alleviating anxiety.*

---

**Jane: It sounds like being overwhelmed is a source that stresses you out. It's interesting to me that you asked me to add this to the list of 'feelings' in the middle of data collection.**

Wyn: I was surprised with this. A lot of my thought records started off with 'I'm overwhelmed' and I got tired of writing that each time. When I took a step back to reflect, I realized that I was focusing on the wrong thing. It's not that I should deal with anxious feelings, it's that I should figure out what's causing me to feel overwhelmed. I was feeling anxious a lot of the time because I was overwhelmed. It seemed like this observation should have been obvious, but it wasn't.

**How often do you feel overwhelmed?**

I feel overwhelmed most of the time.

**Why?**

I have workaholic tendencies. I try to do much all at once and get restless if I am not productive. It's almost like an addiction.

**Where do these tendencies come from?**

I think there are many influences. In terms of work culture, we are living in an era where hustle culture is highly celebrated. I look up to this and try my best to live it. Another influence would be from my parents. My parents are immigrants, they are the first in the family to settle overseas in Canada. I grew up watching them work hard all the time. They owned their own business and never stopped working. They didn't take vacation or have weekends off. Their work became their life. Being so close to this workstyle, it was contagious. When I saw them work so hard, I felt the need to do the same.

**Are you happy with how you currently balance work and life?**

Working for myself, there are no boundaries between work and life. I have learned from experience to dedicate time just for family or friends. I've burned out many times before and I think sometimes they are inevitable. I have noticed that when I have too much spare time on my hands, I get restless. I have a very strong desire to be productive and be someone who is useful. It's very hard for me to just sit still and do nothing.

**Why do you have a need to be productive?**

It feels validating. I feel that I am working towards something and that I can attain success in this way. Workaholicism hasn't been healthy, but it can be very rewarding when the efforts are paid off. If I'm not making progress, I feel like I am falling behind.

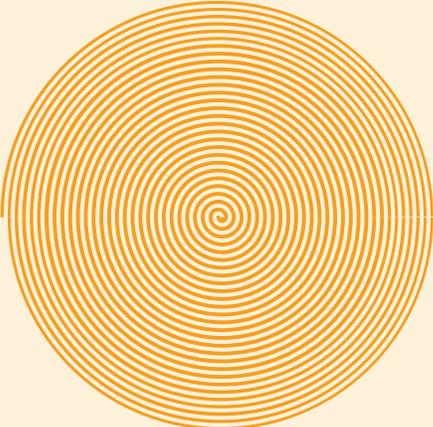
**What does it mean to fall behind?**

It's a feeling of standing still while watching others move forward. It's a feeling where I need to keep doing and that I cannot afford to stop. It prompts me to do more than I can handle. It sometimes makes it hard for me to sleep. Sometimes, it feels like **failure**. I feel as though I am not trying doing enough to ensure success.

# Going in circles



Number of days Wyn had this particular cognitive distortion. The larger the circle, the more days she identified this cognitive distortion (full data set shown from April 22 to June 21).



**29**

All-or-nothing thinking



**16**

Jumping to conclusions



**15**

Magnification or minimization



**14**

Should statements



**10**

Labeling and mislabeling



**8**

Over-generalization



**8**

Disqualifying the positive



**8**

Personalization



**7**

Mental filter



**3**

Emotional reasoning

Jane: The cognitive distortions Wyn identified are ingrained thought patterns that she learned to reinforce. We identified perfectionism as a major source for overworking.

---

**Jane: How do you define what failure looks like?**

Wyn: That's very subjective. In school, you failed if you didn't pass a grade, which was 50%. My definition of failure was at a higher baseline. From a young age, getting a grade below 80%, or an A, was deemed by my parents as a fail. Things were very black and white. It was very much focused on the results and there was no grey area. It didn't matter how much I studied; anything less than an A was unacceptable. This was one of the first instances of how I understood what failure looked like.

**Here's a thought record you had about being late. You quickly attributed yourself as a failure:**

*I am late. How could I? [I] feel like a complete failure. (June 6)*

**A lot of people are late but that doesn't mean they are failures. Why did you think this way?**

I have high expectations of myself. Sometimes they aren't realistic. But that's just because I'm a perfectionist. If I was late for 5 minutes, I would immediately think that I failed to be punctual.

**Looking at your cognitive distortions, it does point to perfectionist tendencies. All-or-nothing thinking is the most common you have identified, which aligns with the 'black-and-white' thinking you mentioned.**

Perfectionism has been the cause of inflexible thinking and it is big problem in my life. I see small mistakes as an indication of failure. I agonize over mistakes that even the best of us could make. When I make mistakes, such as being late or sending an e-mail with a spelling error, I am quick to make a

conclusion about who I am. And that conclusion is that I'm a failure because I'm not good enough. Or that I didn't try hard enough. I would then punish myself and say how I should've woken up early or I should've triple-checked that e-mail.

**What does it mean if you are a 'failure'?**

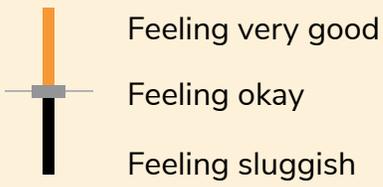
I feel worthless. It's going to sound harsh, but I think I don't deserve happiness. It's hard to explain. I've learned to associate positive emotions with getting an A on my report card, I was felt loved and cared for. But the flipside is that if I ever got anything lower than an A, then I assumed I wouldn't be loved and that meant I wasn't wanted. Failure has deep connotations beyond just getting an F. It was tied to who I was and my place in this world.

**It looks like your workaholic tendencies and perfectionism are connected.**

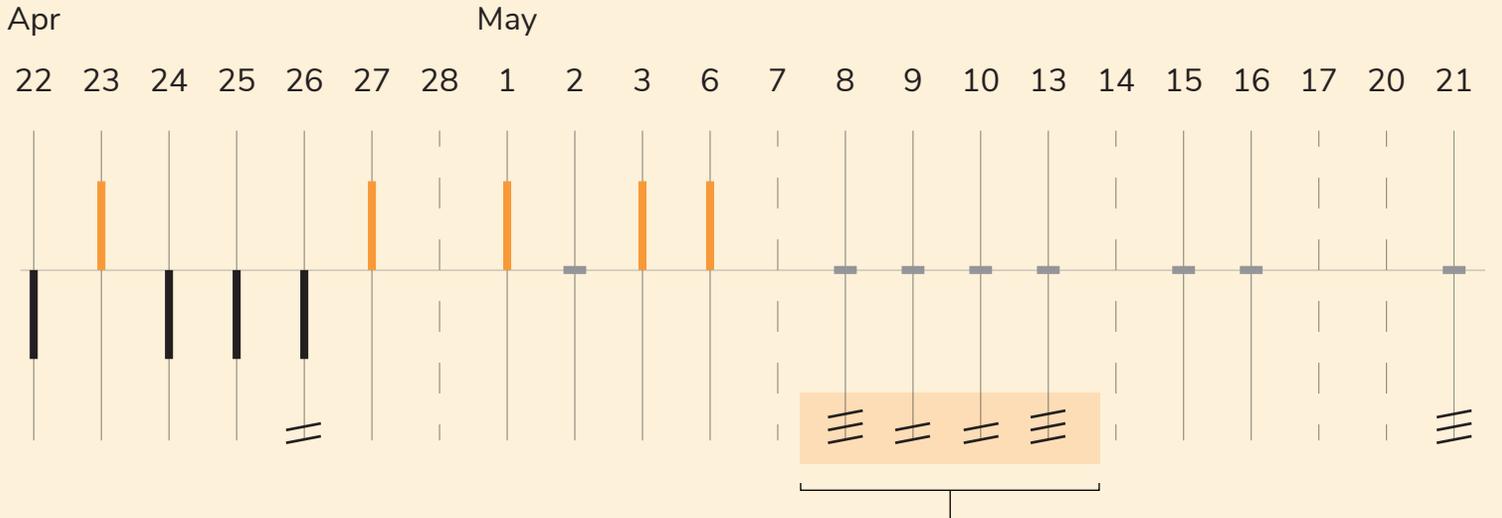
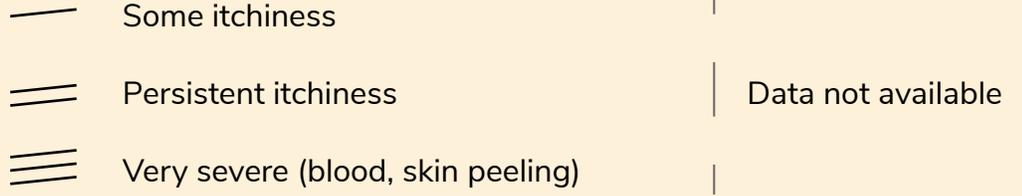
It's all connected. I have high expectations and work hard to meet them. And often, the expectations aren't realistic. I get stuck in this goose chase where I constantly try to reach for a goal I set too high. This causes me to not feel a sense of achievement, so I just try to do more. Which I guess is why I can come to feel overwhelmed. I have found that my body has a limit. That when all of this happens to me, there is a time when I can't take it. I just **burnout**.

# Crashing

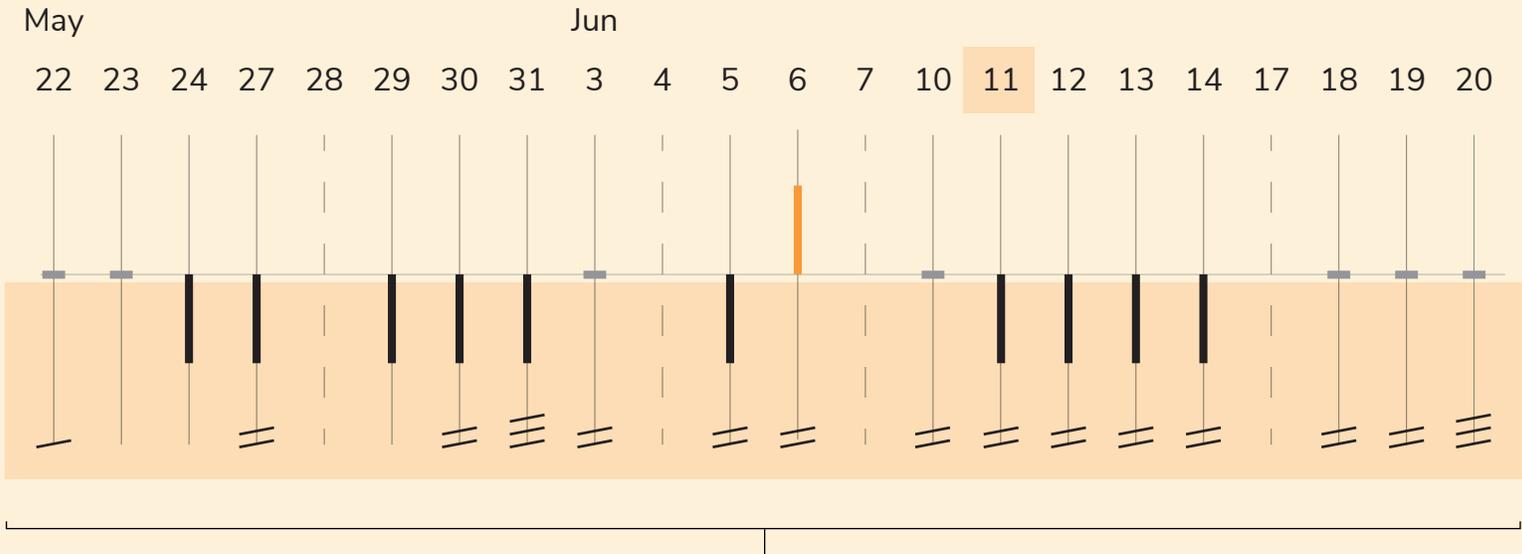
## Energy levels



## Eczema



Wyn's eczema started to flare-up here



Compared to the previous period (Apr 22-May 21), Wyn started to consistently feel more sluggish and her eczema was flaring up more. On June 11, she crashed and burned out. She continued to feel the effects of burnout in the following week.

Jane: On June 11, Wyn burned out. Since the end of May, Wyn's eczema and energy levels were showing signs of her starting to burn out.

---

**Jane: On this day, it looked like you were experiencing a lot of emotions. Your thought record showed that you were hard on yourself:**

*I feel empty. Like I have nothing left to offer. I felt like I did a horrible job yesterday. Despite being told I did well. I felt useless. I felt like I failed. I feel I am at fault for my own situation.*

Wyn: Simply put, I crashed. It's like the end of a sugar high. I had a lot going on that week. The most nerve-wrecking thing that week was a presentation I had to do in front of a large group of people. I knew these people and worked with some of them, but I was still nervous. I spent a lot of time preparing it. After I delivered the presentation, I just turned off. I went blank. Like a puppet, I collapsed when all the strings were cut loose. I can't tell you why or how. It just happened.

**You noted that you were told you did a good job. But you didn't perceive it that way. Why?**

I guess I don't believe them. I feel that maybe they are being nice and they didn't really mean it. I guess I tend to downplay the good things that happen. And this was an observation I noticed as I was collecting data. I tended to think in the negative direction. When I take a risk, I see how things could go wrong, I don't acknowledge myself for being brave for facing my fears. I put the spotlight on things that could go wrong.

**Why do you tend to focus on the negative?**

It might go back to how I was raised. My immigrant mom is overprotective. She worries a lot and warns me of negative consequences by exaggerating

them. She has a tendency to emphasize how things will go wrong rather than how it could be positive. I know it's just her way of showing she cares. But having it repeated for my entire life makes me suspicious of life. I don't always see the silver lining. And maybe this is just what happens when you are immigrants. You can't take chances and minimize risk where possible.

**What happens after you crash?**

I become hollow and feel I have nothing more to offer the world. I feel lethargic and have no motivation to do anything.

**The weeks that led to you 'crashing' shows that your eczema was more persistent. Why?**

When I get stressed, my eczema can act up. My skin becomes dry and it can get itchy when I am very stressed. I had severe cases during my exams when I was still in school. Most of my hand was affected and there was blood from scratching it too much.

**How do you cope through this?**

It's very hard to cope through this. I usually get over this with time, but it's never easy. This is why I am so interested in this project. I want to become better. I want to improve. I want to stop being a slave to my habits and emotions. I want to break the cycle of thoughts that tread through my mind. And to do that, I need to see things differently, I needed to build **awareness** of the thoughts that go through my head. If I can identify the thought, analyze it, and understand it, I know I can change it.

# Minding the data

Apr 30

May 7

May 14

May 17  
May 20

May 28

Jun 4

Jun 7

Jun 17

Jun 21

*Jane: The orange strips show all the days when Wyn did not complete the survey. It was a big challenge for her to consistently collect data.*

---

**Jane: I see that you didn't do the survey everyday. Why was that?**

Wyn: Filling out the survey was challenging. It's very hard to be present with my thoughts. I managed to do it because I was on the train going to work with nothing to distract me. No wi-fi, no social media. Just my thoughts. There were some days when I worked from home, so I just skipped the survey altogether.

**Why was it hard to complete the survey while you were working from home?**

I got too distracted and thought I had better things to do with my time. Maybe I was scared, I just didn't want to think about the things that scare me. Being alone and present with my thoughts is hard. The thoughts aren't always positive. I'd rather pore over my Instagram feed than deal with my thoughts. To be honest, it's kind of too bad that I couldn't pull through to collect data every single day. I wish I was stronger so I could've collected data on weekends. I noticed that my weekends were hectic and often stressful. It would've been helpful to have data so I could figure out how to make my weekends less stressful.

**How has this project impacted you?**

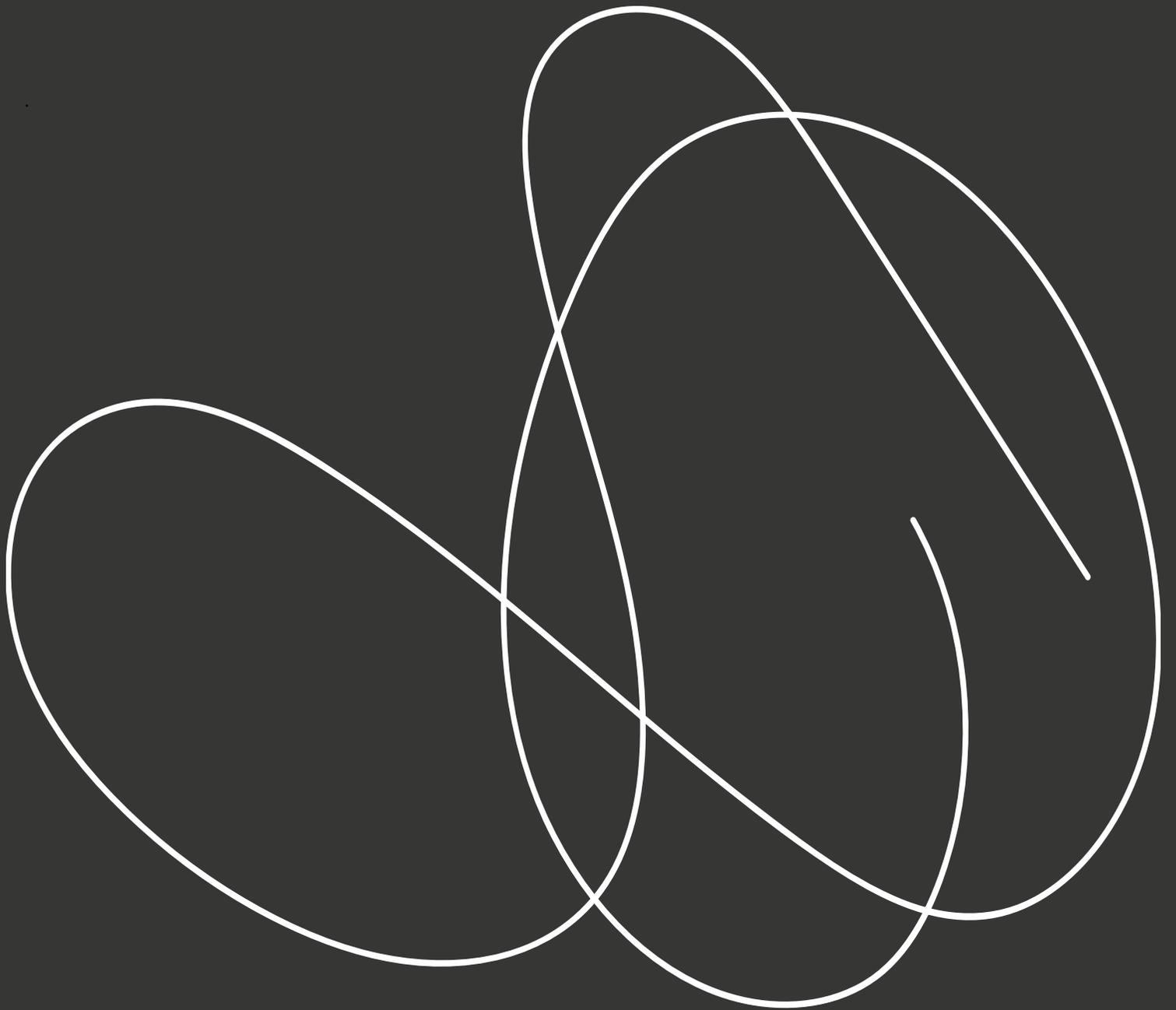
I started to notice new things about myself. It's like putting on glasses with a new prescription, the details are crisper and more obvious. For example, when I learned to put a word to the feeling of 'overwhelmed', I realized that I was trying to do too much in too little time. I started to work backwards and wonder why I was working so much. What drove me? Why was I this way? When I start to think this way, I start to see things differently.

**What was the most surprising thing you learned in this project?**

It wasn't something new because I knew about this before. I re-learned that to this day, my upbringing as a child still affects how I live as an adult. All the manifestations I have from anxiety (muscle soreness, eczema) was due to working too much. Why did I work so much? It was because I was a perfectionist and had high standards. This meant it was easy for me to define outcomes as failures. I feared failure since I was young. I learned that failing meant I was going to be worthless. Since I was a child, all of these type of thoughts have been countless reinforced. I knew that my upbringing is strongly tied to who I am today, but because it has been so long since I was a child, I once again saw how I am tied to who I was. One day, I will be 60 years old, and I will again be surprised by this realization.

**What will you do to change?**

After spending the past decade going to therapy, I've been educated on who I am as a person. It was only recently in my life that I got better at the skill of noticing the moment when I will be anxious and respond appropriately. I've started to think "is this goal realistic?", or "This e-mail is good enough, it doesn't have to be perfect". And this was huge for me. I was so anal about so much, but I've learned to replace my unhealthy thoughts with ones that were more positive and realistic. This project has helped me with the first phase, which was identifying areas for me to address. I think I am already on the way to changing for the better.



## What I've learned

My thoughts and emotions are part of complex networks imprinted onto the fabric of who I am. These networks are tangled and messy. It's tough work to make sense of them. Starting with what was obvious, my muscle soreness represented how anxious I felt. The more anxious I got, the more tense my muscles would be. What causes my anxiety? The major cause was feeling overwhelmed. I was overwhelmed because I worked too hard. Why? Because I wanted to avoid failure. Why? Because I was a perfectionist and had really high expectations. This starts the cycle of wanting to do more to not make mistakes, and thus I start to overwork myself and try to do 10 things all at once. I feel overwhelmed and helpless. I start to feel anxious and my muscles tense up trying to tell me to slow down.

I go in circles and engage with familiar habits. Habits are hard to break. It's hard to change behaviours. It's very hard to change as a person. It takes time and patience. It takes a lot of dedication and discipline to improve myself. I did this project determined to improve who I was as a person. I continue to struggle with managing my emotions and thoughts. I have chronic pain from muscle soreness, and it affects my life daily. Through this project, I have learned new trends about how I think and developed more awareness of my feelings. This is important. I don't think I can avoid feeling stressed out or feeling anxious, but understanding why I am feeling it helps me cope. It will help me make sense of my mental state and allow me to have compassion for myself.

I've learned that when I show others my vulnerability, I allow others to do the same. I hoped that through this project, people have a better understanding of what it's like to live with anxiety and that they know there is hope for things to get better. I hope my work normalizes mental health and empowers people to talk about it.

# Methodology and Limitations

## Methodology

Data was collected from April 22, 2019 to June 21, 2019. I created a survey with Google Forms and saved the survey link as a notification on my calendar every day. Every morning, I would complete the survey as I commuted to work. It was very challenging to commit to this routine as it was emotionally taxing. Interestingly, I could only complete the survey with the appropriate situational context. On days when I worked from home, I just couldn't complete the survey. But on days when I took the train to work, I would always complete the because it became part of my routine.

The survey was loosely based on CBT (cognitive behavioural therapy). Data was structured around situations, thoughts, and feelings. Situations refer to the environment and is the source that can trigger certain thoughts or feelings. Examples could be being late due to train delays or getting last-minute requests at work. Feelings are the knee-jerk responses we can have to the situation around us. So if I will be late for work, then my knee-jerk feeling is anxiety and irritation. Thoughts are the stories that we tend to tell ourselves. For people who face mental health challenges, these thoughts are often distorted, and are categorized into cognitive distortions. Additional data was collected such as physical aches, sleep, eczema flare-ups, physical exercise, and energy levels.

The data was organized and analyzed with Excel and PowerPoint. I created basic charts to see trends and gather insights. The results were created with Adobe Illustrator and compiled together in Adobe InDesign.

## Limitations

Initially, I was going to collect the data two times a day: the first was as I commuted to work, and the second was as I commuted home. I had a hard time maintaining this routine beyond a week. Trying to collect data as I was exhausted from a day's worth of work was painful. To avoid dropping out of this project, I only collected data once a day as I went to work. The limitation with this is that the data was collected at one point in time and doesn't better represent my mental state for the day. At any point in a day, I experience many emotions and only capturing it at one point in time does not reflect how I felt for the day. The

data shown in this project only reflects how I was feeling as I was going to work.

The list of emotions I collected data on was not complete prior to data collection. I made assumptions on feelings I would likely have. As I was collecting data, I realized that there were two main ones missing, it was 'overwhelmed' and 'restless'. I added these in during the data collection phase. As a result, continuity of data and interpretation of trends are affected.

The data I collected might have been biased by the time of the day. I completed the survey as I went to work, and I am not a morning person. So, it's likely that the data might seem and appear more negative than it really was. In addition, I went into this project with a mindset of learning something about myself that I could improve. The results show a more 'negative' types of emotions as 'positive' ones remained absent.

Data was consistently collected on weekdays as I went to work. In general weekends were skipped. Initially, I did collect data on the weekends but that proved to be very challenging as it was not in the context of going to work. A limitation of not collecting data on the weekend was that I missed out on rich data. I learned as I was doing this project that I was most stressed during the weekends. Compared to weekdays, my weekends were not structured, and I am always making decisions on what to do with the limited time I have off from work.



[janezhang.ca](http://janezhang.ca)